Trees, shrubs, or herbs, deciduous or evergreen. Stems erect, scandent, arching, prostrate, or creeping, armed or unarmed. Buds usually with several scales, sometimes with only 1. Leaves alternate, rarely opposite, simple or compound; stipules paired, free or adnate to petiole, rarely absent, persistent or deciduous; petiole usually 2-glandular apically; leaf blade often serrate at margin, rarely entire. Inflorescences various, from single flowers to umbellate, corymbose, racemose or cymose-paniculate. Flowers usually actinomorphic, bisexual, rarely unisexual and then plants dioecious. Hypantheium (formed from basal parts of sepals, petals, and stamens) free from or adnate to ovary, short or elongate. Sepals usually 5, rarely fewer or more, imbricate; epicylic segments sometimes also present. Petals as many as sepals, inserted below margin of disk, free, imbricate, sometimes absent. Disk lining hypantheium, usually entire, rarely lobed. Stamens usually numerous, rarely few, always in a complete ring at margin of or above disk; filaments usually free, very rarely connate; anthers small, didymous, rarely elongate, 2-locular. Carpels 1 to many, free, or ± connate and then adnate to inner surface of cupular receptacle; ovary inferior, semi-inferior, or superior; ovules usually 2 in each carpel, rarely 1 or several, anatropous, superposed. Styles as many as carpels, terminal, lateral, or basal, free or sometimes connate. Fruit a follicle, pome, achene, or drupe, rarely a capsule, naked or enclosed in persistent hypantheium and sometimes also by sepals. Seeds erect or pendulous, sometimes winged, usually exalbuminous, very rarely with thin endosperm; cotyledons mostly fleshy and convex abaxially, rarely folded or convolute.

Between 95 and 125 genera and 2825–3500 species: cosmopolitan, mostly in N temperate zone; 55 genera (two endemic) and 950 species (546 endemic) in China.

The Rosaceae are very well represented in China, with great economic and scientific importance. The Co-chairs of the Editorial Committee (Wu and Raven) here note that the patterns of relationship are complex and the group is taxonomically difficult. We consider the following treatment to be relatively traditional, with some of the generic treatments arguably out of date. The same applies to the arrangement of the subfamilies, among which the Maloideae may be the most advanced and should therefore appear last. We regard this account, the first comprehensive, English-language treatise of the Rosaceae of China, as preliminary, but consider it a useful guide for the recognition of species. Significant revisions of various groups within the family will certainly be necessary as taxonomic studies proceed.

Many plants of this family are of economic importance and contribute to people’s livelihoods. The Rosaceae contain a great number of fruit trees of temperate regions. The fruits contain vitamins, acids, and sugars and can be used both raw and for making preserves, jam, jelly, candy, various drinks, wine, vinegar, etc. The dried fruits of the genera *Amygdalus* and *Armeniaca* are of high commercial value. Some plants in the genus *Rosa* containing essential oils or with a high vitamin content are used in industry. Rosaceae wood is used for making various articles, stems and roots are used for making tannin extract, and young leaves are used as a substitute for tea. Numerous species are used for medical purposes or are cultivated as ornamentals.


1. Fruit a dehiscent follicle, rarely a capsule; carpels 1–5(–12); stipules present or absent ........................................ 1. Subfam. *Spiraeoideae*
2. Fruit indehiscent; stipules present.

3a. Ovary superior, rarely inferior; carpels (1 or)2–5, ± adnate to inner side of cupular receptacle; fruit a pome, sometimes berrylike, rarely small and drupaceous ........................................... 2. Subfam. *Maloideae*
3b. Ovary inferior or semi-inferior, rarely superior; carpels (1 or)2–5, ± adnate to inner side of cupular receptacle; fruit a drupe, rarely simple ..................................................... 3. Subfam. *Rosoideae*
4. Ovary inferior or semi-inferior, rarely superior; carpels 1, rarely simple ..................................................... 4. Subfam. *Pruinoideae*
1. Subfam. SPIRAEOIDEAE

绣线菊亚科  xiu xian ju ya ke

Shrubs, rarely herbs. Leaves alternate, simple, rarely compound; stipules absent or present; leaf blade entire or serrate at margin. Carpels 1–5(–12), free or basally connate, each with 2 to several pendulous, anatropous ovules. Fruit a follicle dehiscing along suture(s), rarely a capsule. x = 8, 9.

About 22 genera and 260 species: widespread in N hemisphere, but mostly absent from arctic regions, extending to S hemisphere in Indonesia (Java and Sumatra) and South America; eight genera and 99 species (67 endemic) in China.

1a. Flowers more than 2 cm in diam.; leaves simple; fruit a capsule; seeds winged .................................................. 8. Exochorda
1b. Flowers less than 2 cm in diam.; leaves simple or pinnate; fruit a follicle; seeds not winged.

2a. Carpels 1 or 2; leaves simple; stipules present, caducous.
3a. Inflorescences racemose or paniculate; hypanthium campanulate to cylindric; follicles usually more than 2-seeded ................................................................. 6. Neillia
3b. Inflorescences corymbose or paniculate; hypanthium cupular; follicles 1- or 2-seeded .................................. 7. Stephanandra

2b. Carpels (1–)5; leaves simple or pinnate; stipules present or absent.
4a. Leaves pinnate or 3-foliolate.
5a. Herbs perennial; leaves 1–3-pinnate; stipules absent; carpels 3 or 4(–8), free ...................................................... 3. Aruncus
5b. Shrubs; leaves pinnate; stipules present; carpels 5, connate at base ............................................................... 4. Sorbaria

4b. Leaves simple.
6a. Stipules present; follicles inflated, dehiscing along both sutures ............................................................. 5. Physocarpus
6b. Stipules absent; follicles not inflated, usually dehiscing along adaxial suture.

7a. Leaf blade usually serrate or lobed at margin, rarely entire; inflorescences umbellate, umbellate-racemose, corymbose, or paniculate; carpels free .......................................................... 1. Spiraea
7b. Leaf blade entire at margin; inflorescence a spike-like panicule; carpels connate at base ................................. 2. Sibiraea


绣线菊属  xiu xian ju shu
Lu Lingdi (陆玲娣 Lu Ling-di); Crinan Alexander

Shrubs deciduous. Winter buds small, with 2–8 exposed scales. Leaves alternate, usually shortly petiolate, simple; stipules absent; leaf blade veins usually pinnate, rarely 3–5 from base, margin serrate or incised, sometimes lobed, rarely entire. Flowers in umbels, umbel-like racemes, corymbs, or panicles, bisexual, rarely ± unisexual. Hypanthium campanulate or cupular, lined by nectariferous disk. Sepals 5, valvate or slightly imbricate, usually slightly shorter than hypanthium. Petals 5, imbricate or contorted, usually longer than sepals. Stamens 15–60, borne between disk and petals. Disk annular; usually lobed. Carpels (3–5)–8, free; ovules (2 to) several per carpel, pendulous; styles terminal, subterminal, or abaxial; stigma capitate or disciform. Follicles bony, often dehiscent along adaxial suture. Seeds linear to oblong, minute; testa membranous.

Between 80 and 100 species: N temperate zone, extending S to mountainous subtropical areas; 70 species (47 endemic) in China.


Many of the following species are ornamental, nectar-secreting plants long established in horticulture and often cultivated in gardens and parks.

In the following key, leads 1a and 1b are not quite mutually exclusive. If identifying plants with short, lateral inflorescences, it is advisable to work from lead 3a as well as 1b.

1a. Inflorescences borne on erect, long, leafy shoots of current year arising from base of shrub, sometimes on short, lateral branchlets arising from branches of previous year.
2a. Inflorescences paniculate, oblong or pyramidal ................................................................. 1. S. salicifolia
2b. Inflorescences broadly compound corymbose.
3a. Inflorescences borne on erect, long, leafy shoots of current year.
4a. Inflorescences glabrous; flowers white; follicles erect ............................................................. 7. S. fritschiana
4b. Inflorescences pubescent; flowers usually pink, rarely purple-red; follicles divergent.
5a. Leaf blade base truncate to rounded; petiole (2–)4–8 mm.
6a. Branchlets glabrous; leaf blades 3–7 cm, glabrous on both surfaces, margin crenate to doubly serrate; flowers bisexual, dark purple-red ....................................................... 5. S. purpurea
6b. Branchlets pubescent or subglabrous; leaf blades 2–4 cm, slightly pubescent on veins on both surfaces or glabrous adaxially, margin sharply serrate or doubly serrate; flowers usually ± unisexual, pink, rarely white ............................................................. 6. S. bella
5b. Leaf blade base cuneate to broadly so; petiole 1–3 mm.
7a. Leaf blades glabrous on both surfaces; inflorescences to 5 × 5.5 cm ............................................. 4. S. hayata
7b. Leaf blades pubescent on both surfaces or only on veins; inflorescences 6–12 × 4–14 cm.
8a. Branchlets glabrous or pubescent when young; leaf blades doubly incised serrate at margin, rarely
singly serrate, apex acute to acuminate .................................................................................................. 2. S. japonica
8b. Branchlets densely yellow pubescent when young; leaf blades doubly serrate at margin, apex acute
.................................................................................................................................................. 3. S. formosana
3b. Inflorescences borne on short, lateral branchlets arising from branches of previous year.
9a. Buds obtuse at apex, with several exterior scales.
10a. Stamens 2–3 × as long as petals ........................................................................................................ 8. S. miyabei
10b. Stamens shorter than to nearly equaling petals.
11a. Leaf blade margin with a few teeth above middle or near apex.
12a. Follicles glabrous or hairy only along adaxial suture ................................................................. 11. S. sargentiana
12b. Follicles hairy.
13a. Bracts 2–4 mm; follicles thinly villous ....................................................................................... 9. S. henryi
13b. Bracts 4–6 mm; follicles densely pubescent .............................................................................. 12. S. wilsonii
11b. Leaf blade margin entire, rarely with a few teeth apically.
15a. Leaf blades glabrous on both surfaces or thinly villous along margin; branchlets angled ......... 16. S. schneideriana
15b. Leaf blades softly hairy abaxially or on both surfaces; branchlets terete.
16a. Follicles glabrous ....................................................................................................................... 15. S. veitchii
16b. Follicles softly hairy.
17a. Inflorescences glabrous; leaf blades glabrous or sparsely pubescent only on veins abaxially ....... 14. S. ovalis
17b. Inflorescences and both surfaces of leaf blades softly hairy.
18a. Inflorescences sparsely villous; leaf blades 10–30 × 5–10 mm, villous on both surfaces,
adaxially without papillae, margin entire or apically with a few teeth .............................................. 12. S. wilsonii
18b. Inflorescences densely and thinly pubescent; leaf blades 6–11 × 4–7 mm, thinly pubescent
on both surfaces when young, later glabrescent, adaxially with papillae, margin entire ..... 13. S. teretiuscula
9b. Buds acute to acuminate at apex, with 2 exterior scales.
19a. Leaf blade margin entire or with a few teeth above middle.
20a. Branchlets cylindric or slightly angled; inflorescences glabrous ......................................................... 28. S. uratensis
20b. Branchlets angled; inflorescences puberulous to pubescent.
21a. Flowers red; leaf blades 0.8–1.2 cm, sometimes lobed apically; follicles usually glabrous, rarely
puberulous on adaxial suture ........................................................................................................ 25. S. arcuata
21b. Flowers white; leaf blades 1–3 cm, not lobed apically; follicles pubescent.
22a. Leaf blades ovate or obovate to obovate-lanceolate, 1–2 cm, pubescent abaxially, margin
obtusely 3–5-dentate above middle ..................................................................................................... 26. S. canescens
22b. Leaf blades oblong to ovate- or obovate-oblong, 1.5–3 cm, glabrous on both surfaces, margin
often entire ........................................................................................................................................... 27. S. trichocarpa
19b. Leaf blade margin singly or doubly serrate, sometimes incised.
23a. Shrubs small, shorter than petioles.
24a. Shrubs to 3 m tall; leaf blades abaxially slightly hairy on veins.
25a. Leaf blades elliptic to elliptic-ovate, margin sharply singly serrate; inflorescences and hypanthium
abaxially softly hairy .......................................................................................................................... 17. S. teniana
25b. Leaf blades ovate to elliptic-ovate, margin obtusely singly or doubly serrate; inflorescences and
hypanthium abaxially glabrous ......................................................................................................... 18. S. hingshanensis
24b. Shrubs to 0.5 m tall; leaf blades abaxially glabrous.
26a. Leaf blades ovate or rhomboid-ovate, margin sharply singly serrate above middle; flowers
white; ovary basally slightly pubescent ............................................................................................ 19. S. morrisonicola
26b. Leaf blades ovate, margin doubly serrate; flowers pink; ovary glabrous ..................................... 20. S. kweichowensis
23b. Buds usually large, nearly equaling or longer than petiole, very rarely shorter.
27a. Inflorescences and follicles subglabrous or pilose ........................................................................ 24. S. longigemmis
27b. Inflorescences and follicles densely softly hairy.
28a. Buds glabrous; leaf blades abaxially pubescent ........................................................................... 23. S. rosthornii
28b. Buds densely tomentose-villos; leaf blades abaxially sericeous-villos, sometimes glabrescent.
29a. Petioles 3–5 mm; leaf blades ovate or ovate-lanceolate, abaxially sericeous-villos, later
glabrescent, margin often entire ................................................................................................. 21. S. velutina
1b. Inflorescences borne on short, lateral branchlets arising from (often arching) branches of previous year.

30a. Flowers in sessile umbels, with or without leaves at base.
30a. Leaf blade margin entire or with a few crenate teeth near apex; stamens equaling petals or nearly so.
30b. Flowers in pedunculate umbels or umbel-like racemes, with clustered leaves at base.
31a. Leaf blade margin serrate or slightly lobed; stamens shorter than petals.
31b. Leaf blade margin serrate or slightly lobed; stamens shorter than petals.

42a. Buds with 2 exterior scales.
42b. Buds with several exterior scales.
43a. Leaf blade margin serrate; stamens longer than petals; sepals reflexed in fruit.
43b. Leaf blade margin entire or apically crenate-serrate; stamens subequaling petals; sepals erect or spreading in fruit.

35b. Branchlets densely pubescent, later glabrescent; leaf blades abaxially densely pubescent when old.
35a. Branchlets densely pubescent, later glabrescent; leaf blades abaxially densely pubescent when young; follicles glabrous or slightly pilose on adaxial suture.
35b. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
35b. Branchlets densely pubescent, later glabrescent; leaf blades abaxially densely pubescent when young; follicles glabrous or slightly pilose on adaxial suture.
35a. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
35b. Branchlets densely pubescent, later glabrescent; leaf blades abaxially densely pubescent when young; follicles glabrous or slightly pilose on adaxial suture.
35a. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
35b. Branchlets densely pubescent, later glabrescent; leaf blades abaxially densely pubescent when young; follicles glabrous or slightly pilose on adaxial suture.
35a. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
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35a. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
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35a. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
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35a. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
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35a. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
35b. Branchlets densely pubescent, later glabrescent; leaf blades abaxially densely pubescent when young; follicles glabrous or slightly pilose on adaxial suture.
35a. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
35b. Branchlets densely pubescent, later glabrescent; leaf blades abaxially densely pubescent when young; follicles glabrous or slightly pilose on adaxial suture.
35a. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent; stamens slightly shorter than petals.
ROSACEAE

53b. Flowers pink-red; styles abaxial, suberect ................................................................. 51. S. xizangensis

52b. Leaf blade margin serrate or incised, sometimes lobed.

55a. Stamens longer than or rarely subequaling petals; flowers in umbel-like racemes.

55b. Stamens shorter than or subequaling petals; flowers in umbels.

56a. Follicles pubescent or hirsute; sepals erect in fruit.

56b. Follicles glabrous or subglabrous; sepals reflexed in fruit.

59a. Leaf blades ovate to elliptic-ovate, glabrous or abaxially with tufted hairs in vein axils, margin singly
serrate, leaves on sterile shoots often incised doubly serrate .................................................... 43. S. laeta

59b. Leaf blades oblong or ovate, margin with a few coarse teeth.

60a. Leaf blades sericeous-villosus on both surfaces, margin with 3–7 large, acute teeth on each side
above middle; inflorescences 12–20-flowered; flowers 8–10 mm in diam. .............................. 44. S. papilloosa

60b. Leaf blades glabrous on both surfaces, margin with 3–5 inconspicuous, triangular, obtuse teeth
on each side above middle; inflorescences 5–10-flowered; flowers 10–12 mm in diam. .......... 45. S. lichiangensis

55b. Stamens shorter than or subequaling petals; flowers in umbels.

61a. Leaf blades, inflorescences, and follicles glabrous.

61a. Leaf blade apex acute.

63a. Leaf blade rhombic-lanceolate to rhombic-oblong, pinnately veined, margin serrate above
middle ........................................................................................................................................... 36. S. cantoniensis

63b. Leaf blade rhombic-ovate, inconspicuously 3-veined or pinnately veined, margin usually
3-lobed, incised doubly serrate ..................................................................................................... 37. S. xvanhouttei

62b. Leaf blade apex obtuse.

64a. Leaf blades suborbicular, 3–5-veined, base rounded to subcordate, rarely cuneate, margin with a
few crenate teeth above middle, apex usually 3-lobed ............................................................... 38. S. trilobata

64b. Leaf blades rhombic-ovate to obovate, inconspicuously 3-veined or pinnately veined, base
cuneate, margin with a few crenate, incised teeth or 3–5 lobes above middle ........................... 39. S. blumei

61b. Leaf blades hairy abaxially.

65a. Inflorescences glabrous; follicles glabrous except on adaxial suture ..................................... 35. S. pubescens

65b. Inflorescences and follicles hairy.

66a. Leaf blades glabrous adaxially, pilose or subglabrous abaxially ........................................... 34. S. siccanea

66b. Leaf blades pilose adaxially.

67a. Leaf blades pubescent abaxially.

68a. Leaf blades abaxially sericeous-pubescent, margin coarsely obtusely dentate, apex usually
3-lobed; inflorescences 2–3 cm in diam.; pedicels 6–10 mm ...................................................... 29. S. nishimurae

68b. Leaf blades abaxially sparsely pubescent, margin obtusely or sharply serrate above middle
or near apex, apex not 3-lobed; inflorescences 4–5 cm in diam.; pedicels 12–22 mm ............... 30. S. hirsuta

67b. Leaf blades tomentose abaxially.

69a. Sepals ovate-lanceolate; leaf blades abaxially densely yellow tomentose, deeply sharply
incised serrate ................................................................................................................................. 31. S. chinensis

69b. Sepals triangular to ovate-triangular; leaf blades abaxially densely white tomentose,
shallowly obtusely serrate.

70a. Leaf blades rhombic-ovate, 2–4.5 cm, margin obtusely incised serrate or lobed, apex
acute, rarely obtuse ....................................................................................................................... 32. S. daszyantha

70b. Leaf blades ovate to obovate, 1–2 cm, margin ± obtusely serrate or doubly serrate,
apex obtuse or slightly 3-lobed ..................................................................................................... 33. S. yunnanensis


柳叶绣线菊  liu ye xiu xian ju

Shrubs erect, to 2 m tall. Branchlets dense, yellowish brown, slightly angled, pubescent when young, later glabre-
scent; buds ovoid to oblong-ovoid, 3–5 mm, with several brown scales, apex acute. Petiole 1–4 mm, glabrous; leaf blade ob-
long-lanceolate to lanceolate, 4–8 × 1–2.5 cm, glabrous, occasion-
ally thinly pubescent on margin, base cuneate, margin entire to densely and sharply serrate or deeply incised doubly
serrate, apex acute or acuminate. Panicles oblong to pyramidal, 6–13 × 3–5 mm, densely many flowered; rachis and pedicels thinly pubescent; pedicels 4–7 mm; bracts lanceolate to linear-lanceolate, 6–10 mm, slightly thinly pubescent, margin entire or with a few teeth. Flowers 5–7 mm in diam. Hypanthium campanulate, puberulous abaxially. Sepals triangular, 1–1.5 mm, ascending in fruit. Petals pink, ovate, 2–3.5 × 2–2.5(–3) mm, apex often obtuse. Stamens ca. 30, nearly 2 × as long as petals. Disk annular, with crenulate lobes. Carpels sparsely pubescent; styles shorter than stamens. Follicles erect, almost parallel, glabrous or sparsely pubescent on adaxial suture; styles recurved. Fl. Jun–Aug, fr. Aug–Sep.

River banks, meadows in valleys, damp grasslands, gullies, slopes, clearings; 200–900 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi [Japan, Korea, Mongolia, Russia; Europe, North America].

1a. Leaf blade margin entire or distantly shallowly serrate above middle, thinly pubescent ............................................... 1c. var. oligodonta

1b. Leaf blade margin deeply serrate, not pubescent.

2a. Leaf blade margin densely sharply serrate, sometimes doubly serrate .................................................. 1a. var. salicifolia

2b. Leaf blade margin deeply incised doubly serrate ............... 1b. var. grosseserrata

1a. Spiraea salicifolia var. salicifolia

柳叶绣线菊(原变种) liu ye xiu xian ju (yuan bian zhong)

Leaf blade margin densely sharply serrate, sometimes doubly serrate.

River banks, damp grasslands, gullies, clearings; 200–900 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi [Japan, Korea, Mongolia, Russia; Europe, North America].


巨齿绣线菊 ju chi xiu xian ju

Leaf blade margin deeply incised doubly serrate.

● River banks, slopes. Heilongjiang, Jilin.


贫齿绣线菊 pin chi xiu xian ju

Leaf blade margin entire or distantly shallowly serrate above middle, thinly pubescent.

● Meadows in valleys; ca. 700 m. Heilongjiang, Nei Mongol.

2. Spiraea japonica Linnæus f., Suppl. Pl. 262. 1782.

绣线菊 xiu xian ju

Shrubs erect, to 1.5 m tall. Branchlets brownish to purple-brown, slender, suberete, glabrous or pubescent when young; buds ovoid, 3–5 mm, with several scales, puberulous, apex acute. Petiole 1–3 mm, pubescent; leaf blade abaxially paler or glaucous pruinose, adaxially dark green, ovate or ovate-elliptic to lanceolate or oblong-lanceolate, 2–16 × 1–4 cm, abaxially usually pubescent on veins, adaxially glabrous or puberulous on veins, base cuneate to rounded, margin crenate to doubly serrate, rarely singly serrate, apex obtuse or acute to acuminate. Corymb terminal on erect, long, leafy shoots of current year, compound, 6–14 × 2.5–14 cm, many flowered; rachis and pedicels densely pubescent; pedicels 4–6 mm; bracts lanceolate to linear-lanceolate, sometimes to 1 cm, abaxially puberulous. Flowers 4–7 mm. Hypanthium campanulate, sparsely pubescent abaxially. Sepals triangular, 1.5–2 mm, erect in fruit, apex acute. Petals usually pink, sometimes white, ovate to orbicular, 2.5–3.5 × 2–3 mm, apex obtuse. Stamens 25–30, much longer than petals. Disk annular, irregularly crenulate. Follicles divergent, glabrous or pilose on adaxial suture; styles ascending. Fl. Jun–Jul, fr. Aug–Sep.

Forests, forested slopes, forest clearings, thickets, grassy slopes, mountain valleys, gullies, river banks, alpine steppes, rocky and stony places; also commonly cultivated; 700–4000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hebei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Xinjiang, Yunnan, Zhejiang [Japan, Korea].

Eight varieties may be recognized in China. In addition, Spiraea japonica var. stellaris Rehder (in Sargent, Pl. Wilson. 1: 452. 1913) was described on the basis of a fruiting specimen (A. Henry 9280) from SE Yunnan (Mengzi Xian).

1a. Leaf blades glabrous on both surfaces.

2a. Inflorescences glabrous ......................... 2h. var. glabra

2b. Inflorescences pubescent.

3a. Leaf blades elliptic or broadly ovate, 2–4 cm, margin crenulate to doubly serrate, apex obtuse or subacute; inflorescences 7–12 cm in diam.; flowers white ................................. 2f. var. ovalifolia

3b. Leaf blades oblong-lanceolate, 5–10 cm, margin sharply doubly serrate, apex shortly acuminate; inflorescences 4–8 cm in diam.; flowers pink ...................... 2g. var. fortunei

1b. Leaf blades pubescent abaxially.

4a. Leaf blade apex acute.

5a. Leaf blades ovate to ovate-elliptic, base cuneate, margin incised doubly serrate, rarely singly serrate; inflorescences 4–14 cm in diam. ................................. 2a. var. japonica

5b. Leaf blades ovate to elliptic, base broadly cuneate to rounded, margin distantly doubly serrate; inflorescences 2.5–4 cm in diam. ................................. 2b. var. acuta

4b. Leaf blade apex acuminate.

6a. Leaf blade margin not pinnatifid, sharply doubly serrate .......... 2c. var. acuminata

6b. Leaf blade margin incised pinnatifid and doubly serrate.

7a. Leaf blades ovate-oblong to oblong-lanceolate, 6–9 × 1–3 cm, base broadly cuneate to
2a. **Spiraea japonica** var. **japonica**

Leaf blades ovate to ovate-elliptic, base cuneate, margin incised doubly serrate, rarely singly serrate. Inflorescences 4–14 cm in diam.

Commonly cultivated in China [native to Japan and Korea].


Leaf blades ovate to elliptic, base broadly cuneate to rounded, margin distinctly doubly serrate. Inflorescences 2.5–4 cm in diam.

- Mixed forests, grassy slopes; 2500–2700 m. Guizhou, Sichuan, Yunnan.


Leaf blades long ovate to lanceolate, base cuneate, margin sharply doubly serrate. Inflorescences 10–14 cm in diam.

- Clearings in mixed forests, mountain valleys, river banks; 900–4000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.


Leaf blades oblong-lanceolate, 13–16 × 3–4 cm, base cuneate, margin incised pinnatifid, sharply doubly serrate. Inflorescences 7–14 cm in diam.

- Slopes in mixed forests; ca. 2900 m. Xizang.


Leaf blades elliptic to broadly ovate, 2–4 cm, margin crenate to doubly serrate, apex obtuse or subacute. Inflorescences 7–12 cm in diam. Flowers white.

- Forested slopes, rocky places, gullies; 2500–3800 m. Sichuan, Yunnan.

2g. **Spiraea japonica** var. **fortunei** (Planchon) Rehder in L. H. Bailey, Cycl. Amer. Hort. 4: 1703. 1902.

Leaf blades oblong-lanceolate, 5–10 cm, margin sharply doubly serrate, apex shortly acuminate. Inflorescences 4–8 cm in diam. Flowers pink.

- Slopes and open spaces in mixed forests; 700–3000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.


Leaf blades oblong-lanceolate, 5–10 cm, margin sharply doubly serrate, apex obtusely rounded to shortly acuminate. Inflorescences 6–12 cm in diam. Flowers pink.

- Forests, stony places; 1600–1900 m. Anhui, Hubei, Jiangxi, Sichuan, Yunnan, Zhejiang.


Leaf blades oblong-lanceolate, 13–16 × 3–4 cm, base cuneate, margin incised pinnatifid, sharply doubly serrate. Inflorescences 7–14 cm in diam.

- Slopes in mixed forests; ca. 2900 m. Xizang.

假绣线菊 jia xiu xian ju


Shrubs to 1.5 m tall. Branchlets reddish brown, slender; young branchlets terete, puberulous. Petiole 1–2 mm, winged, pubescent; leaf blade paler abaxially, green adaxially, ovate-oblong, 2–3.5 × 1–1.8 cm, papery, glabrous on both surfaces, midvein and 4 or 5 pairs of lateral veins raised abaxially, slightly depressed adaxially, base cuneate, margin sharply doubly serrate, apex acute to acuminate. Corymb terminal, compound, to 5 × 5.5 cm; rachis and pedicels finely pubescent; pedicels slender, 3–4 mm, to 6–8 mm in fruit; bracts subulate, ca. 1 mm. Flowers 4–5 mm in diam. Hypanthium rotate-campanulate, pubescent abaxially. Sepals triangular, 0.5–1 mm, apex subacute. Petals obovate, 2–3 mm, apex obtuse or submarginate. Stamens ca. 20, long exerted; filaments 4–5 mm. Follicles erect, 2–3 mm, glabrous, slightly rostrate.

- Montane regions; 3000–3500 m. C Taiwan.


紫花绣线菊 zi hua xiu xian ju

Shrubs to 1.2 m tall. Branchlets much branched in upper part, red or red-brown, terete, glabrous; buds brownish, small, with several scales, glabrous, apex shortly acuminate. Petiole 6–8 mm, slightly narrowly winged; leaf blade glaucous green abaxially, yellow-green when dry adaxially, ovate, 3–7 × 1–3 cm, glabrous on both surfaces, without papillae abaxially, midvein and 6–8 pairs of lateral veins prominent, base truncate to subrounded, margin crenate to doubly serrate, slightly revolute, apex obtuse or acute. Corymb terminal, long pedunculate, compound, 5–7 × 5–6 cm, densely numerous flowered; rachis and pedicels pubescent; pedicels 2–4 mm; bracts linear or linear-lanceolate, 2–4 mm. Flowers bisexual, 6–7 mm in diam. Hypanthium rotate-broadly campanulate, glabrous or puberulous abaxially. Sepals triangular-ovate, 1.5–2.5 mm, reflexed in fruit, apex acute. Petals pinkish, rarely white, suborbicular, longer than sepals, glabrous, base shortly clawed. Stamens ca. 20, reduced and shorter than petals in female flowers, longer than petals in male flowers. Disk annular, 10-lobed. Carpels pubescent, reduced in male flowers. Follicles spreading, puberulous, sometimes only so on adaxial suture; styles spreading. Fl. May–Jun, fr. Aug–Sep.

Broad-leaved, coniferous, or mixed forests, thickets on slopes; 2300–3600 m. SW Sichuan, S Xizang, NW Yunnan [Blutan, India, Nepal, Sikkim].

6a. *Spiraea bella* var. *bella*

藏南绣线菊 zang nan xiu xian ju (yuan bian zhong)

Follicles puberulous only on adaxial suture.

- Mixed forests, thickets on slopes; 2400–3600 m. SW Sichuan, S Xizang, NW Yunnan [Blutan, India, Nepal, Sikkim].

6b. *Spiraea bella* var. *pubicarpa*

毛果藏南绣线菊 mao guo zang nan xiu xian ju

Follicles pubescent throughout.

- Mountain broad-leaved or coniferous forests; 2300–2600 m. S Xizang.

One of us (L.) believes that *Spiraea hemicyryptophyta* Grierson (Notes Roy. Bot. Gard. Edinburgh 44: 262. 1987), described from China (SE Xizang, NW Yunnan), N Myanmar, Nepal, and Sikkim, may be synonymous with *S. bella* and that further study is necessary to determine its identity. The new species was said to differ from *S. bella* in having stems annual, rarely branched, 20–40 cm tall, and coryms all terminal.


华北绣线菊 hua bei xiu xian ju

Shrubs 1–2 m tall. Branchlets purple-brown to brownish, lustrous, robust, conspicuously angled, glabrous or sparsely pubescent when young, later glabrescent; buds ovoid, 5–6 mm, with several brown scales, sparsely pubescent when young, apex acuminate or acute. Petiole 2–5 mm, pubescent initially, later glabrescent; leaf blade pale green abaxially, dark green adaxially, ovate, elliptic-ovate, or elliptic-oblong, 1.5–8 × 1.0–3.5 cm, pubescent abaxially, glabrous adaxially, rarely sparsely pubescent on veins, base broadly cuneate, margin irregularly doubly or singly serrate, apex acute or acuminate. Corymb terminal on erect, long, leafy shoots of current year, compound, 5–8 × 6–10 cm, numerous flowered; rachis and pedicels glabrous; pedicels 4–7 mm; bracts lanceolate or linear, 4–7 mm,

- Forests, forest margins, cliffs, slopes, rocky places; 100–2400 m. Anhui, Gansu, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jiangxi, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang.

1a. Leaf blades ± pubescent on both surfaces, or glabrous adaxially, base broadly cuneate; fruiting inflorescences more than 6 cm in diam. ........................................... 7a. var. *fritschiana*

1b. Leaf blades glabrous on both surfaces, base rounded; fruiting inflorescences 3–8 cm in diam.

2a. Leaf blades oblong-ovate, 2.5–8 × 1.5–3 cm; fruiting inflorescences 3–8 cm in diam. ......................... 7b. var. *angulata*

2b. Leaf blades broadly ovate, ovate-elliptic, or suborbicular, 1.5–3 × 1–2 cm; fruiting inflorescences 3–6 cm in diam. ....................... 7c. var. *parvifolia*

7a. **Spiraea fritschiana** var. *fritschiana*

华北绣线菊（原变种） hua bei xiu xian ju (yuan bian zhong)


Leaf blades 3–8 × 1.5–3.5 cm, ± pubescent on both surfaces or glabrous adaxially, base broadly cuneate. Fruiting inflorescences more than 6 cm in diam.


大叶华北绣线菊 da ye hua bei xiu xian ju


Leaf blades oblong-ovate, 2.5–8 × 1.5–3 cm, glabrous on both surfaces. Fruiting inflorescences 3–8 cm in diam.

- Mixed forests, forest margins, cliffs, rocky places; 200–2400 m. Anhui, Gansu, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Liaoning, Shaanxi, Shandong, Shanxi.


小叶华北绣线菊 xiao ye hua bei xiu xian ju

Leaf blades broadly ovate, ovate-elliptic, or suborbicular, 1.5–3 × 1–2 cm, glabrous on both surfaces. Fruiting inflorescences 3–6 cm in diam.

7b. **Spiraea fritschiana** var. *angulata*


长蕊绣线菊 chang rui xiu xian ju

*Spiraea miyabei* Koidzumi.

Shrubs erect, 1–2 m tall. Branchlets red-brown or gray-brown, terete or slightly angled, pubescent when young, finally glabrous; buds ovoid, 1–2 mm, with several scales, glabrous, apex subobtuse. Petiole 2–5 mm, glabrous; leaf blade occasionally glaucous abaxially, ovate or oblong-ovate to broadly lanceolate, 4–7 × 1–2 cm, membranous, glabrous or slightly puberulous on both surfaces, veins slightly raised abaxially, base subrounded or broadly cuneate, margin sharply serrate or doubly serrate, sometimes incised serrate, apex acute to acuminate. Cormyrs terminal, compound, 4–6(–8) × 3–6 cm, many flowered; rachis and pedicels glabrous or pubescent; pedicels 6–10 mm; bracts linear, 2–3 mm. Flowers 6–7 mm in diam. Hypanthium campanulate or obconic, glabrous abaxially. Sepals triangular-ovate, 1.5–2 mm, spreading in fruit. Petals white, orbicular or obovate, (2–)3–4 × 2–3 mm, glabrous, base shortly clawed. Stamens 20–25, 2–3 × as long as petals. Disk annular, crenulate. Carpels fusiform, slightly tomentose; styles terminal, nearly equaling carpels, much shorter than stamens. Follicles 1.5–1.8 × 0.7–0.8 mm, slightly gray tomentose; styles recurved. Seeds linear. Fl. May–Jun, fr. Jul–Aug.

- Mixed forests, mountain forests, slopes, gullies; 1000–2000 m. Anhui, Hubei, Shaanxi, Sichuan, Yunnan [Japan].

Three varieties occur in China; var. *miyabei* is native to Japan.

1a. Leaf blades ± pubescent on both surfaces, more densely so abaxially ......................... 8c. var. *pilosula*

1b. Leaf blades glabrous on both surfaces.

2a. Leaf blades 5–7 cm, not glaucescent abaxially, base subrounded or broadly cuneate; petiole 3–5 mm .................. 8a. var. *grabrata*

2b. Leaf blades to 7 cm, glaucescent abaxially, base cuneate; petiole to 1 cm ......................... 8b. var. *tenuifolia*


无毛长蕊绣线菊 wu mao chang rui xiu xian ju

Petiole 3–5 mm; leaf blade not glaucescent abaxially, 5–7 cm, glabrous on both surfaces, base subrounded or broadly cuneate. Inflorescences and hypanthium abaxially glabrous.


细叶长蕊绣线菊 xi ye chang rui xiu xian ju

Petiole to 1 cm; leaf blade glaucescent abaxially, to 7 cm, glabrous on both surfaces, base cuneate. Inflorescences and hypanthium abaxially glabrous.

- Mountain slopes. C Sichuan (Emei Shan).

Leaf blades ± pubescent on both surfaces, more densely so abaxially, base cuneate. Inflorescences and hypanthium abaxially sparsely pubescent.

- Mountain forests; 1000–1600 m. Hubei, Sichuan, Yunnan.


- Shrubs 1–3 m tall. Branchlets brownish, red-brown, or gray-brown, terete, pubescent when young, later glabrescent; buds brown when young, ovoid, with several scales, pubescent when young, apex usually obtuse, rarely acute. Petiole 2–5 mm, thinly villous; leaf blade adaxially dark green, elliptic, elliptic-oblong, or obovate-oblong, 2–7 × 0.8–2.3 cm, abaxially densely thinly villous, more densely on veins, adaxially glabrous or sparsely softly hairy, base cuneate, margin sometimes with a few coarse teeth above middle, sometimes entire, apex acute or subobtuse. Corymb terminal on short, lateral branchlets, compound, 3–7 × 4–7 cm, many flowered; rachis and pedicels densely dark yellow villous; pedicels 5–8 mm; bracts lanceolate, rarely narrowly elliptic, 2–4 mm, more densely villous abaxially, sparsely so adaxially. Flowers 5–6 mm in diam. Hypanthium campanulate, ± thinly villous. Sepals ovate-triangular, 1–1.5 × 1–1.5 mm, erect in fruit, apex acute. Petals white, broadly obovate to suborbicular, 2–2.5 × 2–3 mm, glabrous, base shortly clawed, apex often emarginate, rarely obtuse. Stamens ca. 20, nearly equallying petals. Disk annular, with 10 thick, globular lobes. Styles slightly shorter than stamens. Follicles spreading, thinly villous; styles terminal, slightly divergent. Fl. Apr–May, fr. Jul–Aug.

- Mountain forests, roadside thickets, foothills, slopes; 1300–3000 m. Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Yunnan.

9a. Spiraea henryi var. henryi

- Leaf blades densely thinly villous abaxially. Inflorescences villous.

- Mountain forests, foothills, rocky slopes; 1500–3000 m. Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Yunnan.


- Shrubs 1.5–2.5 m tall. Branchlets spreading, arching, Roadside thickets, slopes; 1300–1500 m. C Sichuan (Emei Shan).


- Shrubs erect. Branches arching; branchlets brown or red-brown, angled, densely yellow villous initially, finally glabrescent; buds ovoid, with several scales, pubescent, apex acute. Petiole 1–2 mm, densely villous; leaf blade abaxially yellowish initially, later turning gray, adaxially dark green, elliptic to obovate-elliptic, 1.5–2 × 0.8–1 cm, abaxially densely tomentose initially, later papillose, adaxially sparsely tomentose, lateral veins 3 or 4 on each side of midvein, base broadly cuneate, margin with a few coarse teeth above middle or near apex, apex acute or subobtuse and mucronate. Corymb terminal on lateral branchlets, compound, 2–4 × 2.5–3.5 cm, densely many flowered; rachis and pedicels densely dark yellow villous; pedicels 1–2 mm; bracts lanceolate to narrowly elliptic, 4–6 mm, villous. Hypanthium campanulate, villous abaxially. Sepals triangular, 1–1.5 mm, erect or spreading in fruit, apex subobtuse. Petals suborbicular, 2–2.5 mm in diam., glabrous, base shortly clawed. Stamens 25–30, nearly equaling stamens. Disk distinct, 10-lobed. Styles slightly shorter than sepals. Follicles somewhat erect, softly hairy; styles terminal, slightly divergent.

- Roadside thickets, slopes; 2000–2200 m. C Yunnan.


- Shrubs to 2 m tall. Branchlets spreading, red-brown to gray-brown, slender, terete, sometimes angled, pubescent when young, finally glabrous; buds brown, ovoid, small, with several scales, pubescent initially, apex subobtuse or acute. Petiole 1–3 mm, villous; leaf blade adaxially dark green, elliptic-oblong to obovate-oblong, 1–3 × 0.7–1.2 cm, abaxially densely thinly villous, adaxially sparsely villous, base cuneate, margin with a few teeth apically, apex acute. Corymb terminal on lateral branchlets, compound, 2.5–5 × 2.5–4 cm, many flowered; rachis and pedicels thinly villous; pedicels 2–5 mm; bracts long elliptic or oblong, 2–4 mm, thinly villous. Flowers 5–6 mm in diam. Hypanthium campanulate, villous abaxially. Sepals triangular, 1.5–2 mm, erect or reflexed in fruit, apex acute. Petals milky white, suborbicular, 2–3 × 2–2.5 mm, glabrous, base almost clawless, apex emarginate. Stamens ca. 20, nearly equaling petals. Disk annular, 10-lobed; lobes emarginate at apex. Carpels pubescent basally; styles shorter than stamens. Follicles spreading, glabrous or hairy on adaxial suture; styles terminal on abaxial side, slightly divergent. Fl. Jun–Jul, fr. Sep–Oct.

- Forested slopes, mountain valleys; 2000–2200 m. C Yunnan.

Shrubs 2–3 m tall. Branches spreading, slender; branchlets dark red-brown, turning brown or gray-brown when old, terete, glabrous; buds ovoid, small, with several scales, pubescent when young, finally glabrescent, apex obtuse. Petiole 3–5 mm, glabrous or puberulous; leaf blade abaxially greenish, adaxially dark green, broadly elliptic to obovoid, rarely obovate, 1.5–3.5 × 1–2 cm, glabrous on both surfaces or sparsely pubescent on veins abaxially, base broadly cuneate or subrounded, margin entire, rarely with a few shallow teeth apically, apex obtuse, rarely acute. Cormysbs terminal on lateral branchlets, compound, 3.5–6 × 3.5–5.5 cm, many flowered; rachis and pedicels glabrous; pedicels 4–7 mm; bracts elliptic to lanceolate, 7–10 × 1–1.5 mm, glabrous. Flowers 5–6 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals ovate-triangular, 1.5–2 mm, erect in fruit, apex acute. Petals white, broadly ovate or suborbicular, 1.5–2.5 × ca. 2 mm, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20, subequaling to slightly longer than petals. Disk annular, with 10 thick lobes. Carpels pubescent; styles shorter than stamens. Follicles spreading, puberulous; styles terminal on abaxial side.

- Mountain valleys, grasslands; 900–2500 m. Gansu, Henan, Hubei, Shaanxi, Sichuan, Xizang.


Shrubs 1–2 m tall. Branchlets red-brown, later gray-brown, angled, villous, later glabrescent; buds ovoid, with several brown scales, puberulous, later glabrous, apex obtuse or acute. Petiole 1–3 mm, thinly pubescent; leaf blade abaxially gray-green, glaucescent, adaxially green, oblong, elliptic, or obovate, 1.5–3 × 0.7–1 cm, abaxially sometimes thinly pubescent, adaxially glabrous, inconspicuously pinnately veined, base cuneate, margin entire, apex obtuse or mucronulate. Cormsbs terminal on lateral branchlets, compound, dense, 4–8 × 4.5–7 cm, numerous flowered; rachis and pedicels densely thinly pubescent; pedicels 3–4 mm. Flowers 4–5 mm in diam. Hypanthium campanulate, puberulous abaxially. Sepals triangular, 1–1.5 mm, erect in fruit, apex acute. Petals white, obovate or suborbicular, 1.5–2 × 1–2 mm, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20, somewhat longer than petals. Disk annular, 10-lobed; lobes shallow, apex usually slightly emarginate. Carpels subglabrous; styles shorter than stamens. Follicles spreading, small, glabrous; styles terminal on abaxial side, divergent. Fl. May–Jul, fr. Jul–Oct.


ROSACEAE
ovate-triangular, 1.5–2 mm, erect in fruit. Petals white, orbicular or ovate, 2–2.5 × 2 mm, glabrous, base shortly clawed, apex obtuse or emarginate. Stamens ca. 20, slightly longer than petals. Disk annular, 10-lobed; lobes sometimes emarginate at apex. Carpels puberulous; styles shorter than stamens. Follicles spreading, glabrous or puberulous only on adaxial suture; styles terminal on abaxial side, suberect or divergent. Fl. May–Jun, fr. Jul–Sep.

- Forests, forest margins, thickets, mountain valleys, rocky slopes, stream sides; 2500–4000 m. Fujian, Gansu, Hubei, Shaanxi, Sichuan, Xizang, Yunnan.

1a. Young branchlets and inflorescences thinly villose, rarely subglabrous

1b. Young branchlets and inflorescences usually glabrous

16a. **Spiraea schneideriana** var. **schneideriana**

川滇绣线菊 (原变种) chuan dian xiu xian ju (yuan bian zhong)

Young branchlets and inflorescences thinly villose, rarely subglabrous.

- Mixed forests, alpine coniferous forest margins, thickets; 2500–4000 m. Fujian, Hubei, Sichuan, Xizang, Yunnan.


无毛川滇绣线菊 wu mao chuan dian xiu xian ju

Young branchlets and inflorescences usually glabrous.

- Forests, mountain valleys, rocky slopes, stream sides; 2500–3800 m. Gansu, Shaanxi, Sichuan, Xizang, Yunnan.


伏毛绣线菊 fu mao xiu xian ju

Shrubs erect, 1–3 m tall. Branchlets brownish to brown, terete, sparsely pubescent initially, finally glabrous; buds small, with 2 scales, glabrous. Petiole 1–2 mm, subglabrous; leaf blade abaxially glaucous, adaxially dark green, elliptic or elliptic-ovate, 2–2.8 × 1.5–1 cm, abaxially acuminate pilose on veins, adaxially glabrous, lateral veins 4–6 on each side of midvein, slightly raised abaxially, base broadly cuneate, margin ciliate, sharply singly serrate except toward base, apex acute. Coryms terminal on short, lateral branchlets, compound, 2–3.5 × 3–4 cm, densely numerous flowered; rachis and pedicels acuminate pilose; bracts leaflike, unequal, larger ones 10–15 × 4–6 mm, smaller ones 7–10 × 2–3 mm. Flowers 4–5 mm in diam. Hypanthium campanulate, pilose abaxially. Sepals triangular, 1.1–1.5 mm, reflexed in fruit, apex mucronate. Petals white, suborbicular, 2–4 mm in diam., glabrous, base shortly clawed. Stamens very unequal, longer ones to 4 mm, exceeding petals, shorter ones nearly equaling petals. Disk annular, irregularly crenulate. Carpels pilose basally; styles somewhat longer than sepals. Follicles erect, divergent, pilose adaxially; styles terminal, mostly straightly spreading. Fl. May–Jun, fr. Sep–Oct.

- Moist mixed forests; 2000–2400 m. Yunnan.

Lu (Acta Phytotax. Sin. 38: 276. 2000) made the combination *Spiraea teniana var. mairei* (H. Lévêillé) L. T. Lu, based on *S. mairei* H. Lévêillé (Bull. Acad. Int. Géogr. Bot. 25: 43. 1915), described from NE Yunnan (Qiaojia Xian). However, if the two species are indeed conspecific, the name *S. mairei* (1915) has priority over *S. teniana* (1920).


兴山绣线菊 xing shan xiu xian ju

Shrubs 1–2 m tall. Branchlets brownish, glabrous; buds ovoid, with 2 scales, glabrous, apex acuminate. Petiole 5–7 mm, glabrous; leaf blade ovate to ovate-elliptic, 5.7–7.5 × 3–5.5 cm, abaxially softly hairy on veins and in vein axils, adaxially glabrous, base broadly cuneate, margin subobtusely singly serrate or doubly serrate, apex acute to shortly acuminate. Coryms terminal on short, lateral branchlets, compound, 5–7 × 4.6 cm, many flowered; rachis and pedicels glabrous; pedicels 4–6 mm; bracts lanceolate or narrowly elliptic, 3–3.5 mm, glabrous, apex acute to shortly acuminate. Flowers 3–4 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1.5–1.7 × 1.5–1.7 mm, reflexed, rarely erect in fruit. Petals white, suborbicular, 2–3 × 2–3 mm, glabrous. Stamens much longer than petals. Disk annular, crenate. Follicles spreading, densely pubescent; styles terminal, divergent.

- Forests, thickets, shady slopes. W Hubei.


新高山绣线菊 xin gao shan xiu xian ju

*Spiraea japonica* Linnaeus f. var. **morrisonicola** (Hayata) Kitamura.

Shrubs or subshrubs to 50 cm tall. Branchlets brownish or red-brown to gray-brown, slender, terete, pubescent when young, gradually glabrescent; buds ovoid, minute, with 2 brownish scales, puberulous, apex acute or subobtuse. Petiole 1–3 mm, glabrous; leaf blade ovate or rhombic-ovate, 10–22 × 8–14 mm, glabrous on both surfaces, lateral veins distinctly raised abaxially, depressed adaxially, base cuneate to broadly so, rarely subrounded, margin entire toward base, grossly sharply serrate distally, apex obtuse or acute. Coryms terminal on short, lateral branchlets, compound, 1.5–3 × 2–4 cm, densely many flowered; rachis and pedicels glabrous; pedicels 3–6 mm; bracts 8–12 mm, glabrous, apex with a few teeth or entire. Flowers 4–5 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals broadly triangular or ovate, 1–2 mm, erect in fruit, apex mucronate. Petals white, broadly obovate to suborbicular, longer than sepals, glabrous, base shortly clawed, apex obtuse. Stamens 10–12, nearly equaling to slightly longer than petals. Disk annular, 10-lobed; lobes triangular, apex obtuse. Carpels puberulous basally; styles subequaling stamens. Follicles slightly spreading, puberulous on adaxial suture; styles terminal on abaxial side, divergent, mostly deciduous when ripe. Fl. Jul–Aug. fr. Sep–Oct.

- Montane regions; below 4000 m. Taiwan.

**绒毛绣线菊**

Shrubs ca. 0.5 m tall. Branchlets slightly tortuous, dark red-brown, terete, glabrous; buds long ovoid, with 2 scales, glabrous, apex acuminate. Petiole 2–5 mm, glabrous; leaf blade purplish abaxially, ovate, 1.5–4 × 1–3 cm, glabrous on both surfaces, base rounded to subcordate, margin doubly serrate, apex acute. Corymbs terminal on short, lateral branchlets, compound, 2–4 × 3–5 cm, many flowered; rachis and pedicels glabrous; pedicels 2–4 mm; bracts linear-lanceolate, longer than pedicels, glabrous. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1–1.5 × 1–1.5 mm, apex acute. Petals pink, suborbicular, longer than sepals, glabrous, base shortly clawed. Stamens 25–30, longer than petals. Disk annular; lobes inconspicuous. Carpels glabrous; styles terminal. Follicles unknown. Fl. Jun–Jul.

- Rocky mountain summits; below 2000 m. NE Guizhou (Fanjing Shan).


**绒毛绣线菊**

Shrubs to 2 m tall. Branchlets spreading, yellow-brown turning gray-brown, robust, slightly angled, densely villous when young, gradually glabrescent; buds long ovoid, nearly equaling to longer than petals, with 2 scales, densely tomentose-villosus, apex acuminate. Petiole 3–5 mm, densely villous; leaf blade adaxially dark green, ovate or ovate-lanceolate, 3–8 × 1.5–3.5 cm, subglabrous on both surfaces or abaxially densely sericeous-villosus (especially on veins) and adaxially pilose, base cuneate, margin coarsely serrate with a few double teeth, apex acute. Corymbs terminal on short, lateral branchlets, compound, 3–6 × 4–7 cm, sometimes to 14 cm in fruit, many flowered; rachis and pedicels thinly villous; pedicels 5–7 mm; bracts linear-lanceolate or ovate-lanceolate, 5–7 mm, villous on both surfaces. Flowers 5–6 mm in diam. Hypanthium campanulate, villous abaxially. Sepals triangular, 1–2 mm, reflexed in fruit, apex acute. Petals white, suborbicular, 2–3 × 2–3 mm, apex obtuse. Stamens ca. 20, longer than petals. Disk annular, 10-lobed; lobes broad, apex usually emarginate. Styles shorter than stamens. Follicles spreading, densely gray-white villous; styles terminal, slightly divergent. Fl. May–Jun, fr. Aug–Oct.

- Broad-leaved forests, thickets on slopes, gullies; 2200–3300 m. Xizang.

21a. *Spiraea velutina* var. *velutina*

**绒毛绣线菊(原变种) 原变种**

Leaf blades densely sericeous-villosus, especially on veins abaxially.
26. Spiraea canescens

Shrubs to 2.5 m tall. Branchlets slightly tortuous, brown to gray-brown, slender, puberulous when young, later glabrous; buds long ovoid, usually longer than petals, with 2 scales, glabrous, apex acuminate. Petiole 2–5 mm, glabrous; leaf blade ovate-lanceolate to oblong-lanceolate, 2–4 × 1–2 cm, abaxially glabrous or pilose on veins, adaxially pilose initially, glabrescent later, base broadly cuneate or rounded, margin incised doubly serrate and with some simple teeth, apex acute. Corymb terminal on lateral branchlets, compound, 4–8 × 4–6(–8) cm, densely many flowered; rachis and pedicels densely puberulent; pedicels 4–6 mm; bracts linear, 2–4 mm, pubescent. Flowers 5–6 mm in diam. Hypanthium campanulate, pubescent abaxially. Sepals triangular, 1–1.5 mm, erect or reflexed in fruit. Petals white, suborbicular, 2–2.5 mm, about as broad as long, glabrous, base shortly clawed, apex obtuse. Stamens 15–20, longer than petals. Disk annular, 10-lobed; lobes broad, apex emarginate. Carpels slightly pubescent; styles shorter than stamens. Follicles slightly spreading, glabrous to pubescent or pilose; styles on abaxial side, divergent. Fl. Jul–Aug, fr. Sep–Oct.

25. Spiraea arcuata


拱枝绣线菊  gong zhi xiu xian ju

Spiraea canescens D. Don var. glabra J. D. Hooker & Thomson.

Shrubs small. Branches arched, dark brown, shining, stout, slightly angled, deeply grooved, glabrous when old; buds long ovoid, with 2 scales. Petiole short, slender, glabrous or subglabrous; leaf blade long elliptic to obovate, 8–12 × 3–5 mm, glabrous or subglabrous on both surfaces, base cuneate, margin entire or obtusely 3–5-serrate or lobed apically, apex obtuse, rarely subacute. Corymb terminal on short, lateral branchlets, compound, dense, many flowered; rachis and pedicels puberulous; pedicels short. Flowers 6–8 mm in diam. Hypanthium turbinate, pubescent abaxially. Sepals triangular, reflexed in fruit, apex usually acute. Petals pink, suborbicular, glabrous. Stamens slightly shorter than or subequaling petals. Disk annular, broadly crenate. Follicles spreading, wholly exerted, shining, glabrous, rarely puberulous only on adaxial suture; styles terminal on abaxial side, divergent. Fl. May–Jul, fr. Aug–Sep.

24. Spiraea longigemmis


长芽绣线菊 chang ya xiu xian ju

Spiraea canescens

Shrubs 2–4 m tall. Branches tortuous; branchlets brown or gray-brown, angled, pubescent when young, later glabrescent; buds long ovoid, with 2 brown scales, pubescent, apex acute to shortly acuminate. Petiole 2–4 mm, pubescent; leaf blade ovate or obovate to obovate-lanceolate or oblong, 1–2 × 0.8–1.2 cm, abaxially pubescent, sometimes subglabrous or glabrous, adaxially often glabrous, base cuneate, margin entire or obtusely 3–5-dentate above middle, apex obtuse, sometimes inconspicuously 3-lobed. Corymb terminal, compound, 2–4.5 × 3–5 cm, many flowered; rachis and pedicels densely pubescent; pedicels 4–8 mm; bracts linear, 2–4 mm, pubescent. Flowers 5–6 mm in diam. Hypanthium campanulate, pubescent abaxially. Sepals triangular, 2–2.5 mm, erect or spreading in fruit, apex acute. Petals white or pinkish, suborbicular, 2–3.5 × 2–3 mm, glabrous, base shortly clawed, apex entire or emarginate. Stamens ca. 20, subequaling to slightly longer than petals. Disk annular, 10-lobed; lobes broad, apex emarginate. Carpels slightly pubescent; styles shorter than stamens. Follicles slightly spreading, glabrous to pubescent or pilose; styles on abaxial side, divergent. Fl. Jul–Aug, fr. Sep–Oct.

26. Spiraea canescens

Spiraea canescens

Shrubs 2–4 m tall. Branches tortuous; branchlets brown or gray-brown, angled, pubescent when young, later glabrescent; buds long ovoid, with 2 brown scales, pubescent, apex acute to shortly acuminate. Petiole 2–4 mm, pubescent; leaf blade ovate or obovate to obovate-lanceolate or oblong, 1–2 × 0.8–1.2 cm, abaxially pubescent, sometimes subglabrous or glabrous, adaxially often glabrous, base cuneate, margin entire or obtusely 3–5-dentate above middle, apex obtuse, sometimes inconspicuously 3-lobed. Corymb terminal, compound, 2–4.5 × 3–5 cm, many flowered; rachis and pedicels densely pubescent; pedicels 4–8 mm; bracts linear, 2–4 mm, pubescent. Flowers 5–6 mm in diam. Hypanthium campanulate, pubescent abaxially. Sepals triangular, 2–2.5 mm, erect or spreading in fruit, apex acute. Petals white or pinkish, suborbicular, 2–3.5 × 2–3 mm, glabrous, base shortly clawed, apex entire or emarginate. Stamens ca. 20, subequaling to slightly longer than petals. Disk annular, 10-lobed; lobes broad, apex emarginate. Carpels slightly pubescent; styles shorter than stamens. Follicles slightly spreading, glabrous to pubescent or pilose; styles on abaxial side, divergent. Fl. Jul–Aug, fr. Sep–Oct.

Thickets, thicket margins, valleys, river banks, stream sides, dry places; 2300–4000 m. Gansu, W Sichuan, E and S Xizang, NW Yunnan [Bhutan, N India, Nepal, Sikkim].

1a. Leaf blades ovate or obovate to obovate-lanceolate, abaxially pubescent, sometimes subglabrous, margin entire or obtusely 3–5-dentate above middle; follicles slightly pubescent .............................................  26a. var. canescens

1b. Leaf blades oblong or obovate, abaxially glaucous green, glabrous, margin entire or inconspicuously 3-lobed apically; follicles glabrous, rarely slightly pilose .............................................  26b. var. glaucoaphylla

毛果绣线菊 mao guo xiu xian ju

Shrubs to 2 m. Branchlets brown or yellow-brown to gray-brown, angled, sterile ones glabrous, flowering ones pubescent; buds long ovoid or cylindric, subequaling petioles, with 2 scales, glabrous or puberulous when young, apex acute or obtuse. Petiole 2–6 mm, glabrous or sparsely puberulous when young; leaf blade oblong, ovate-oblong, or obovate-oblong, 1.5–3 × 0.7–1.5 cm, glabrous on both surfaces, base cuneate, margin entire (leaves on sterile shoots with a few teeth near apex), apex acute or subacute. Corymbs terminal on short, lateral branchlets, compound, 4–7 × 3–5.5 cm, many flowered; rachis and pedicels densely pubescent; pedicels 5–9 mm, bracts linear or lanceolate, 4–6 mm, sometimes larger and leaflike at base of pedicels, pubescent. Flowers 5–7 mm in diam. Hypanthium campanulate, pubescent axially. Sepals triangular, 1.5–2 mm, usually persistent and erect in fruit, apex acute. petals white, broadly obovate or suborbicular, 2–3.5 mm, about as broad as long, glabrous, apex emarginate or obtuse. Stamens 18–20, subequaling petals. Disk annular; lobes irregular, apex emarginate. Styles shorter than stamens. Follicles erect, densely pubescent; styles terminal on abaxial side, divergent. Fl. May–Jun, fr. Jul–Aug.

Mixed forests by streams. Jilin, Liaoning, Nei Mongol, Shanxi [Korea].


乌拉绣线菊 wu la xiu xian ju

Shrubs to 1.5 m tall. Branchlets red-brown turning gray-brown, terete or slightly angled; buds long ovoid, with 2 scales, apex acuminate. Petiole 2–10 mm, glabrous; leaf blade oblong-ovate, oblong-lanceolate, or oblong-ob lanceolate, 1–3 × 0.7–1.5 cm, glabrous on both surfaces, base cuneate, margin entire, apex obtuse. Corymbs terminal on short, lateral branchlets, compound, 3–5.5 × 4–5 cm, many flowered; rachis and pedicels glabrous; pedicels 4–7 mm; bracts lanceolate to oblong, 2–4 mm. Flowers 4–6 mm in diam. Hypanthium campanulate or subcampanulate, glabrous abaxially. Sepals triangular, 1–2 mm, erect in fruit, apex acute. petals white, suborbicular, 1.5–2.5 mm, glabrous, base shortly clawed. Stamens ca. 20, longer than petals. Disk annular, 10-lobed; lobes obtuse or emarginate at apex. Carpels pubescent; styles shorter than stamens. Follicles erect, spreading, puberulous; styles on abaxial side, slightly divergent. Fl. May–Jun, fr. Jul–Aug.

● Gallies, slopes, cliffs; 1000–2400 m. Gansu, Henan, Nei Mongol, Shaanxi, Shanxi.


金州绣线菊 jin zhou xiu xian ju

Shrubs much branched. Branchlets tortuous, gray-brown, dark brown, or dark purple-brown, pubescent when young; buds ovoid, with several brownish scales, pubescent, apex subobtuse. Petiole 1–3 mm, densely sericeous-pubescent; leaf blade abaxially greenish, adaxially green, rhombic-ovate to elliptic, rarely obovate, 7–24 × 4–8 mm, abaxially sericeous-pubescent, adaxially sparsely pubescent, base cuneate, margin deeply obtusely serrate, 3-lobed apically, middle lobes larger, apex obtuse. Umbels on short, lateral, leafy branchlets, pedunculate, 2–3 cm, 7–25-flowered; pedicels 6–10 mm, pubescent; bracts linear, puberulous. Flowers 5–6 mm in diam. Hypanthium campanulate, pubescent abaxially. Sepals triangular, erect in fruit, apex acute or shortly acuminate. petals white, broadly obovate or suborbicular, 2–3 mm, about as broad as long, apex obtuse or emarginate. Stamens ca. 20, shorter than to nearly equaling petals. Disk annular, 10-lobed; lobes obtuse at apex, rarely emarginate. Carpels pubescent; styles shorter than stamens. Follicles lustrous, pubescent at base and abaxially. Fl. May–Jun, fr. Jul–Aug.

● Open woods, slopes, shaded rocks; 900–1900 m. Jilin, Liaoning, Shandong, Shanxi.


疏毛绣线菊 shu mao xiu xian ju

Shrubs 1–1.5 m tall. Branchlets slightly tortuous, brownish, turning gray-brown or dark red-brown, terete, pubescent when young, later glabrous; buds ovoid, small, with several scales, apex obtuse or subacute. Petiole 5–6 mm, pubescent; leaf blade blue-green abaxially, dark green adaxially, obovate, elliptic, or ovate, 1.5–3.5 × 1–2 cm, sparsely pubescent on both surfaces initially, glabrescent when old, veins prominent, base narrowly cuneate or broadly cuneate to rounded, margin obtusely or somewhat sharply serrate above middle or near apex, apex obtuse. Umbels terminal, pedunculate, 2–3 × 4–5 cm, more than 20-flowered; pedicels clustered, 1.2–2.2 cm, densely pubescent; bracts linear, 2–3 mm, pubescent. Flowers 6–8 mm in diam. Hypanthium campanulate, pubescent abaxially. Sepals triangular or ovate-triangular, 1.5–2.5 × 1–2 mm, usually persistent and erect in fruit, apex acute. petals white, broadly obovate, rarely suborbicular, 2.5–3 × 3–4 mm, glabrous, base shortly clawed, apex obtuse or emarginate. Stamens 18–20, shorter than petals. Disk annular, 10-lobed; lobes broad, apex emarginate. Carpels pubescent; styles shorter than stamens. Follicles slightly spreading, pilose; styles terminal on abaxial side, divergent. Fl. May–Jun, fr. Jul–Aug.


1a. Leaf blades obovate or elliptic, rarely ovate, base narrowly cuneate .......................... 30a. var. hirsuta
1b. Leaf blades ovate, base broadly cuneate to rounded .............................. 30b. var. rotundifolia

30a. Spiraea hirsuta var. hirsuta

疏毛绣线菊(原变种) shu mao xiu xian ju (yuan bian zhong)


Leaf blades obovate or elliptic, rarely ovate, base narrowly cuneate.

圆叶疏毛绣线菊 yuan ye shu mao xiu xian ju

Leaf blades ovate, base broadly cuneate to rounded.


中华绣线菊 zhong hua xiu xian ju

Shrubs 1.5–3 m tall. Branchlets arched, red-brown and yellow tomentose initially, black-brown and glabrous when old; buds ovoid, 2–5 mm, with several scales, pubescent, apex acute or obtuse. Petiole 4–10 mm, shortly tomentose; leaf blade adaxially dark green, rhombic-ovate to obovate, 2.5–6 × 1.5–3 cm, abaxially yellow tomentose, adaxially pubescent, veins prominent abaxially, deeply impressed adaxially, base broadly cuneate or rounded, margin deeply sharply incised serrate or inconspicuously 3-lobed, apex obtuse or acute. Umbels pedunculate, 16–25-flowered; pedicels 5–9 mm or more, tomentose; bracts linear, 2–5 mm, pubescent. Flowers 3–10 mm in diam. Hypanthium campanulate, puberulous abaxially. Sepals ovate-lanceolate, 2–3 × 1–2 mm, erect or rarely reflexed in fruit, apex shortly acuminate. Petals white, suborbicular, 2–3 × 2–3 mm, glabrous, base shortly clawed, apex emarginate. Disk undulate annular or obtuse. Stamens 20–22, ca. 1/2 as long as petals. Follicles erect or obtuse. Styles shorter than stamens. Follicles erect or spreading, wholly pubescent; styles terminal, erect or divergent. Fl. Mar–Jun, fr. Jul–Aug.
- Thickets, slopes, open places, roadsides; 300–2000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Nei Mongol, Shanxi, Sichuan, Yunnan, Zhejiang.

31a. Spiraea chinensis var. chinensis

中华绣线菊(原变种) zhong hua xiu xian ju (yuan bian zhong)
Pedicels usually 5–9 mm. Flowers 3–6 mm in diam. Petals 2–3.5 mm. Follicles spreading; styles divergent.
- Thickets on slopes, open places, roadsides; 500–2000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Nei Mongol, Shanxi, Sichuan, Yunnan, Zhejiang.


大花中华绣线菊 da hua zhong hua xiu xian ju

Pedicels not more than 10 mm. Flowers 8–10 mm in diam. Petals 4–5 mm. Follicles spreading; styles divergent.
- Hill roadsides. SW Hubei (Hefang Xian).


直果绣线菊 zhi guo xiu xian ju


毛花绣线菊 mao hua xiu xian ju
Spiraea nervosa Franchet & Savatier.

Shrubs 2–3 m tall. Branchlets tortuous, red-brown to brown, slender, densely tomentose when young, glabrous when old; buds small, with several brown scales, softly hairy initially, later glabrescent, apex acute. Petiole 2–5 mm, densely tomentose; leaf blade adaxially dark green, rhombic-ovate, 2–4.5 × 1.5–3 cm, abaxially densely white tomentose, adaxially sparsely pubescent, rugose, prominently pinnately veined, base cuneate, margin obtusely incised serrate in upper 2/3 or lobed, apex obtuse or acute. Umbels pedunculate, densely 10–20-flowered; pedicels 6–10 mm, densely gray tomentose; bracts linear, 2–4 mm, tomentose. Flowers 4–8 mm in diam. Hypanthium campanulate, gray tomentose abaxially. Sepals triangular or ovate-triangular, 1–1.5 mm, nearly as broad as long, erect in fruit, rarely reflexed. Petals white, broadly obovate or suborbicular, 2.5 × 2–3 mm, glabrous, base shortly clawed, apex obtuse or obtuse. Stamens 20–22, ca. 1/2 as long as petals. Disk annular, 10-lobed; lobes broad. Styles shorter than stamens. Follicles spreading, white tomentose throughout; styles divergent, rarely suberect. Fl. May–Jun, fr. Jul–Aug.
- Forests, open dry slopes, roadsides; 400–1200 m. Gansu, Hebei, Hunan, Jiangsu, Jiangxi, Liaoning, Nei Mongol, Shanxi, Zhejiang.

33. Spiraea yunnanensis Franchet, Pl. Delavay. 200. 1890.

云南绣线菊 yun nan xiu xian ju
Spiraea sinobrahuica W. W. Smith; S. sinobrahuica var. aridicola W. W. Smith; S. tortuosa Rehder; S. yunnanensis F. tortuosa (Rehder) Rehder.

Shrubs 1–2 m tall. Branchlets suberect, slightly bent or distinctly tortuous, brownish to gray-brown, slender, gray-white tomentose when young, later glabrous; buds ovoid, small, softly hairy initially, apex obtuse. Petiole 2–5 mm, tomentose; leaf blade adaxially dark green, obovate or ovate to suborbicular, 1–2 × 0.5–1.5 cm, abaxially densely gray tomentose, adaxially pubescent, 3–5-veined at base, lateral veins prominent, base...
cuneate, margin ± obtusely serrate or doubly serrate, sometimes slightly 3-lobed, entire near base, apex obtuse. Umbels pedunculate, 1.5–3 × 2–3 cm, 5–25-flowered; pedicels 5–9 mm, densely yellow-white tomentose; bracts linear, 2–3 mm, yellow-white tomentose. Flowers 5–8 mm in diam. Hypanthium campanulate, tomentose abaxially. Sepals triangular, 1.5–2 × 1–1.5 mm, erect in fruit, apex acute or shortly acuminate. Petals white, broadly obovate or suborbicular, 3–4 × 2.5–3.5 mm, glabrous, base shortly clawed, apex emarginate or obtuse. Stamens ca. 20, ca. 1/2 as long as petals. Disk annular, almost divided into 10 emarginate lobes. Carpels gray-white pubescent; styles shorter than stamens. Follicles spreading, sparsely pubescent; styles abaxial, somewhat divergent. Fl. Apr–Jul, fr. Jul–Oct.

- Dry thickets, mountain valleys, slopes, rocks along gullies, roadsides; 1300–2800 m. W Sichuan, Yunnan.


千地绣线菊  

Shrubs 1–1.5 m tall. Branchlets brown or red-brown, slender, terete, pubescent when young, later glabrescent; buds ovoid, with several scales, pubescent initially, apex acute. Petiole 2–5 mm, sparingly pubescent or glabrous; leaf blade abaxially gray-green, adaxially dark green, obovate or orbiculate, 1–2.5 × 0.7–1.8 cm, abaxially subglabrous or puberulous only on veins, adaxially glabrous, prominently 3–5-veined, base broadly cuneate or subrounded, margin irregularly crenate above middle, usually shallowly 3-lobed, apex obtuse. Umbels pedunculate, 2–3 × 2–2.5 cm, 5–17-flowered; pedicels 7–10 mm, densely pubescent; bracts linear, 1.5–3 mm, pubescent. Flowers 4–6 mm in diam. Hypanthium campanulate, densely pubescent abaxially. Sepals triangular, 1–1.5 × 1–1.5 mm, mostly erect in fruit, apex acute. Petals white, broadly obovate, 3–3.5 × 3.5–4.5 mm, glabrous, base shortly clawed, apex emarginate or obtuse. Stamens 18–20, shorter than or nearly equaling petals. Disk conspicuous, 10-lobed. Styles shorter than stamens. Follicles spreading, puberulous on adaxial suture; styles terminal, slightly divergent or suberect. Fl. May–Jun, fr. Jul–Aug.

- Mixed forests, open forests, shady slopes, open or semishaded places, dry rocky slopes; 200–2500 m. Anhui, Gansu, Hebei, Heilongjiang, Henan, Hubei, Liaoning, Nei Mongolia, Shaanxi, Shandong, Sichuan. [Korea, Mongolia, Russia].

1a. Follicles puberulous only on adaxial suture .................................................. 35a. var. *pubescens*

35b. Follicles wholly pubescent .......................... 35b. var. *lastiocarpa*

35. *Spiraea pubescens* var. *pubescens*

土庄绣线菊(原变种) tu zhuang xiu xian ju (yu'an bian zhong)
*Spiraea laucheana* Koehne; *S. oensanensis* H. Léveillé.

Follicles puberulous only on adaxial suture.

Mixed forests, open or semishaded places, dry rocky slopes; 200–2500 m. Anhui, Gansu, Hebei, Heilongjiang, Henan, Hubei, Liaoning, Nei Mongolia, Shaanxi, Shandong, Sichuan. [Korea, Mongolia, Russia].

35b. *Spiraea pubescens* var. *lastiocarpa*


毛果土庄绣线菊 mao guo tu zhuang xiu xian ju

Follicles wholly pubescent.

- Open forests, shady slopes; 400–1600 m. Anhui, Gansu, Henan, Shaanxi, Sichuan.


麻叶绣球 ma ye xiu qiu

Shrubs to 1.5 m tall. Branchlets arching, dark red-brown, turning gray-brown when old, slender, terete, glabrous or pubescent; buds ovoid, small, with several scales, glabrous or puberulous apically or on scale margins. Petiole 4–7 mm, glabrous; leaf blade gray-blue abaxially, dark green adaxially, rhombic-lanceolate to rhombic-oblong, 2–8 × 0.7–2 cm, glabrous or abaxially puberulous, pinnately veined, base cuneate, margin incised serrate above middle, apex acute. Umbels pedunculate, 3–4 × 2–3.5 cm, many flowered; rachis and pedicels glabrous or pubescent; pedicels 8–14 mm; bracts linear to lanceolate, 2–3 mm, glabrous or pubescent. Flowers 5–7 mm in diam. Hypanthium campanulate, glabrous or abaxially pubescent. Sepals triangular or ovate-triangular, 1–1.5 × 1.5–2 mm, erect in fruit, apex acute or shortly acuminate. Petals white, suborbicular or obovate, 2.5–4 × 3–4.5 mm, apex emarginate or obtuse. Stamens 20–28, slightly shorter than to nearly equaling petals. Disk annular, lobed; lobes unequal, suborbicular, apex emarginate. Styles shorter than stamens. Follicles straightly spreading, glabrous; styles terminal, usually divergent. Fl. Apr–May, fr. Jul–Sep.

- Slopes; 200–300 m. Native at least in N Jiangxi; widely cultivated elsewhere in China [Japan].
1a. Branchlets pubescent; leaf blades 2–8 × 0.7–1.5 cm, abaxially pubescent. 36c. var. jiangxiensis

1b. Branchlets glabrous; leaf blades 3–5 × 1.5–2 cm, glabrous. 2a. Inflorescences and hypanthium glabrous. 2b. Inflorescences and hypanthium abaxially pubescent. 36b. var. pilosula

36a. Spiraea cantoniensis var. cantoniensis 麻叶绣球(原变种) ma ye xiu qiu (yuan bian zhong)

Spiraea reevesiana Lindley.

Branchlets glabrous. Leaf blades 3–5 × 1.5–2 cm, glabrous. Inflorescences and hypanthium glabrous.

Widely cultivated in China [Japan].


毛萼麻叶绣球 mao e ma ye xiu qiu

Branchlets glabrous. Leaf blades 3–5 × 1.5–2 cm, glabrous. Inflorescences and hypanthium abaxially pubescent.

● Mostly cultivated. Guangdong, Hunan.


Branchlets pubescent. Leaf blades 2–8 × 0.7–1.5 cm, abaxially pubescent.

● Slopes; 200–300 m. N Jiangxi (Jing’an Xian).

37. Spiraea xvanhouttei (Briot) Carrière, Rev. Hort. 48: 260. 1866. 菱叶绣线菊 ling ye xiu xian ju

Spiraea aquilegifolia Pallas var. vanhouttei Briot, Rev. Hort. 37: 269. 1866.

Shrubs to 2 m tall. Branchlets arching, red-brown, turning gray-brown to black-brown when old, glabrous; buds ovoid, small, with several scales, glabrous, apex obtuse. Petiole 3–5 mm, glabrous; leaf blade bluish gray abaxially, dark green adaxially, rhombic-ovate, 1.5–3.5 × 0.9–1.8 cm, glabrous on both surfaces, inconspicuously 3-veined or pinnately veined, base cuneate, margin usually 3–5-lobed, incised doubly serrate, apex acute. Umbels pedunculate, 2.5–4 cm, many flowered, leafy at base; pedicels 7–12 mm, glabrous; bracts linear, 2–5 mm, glabrous. Hypanthium campanulate, glabrous abaxially. Sepals triangular or ovate-triangular, erect in fruit. Petals white, suborbicular, 3–4 mm, base shortly clawed, apex obtuse. Stamens 20–22, much shorter than petals, some abortive. Disk annular, unevenly lobed. Carpels glabrous; styles shorter than stamens. Follicles slightly spreading; styles suberect. Fl. May–Jun, fr. Aug–Sep.

Cultivated. Guangdong, Guangxi, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan [of cultivated, hybrid origin].

This taxon is a hybrid between S. cantoniensis and S. trilobata.

38. Spiraea trilobata Linnaeus, Mant. Pl. 2: 244. 1771. 三裂绣线菊 san lie xiu xian ju

Shrubs 1–2 m tall. Branchlets spreading, tortuous, yellow-brown or purple-brown, turning dark gray-brown, slender, glabrous; buds broadly ovoid, small, with several scales, glabrous, apex obtuse. Petiole 3–5 mm, glabrous; leaf blade suborbicular, 1.7–3 × 1.5–3 cm, glabrous or abaxially sparsely pubescent, conspicuously 3–5-veined, base subcordate or rounded, rarely cuneate, margin slightly crenate above middle, usually 3-lobed, apex obtuse. Umbels pedunculate, 2–4(–5) cm, 15–30-flowered; pedicels 8–13 mm, glabrous or sparsely pubescent; bracts oblanceolate or linear, 4–7 mm, deeply divided into slender lobes. Flowers 6–8 mm in diam. Hypanthium campanulate, glabrous or sparsely pubescent abaxially. Sepals triangular, 1.5–2 mm, erect in fruit, apex acute. Petals white, broadly ovate, 2.5–4 mm in diam., apex emarginate. Stamens 18–20, shorter than petals. Disk annular, 10-lobed; lobes unequal, apex emarginate. Carpels pubescent; styles shorter than stamens. Follicles spreading, glabrous or puberulous on adaxial suture; styles slightly divergent. Fl. May–Jun, fr. Jul–Aug.

Thickets, open rocky slopes, montane regions; 400–2400 m. Anhui, Gansu, Hebei, Heilongjiang, Henan, Jiangsu, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Xinjiang [Korea, Russia].

1a. Leaf blades, pedicels, and hypanthium glabrous. 38a. var. trilobata

1b. Leaf blades abaxially, pedicels, and hypanthium abaxially sparsely pubescent. 38b. var. pubescens

38a. Spiraea trilobata var. trilobata

三裂绣线菊(原变种) san lie xiu xian ju (yuan bian zhong)

Leaf blades, pedicels, and hypanthium glabrous.

Thickets, open rocky slopes; 400–2400 m. Anhui, Gansu, Hebei, Heilongjiang, Henan, Jiangsu, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Xinjiang [Korea, Russia].


Leaf blades abaxially, pedicels, and hypanthium abaxially sparsely pubescent.

● Montane regions, lower elevations. Nei Mongol, Shanxi.

39. Spiraea blumei G. Don, Gen. Hist. 2: 518. 1832. 绣球绣线菊 xiu qiu xiu xian ju

Shrubs 1–2 m tall. Branchlets spreading, dark red-brown or dark gray-brown, slender, glabrous; buds ovoid, small, with several scales, glabrous, apex acute or obtuse. Petiole 2–4 mm, glabrous; leaf blade bluish green abaxially, rhombic-ovate to obovate or broadly ovate, (0.6–0.9 or)2–3.5 × 1–1.8 cm, gla-
brous on both surfaces, inconspicuously 3-veined or pinnately veined, base cuneate, margin remotely obtusely incised crenate or 3–5-lobed above middle, apex obtuse or mucronate. Umbels pedunculate, 10–25-flowered; rachis glabrous; pedicels 6–10 mm, glabrous to puberulous; bracts lanceolate, 1–3 mm, glabrous. Flowers 5–8 mm in diam. Hypanthium shallowly campanulate, glabrous to puberulous axially. Sepals triangular or ovate-triangular, 1.5–2.5 mm, erect in fruit, apex acute or shortly acuminate. Petals white, broadly obovate, 2.5–5 mm, about as broad as long, apex acuminate. Stamens 18–20, shorter than petals. Disk annular, 10-lobed; lobes thin, apex emarginate. Carpels glabrous, puberulous only on adaxial suture, or pubescent; styles shorter than stamens. Follicles erect, glabrous or pubescent; styles abaxial, divergent. Fl. Apr-Jun, fr. Aug- Oct.


1a. Carpels and follicles wholly pubescent

......................................................... 39d. var. pubicarpa

1b. Carpels and follicles glabrous.

2a. Leaf blades broadly ovate, 0.6–0.9 cm

............................ 39c. var. microphylla

2b. Leaf blades rhombic-ovate to obovate, 2–3.5 cm.

3a. Pedicels and hypanthium abaxially glabrous; petals 2.5–5 mm

............................ 39a. var. blumei

3b. Pedicels and hypanthium abaxially puberulous; petals 4–5 mm

............................ 39b. var. latipetala

39a. Spiraea blumei var. blumei

绣球绣线菊(原变种) xiu qiu xiu xian ju (yuan bian zhong)

*Spiraea obtusa* Nakai.

Leaf blades rhombic-ovate to obovate, 2–3.5 cm. Pedicels and hypanthium abaxially glabrous. Petals 2–3.5 mm. Carpels and follicles glabrous.


宽瓣绣球绣线菊 kuan ban xiu qiu xiu xian ju

Leaf blades rhombic-ovate, to 3.5 mm. Pedicels and hypanthium abaxially puberulous. Petals 4–5 mm. Carpels and follicles glabrous.

- Stream sides, roadsides; low elevations. Anhui, Guangdong, Zhejiang.


小叶绣球绣线菊 xiao ye xiu qiu xiu xian ju

Leaf blades broadly ovate, 0.6–0.9 cm. Pedicels and hypanthium abaxially glabrous. Carpels and follicles glabrous.

- Dry sunny slopes, limestone mountain valleys; low to medium elevations. Gansu, Henan, Shaanxi, Sichuan, Zhejiang.


毛果绣球绣线菊 mao guo xiu qiu xiu xian ju

Carpels and follicles wholly pubescent.

- Slopes. Henan, Shaanxi, Zhejiang.


浅裂绣线菊 qian lie xiu xian ju

Shrubs low, 1–1.5 m tall. Branchlets brownish to red-brown, tortuous, slender, pubescent when young, finally glabrous; buds ovoid, small, with several scales, pubescent, apex acute to acuminate. Petiole 1–3 mm, pubescent; leaf blade abaxially gray-green, adaxially dark green, ovate to ovate-lanceolate, 2.5 × 1.2–2.5 cm, abaxially pubescent, papillose, adaxially glabrous, base broadly cuneate to subrounded, margin deeply incised serrate or lobed above middle, apex acute. Racemes umbellate, 2.5–3.5 × 2.5–3 cm, 10–30- or more flowered; pedicels 5–10 mm, pubescent; bracts linear-lanceolate, 2–4 mm, pubescent. Flowers 7–9 mm in diam. Hypanthium campanulate, pubescent abaxially. Sepals ovate-triangular, 1.5–2.5 mm, erect in fruit, apex acute. Petals white, suborbicular or obovate, 2.5–4 × 2.5–3.5 mm, apex obtuse. Stamens 45–60, longer than petals. Disk annular, ca. 20-lobed; lobes obtuse at apex. Styles shorter than stamens. Follicles spreading, pubescent; styles terminal on abaxial side, somewhat divergent or suberect. Fl. May–Jun, fr. Aug–Sep.

- Broad-leaved forests, thickets, dry slopes; 1500–2800 m. W Sichuan, NE Yunnan.

41. Spiraea elegans Pojarkova in Komarov, Fl. URSS 9: 490. 1939.

美丽绣线菊 mei li xiu xian ju

Shrubs 1–1.5 m tall. Branchlets spreading, red-brown, turning gray-brown or dark brown when old, slightly angled, glabrous; buds ovoid, with several scales, apex acute. Petiole 4–6 mm, glabrous; leaf blade oblong-elliptic, oblong-ovate, or lanceolate-elliptic, 1.5–3.5 × 1–1.8 cm (those on sterile branchlets to 5.5 × 2.6 cm), abaxially pubescent only in vein axils, adaxially glabrous, base cuneate, margin irregularly incised serrate, sometimes doubly serrate above middle, apex subobtuse or acute. Racemes umbellate, 2–3.5 cm in diam., 6–16-flowered; pedicels 7–12 mm, to 16 mm in fruit, glabrous. Flowers 10–15 mm in diam. Hypanthium shallowly campanulate. Sepals triangular, erect in fruit, apex acute or shortly acuminate. Petals obovate or suborbicular, longer than sepals, apex obtuse. Stamens much longer than petals. Carpels pubescent; styles shorter...

Mixed forests, open slopes, rocks; 100–2000 m. Hebei, Heilongjiang, Jilin, Nei Mongol [Mongolia, Russia].


异常绣线菊 yi chang xiu xian ju

Shrubs small. Branchlets slightly angled, glabrous; buds ovoid, glabrous, with several scales, apex subobtuse or acute. Petiole 4–6 mm, glabrous or pilose; leaf blades triangular-ovate or lanceolate-ovate, 3–4 × 1.5–2 cm, abaxially pubescent on veins, adaxially glabrous, midvein prominent on both surfaces, lateral veins 3 or 4 on each side of midvein, base usually truncate or subrounded, margin densely doubly serrate above base, apex acuminate. Racemes borne on new, leafy shoots, umbelolate, 3–5 × 2–3 cm, 3–6-flowered; pedicels 10–17 mm, pilose basally; bracts linear, 3–4 mm, glabrous, caducous. Flowers 6–9 mm in diam. Hypanthium campanulate, glabrous abaxially. Follicles broadly triangular, 2–2.5 × 2–3 mm, margin ciliate, apex acute to shortly acuminate. Petals white, ovate or suborbicular, 1.5–2 × 2–3 mm, reflexed in fruit, base cuneate to subrounded, margin with 3–7 large, sharp teeth on each side above middle, apex acute or shortly acuminate. Racemes umbellate, 3–4 × 2–3 cm, 3–6-flowered; pedicels 8–17 mm, pilose basally; bracts linear or lanceolate, 3–5 mm, slightly villous. Flowers 8–12 mm in diam. Hypanthium campanulate, glabrous abaxially. Racemes umbelolate, 3–5 × 2–3 cm, 3–6-flowered; pedicels 8–17 mm, pilose basally; bracts linear or lanceolate, 3–5 mm, slightly villous. Flowers 6–9 mm in diam. Hypanthium campanulate, glabrous abaxially.


华西绣线菊 hua xi xiu xian ju

Shrubs to 1.5 m tall. Branchlets often erect, sometimes tortuous, brownish to red-brown, slightly angled when young, mostly glabrous; buds oblong, 2–4 mm, with several scales, glabrous, apex acute or shortly acuminate. Petiole 4–6 mm, glabrous or pilose; leaf blade ovate, broadly so, or elliptic-ovate, 1.5–5.5 × 0.7–3.5 cm, glabrous on both surfaces, sometimes with tufted hairs in vein axils abaxially, or sparsely sericeous-pubescent abaxially, base cuneate to subrounded, margin irregularly serrate from base or above middle (on sterile branchlets incised doubly serrate), or sparsely shallowly incised crenate, apex acute. Racemes umbellate, 3–4 × 2–3 cm, 5–15-flowered; pedicels 8–17 mm, pilose basally, 3–5 mm, glabrous, caducous. Stigmas 30–40, longer than petals. Disk annular. Styles terminal. Fl. May–Jun.

43a. Spiraea laeta var. laeta

华西绣线菊(原变种) hua xi xiu xian ju (yuan bian zhong)

Leaf blades ovate or elliptic-ovate, 1.5–5.5 × 1.4–3.5 cm, glabrous on both surfaces or with tufted hairs in vein axils abaxially, margin irregularly serrate or incised doubly serrate. Inflorescences 6–15-flowered.

● Mixed forests on slopes, thickets; 1200–2500 m. Gansu, Guizhou, Henan, Hubei, Sichuan, Yunnan.


细叶华西绣线菊 xi ye hua xi xiu xian ju

Leaf blades ovate or broadly so, 1–2 × 0.7–1.5 cm, glabrous on both surfaces or with tufted hairs in vein axils abaxially, margin sparsely shallowly incised crenate. Inflorescences 5–10-flowered.

● Montane stream sides; 2700–3200 m. W Sichuan.


毛叶华西绣线菊 mao ye hua xi xiu xian ju

Leaf blades ovate, sparsely sericeous-pubescent abaxially, margin sharply incised doubly serrate. Inflorescences 5–9-flowered.

● Stream banks, open places, roadsides; low to medium elevations. Gansu, Hubei.


乳突绣线菊 ru tu xiu xian ju

Shrubs 2–3 m tall. Branchlets brownish to purple-brown, slender, slightly angled, glabrous, puberulous, or pubescent; buds brownish, ovoid, small, with several scales, pubescent, apex obtuse or acute. Petiole 2–3 mm, sericeous-villous; leaf blade gray-green abaxially, dark green adaxially, oblong or ovate, 2–4 × 0.8–1.5 cm, appressed sericeous-villous on both surfaces, papillose abaxially, base cuneate, margin with 3–7 large, sharp teeth on each side above middle, apex acute or shortly acuminate. Racemes umbellate, 3–5 × 2–3.5 cm, 12–20-flowered; pedicels slender, 6–12 mm, glabrous or pubescent; bracts linear or lanceolate, 3–5 mm, slightly villous. Flowers 8–10 mm in diam. Hypanthium campanulate, glabrous abaxially. Follicles triangular, 1.5–2 × 2–3 mm, reflexed in fruit, apex acute or shortly acuminate. Petals white, suborbicular, 3.5–4.5 mm in...
44a. *Spiraea papillosa* var. *papillosa*

乳突绣线菊 (原变种) ru tu xiu xian ju (yuan bian zhong)

Branchlets, pedicels, and follicles usually glabrous.

- Thickets on slopes; 1300–2000 m. W Sichuan.


云南乳突绣线菊 yun nan ru tu xiu xian ju

Branchlets and pedicels pubescent. Follicles puberulous on adaxial suture.

- Coniferous and broad-leaved mixed forests; 3300–3500 m. SW Sichuan, NW Yunnan.


丽江绣线菊 li jiang xiu xian ju

 Shrubs 1.2–1.8 m tall. Branchlets brown to purple, shining, slender, glabrous; buds small, with several scales, whitish villous, apex acute. Petiole slender, 3–5 mm, glabrous; leaf blade abaxially greenish, adaxially green, broadly ovate, 2.5–3.5 × 2–2.5 cm, glabrous on both surfaces, abaxially densely minutely papillosate, veins prominent, base rounded, margin with 3–5 indistinct, obtusely triangular teeth on each side above middle. Racemes pedunculate, umbellate, 2 × 2.5–3 mm, 5–10-flowered; pedicels 1–1.5 cm, glabrous; petals linear or lanceolate, 1.5–3 mm, glabrous. Flowers 10–12 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1–1.5 × 1.5–2 mm, apex acute. Petals white, orbicular, 4–5 mm in diam., glabrous, base shortly clawed, apex obtuse, rarely emarginate. Stamens 40–50, longer than petals. Disk annular, lobed. Carpels glabrous; styles terminal, 3–4 mm; stigma capitate. Follicles unknown. Fl. Jun–Jul.

- Coniferous and broad-leaved mixed forests; 3500–4000 m. NW Yunnan (Lijiang Xian).


绢毛绣线菊 juan mao xiu xian ju


 Shrubs, to 2 m tall. Branchlets brown turning gray-brown to black-brown when old, slender, suberete, glabrous or subglabrous; buds brownish, ovoid, 1–3 mm, with several scales, glabrous, apex acute. Petiole 1–2 mm, glabrous; leaf blade elliptic to lanceolate, 1–2.5 × 0.5–1.5 cm, glabrous on both surfaces or puberulous in vein axils abaxially, pinnately veined, base cuneate, margin entire or 2–3-serrate, apex acute, reflexed in fruit. Racemes pedunculate, umbellate, 1–1.5 mm, 2–3 mm; sepals lanceolate, 4–5 mm, sparsely villous; petals white, orbicular, base shortly clawed, apex obtuse, rarely emarginate. Stamens 40–50, longer than petals. Disk annular, lobed. Carpels glabrous; styles terminal, 3–4 mm; stigma capitate. Follicles unknown. Fl. May–Jul.

- Coniferous and broad-leaved mixed forests, thickets on slopes; 3500–4000 m. SW Sichuan, NW Yunnan (Li-jiang Xian).


平卧绣线菊 ping wo xiu xian ju

 Shrubs low, prostrate. Branchlets dark red-brown when old, slender, terete, densely yellow-gray villous initially, later glabrescent; buds ovoid, short, with several scales, villous, apex acute. Petiole almost absent; leaf blade broadly ovate, 0.8–1.5 × 0.5–1 cm, densely sericeous on both surfaces, with 2 pairs of prominent lateral veins basally, base rounded or broadly cuneate, margin with 3–7 teeth near apex, apex acute. Racemes pedunculate, umbellate, 7–15-flowered; pedicels 7–8 mm, sparsely villous; bracts lanceolate, 2–4 mm, sparsely villous, later glabrescent. Flowers 5–6 mm in diam. Hypanthium cupular, 1–1.5 mm, sparsely villous abaxially. Sepals ovate-triangular, nearly equaling tube; reflexed in fruit, apex acute. Petals white, orbicular, base shortly clawed. Stamens somewhat shorter than petals. Disk annular, 10-lobed; lobes triangular-ovate. Styles shorter than stamens. Follicles spreading, pubescent on adaxial suture; styles terminal on abaxial side; erect or somewhat divergent. Fr. Jun–Jul.

- Thickets, mountain regions, river banks. Gansu, Hubei, Shaanxi.


欧亚绣线菊 ou ya xiu xian ju

 Shrubs erect, to 2 m tall. Branchlets red-brown turning gray-brown to black-brown when old, slender, suberete, glabrous or subglabrous; buds brownish, ovoid, 1–3 mm, with several scales, glabrous, apex acute. Petiole 1–2 mm, glabrous; leaf blade elliptic to lanceolate, 1–2.5 × 0.5–1.5 cm, glabrous on both surfaces or puberulous in vein axils abaxially, pinnately veined, base cuneate, margin entire or 2–3-serrate, apex acute, rarely obtuse. Racemes pedunculate, umbellate, 2–4 × 2–3 cm, 9–15-flowered; pedicels 1–1.5 cm, glabrous; bracts lanceolate, glabrous, caducous. Flowers 0.7–1 cm in diam. Hypanthium broadly campanulate, glabrous abaxially. Sepals ovate-triangular, 1.5–2.5 mm, glabrous or puberulous, reflexed in fruit, apex...

Mixed forests, grassy slopes, rocky montane regions; 700–1600 m. Hebei, Heilongjiang, Henan, Jilin, Liaoning. Nei Mongol, Xinjiang [Japan, Korea, Mongolia, Russia; C Asia; Europe].


太鲁阁绣线菊 tai lu ge xiu xian ju

Shrubs low. Branchlets brownish purple, slender, slightly angled, pubescent when young, later glabrescent; buds ovoid, small, with several scales, apex obtuse or subacute. Petiole 3–4 mm, villous; leaf blade rhombic-ovate, 12–20 × 8–14 mm, abaxially sparsely villous on veins, adaxially glabrous, veins raised abaxially, impressed adaxially, base cuneate, margin sparsely crenate-serrate above middle, apex subobtuse. Racemes terminal, pedunculate, umbellate, 15–20-flowered; peduncle villous; pedicels 7–10 mm, glabrous; bracts linear. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1–1.5 mm, about as broad as long, recurved in fruit, apex acute. Petals white, subovate or orbicular, ca. 2 × 3 mm, glabrous, base shortly clawed, apex emarginate. Stamens ca. 20, unequal; filaments ca. 2 mm; anthers reniform. Disk annular, 10-lobed; lobes emarginate at apex. Carpels villous; styles shorter than stamens. Follicles spreading; styles abaxial. Fl. Mar–May, fr. Jun–Aug.

● Coastal limestone areas. E Taiwan.


高山绣线菊 gao shan xiu xian ju

Shrubs to 1.2 m tall, much branched. Branches erect or spreading; branchlets red-brown, turning gray-brown when old, conspicuously angled, pubescent when young, finally glabrous; buds ovoid, small, with several scales, glabrous. Leaves mostly tufted; petiole very short or nearly absent; leaf blade gray-green and glabrous or pubescent abaxially, linear-lanceolate to oblance-obovate, 7–16 × 2–5 mm, glabrous on both surfaces, veins inconspicuous, base cuneate, margin entire, apex obtuse or acute. Racemes pedunculate, umbellate, 1.5–2–3 × 1.5–2 cm, up to 20-flowered; pedicels 5–8 mm, glabrous; bracts linear, small, caducous. Flowers 5–7 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1–2–1.5–2 mm, erect or semispathing in fruit, apex acute. Petals white, ovate or suborbicular, 2–3 mm, about as broad as long, base shortly clawed, apex obtuse or emarginate. Stamens ca. 20, slightly shorter than to subequaling petals. Disk distinct, annular, 10-lobed. Carpels pubescent; styles shorter than stamens. Follicles spreading, glabrous or pilose on adaxial suture; styles subterminal, divergent. Fl. Jun–Jul, fr. Aug–Sep.

● Mixed forests, open forests, valleys, slopes, shady places; 2000–4000 m. Gansu, Henan, Hubei, Jiangxi, Qinghai, Shaanxi, Sichuan, Xinjiang, Xizang [Mongolia, Russia, Sikkim].


西藏绣线菊 xi zang xiu xian ju

Spiraea microphylla H. Léveillé; S. virgata Franchet.

52. Spiraea myrtilloides Rehder in Sargent, Pl. Wilson. 1: 140. 1913.

细枝绣线菊 xi zhi xiu xian ju

Shrubs 2–3 m tall, much branched. Branchlets red-brown to dark brown, angled, sparsely villous or subglabrous; buds ovoid, 3–4 mm, with several brown scales, glabrous or subglabrous, apex acute. Petiole 1–2 mm, glabrous or subglabrous; leaf blade abaxially greenish, ovate or ovate-oblong to ovate-oblong, 6–15 × 4–7 mm, abaxially sparsely pubescent or glabrous, adaxially glabrous, inconspicuously pinnate veins, prominently 3-veined basally, base cuneate, margin entire or with ca. 3 obtuse teeth near apex, apex obtuse, rarely acute. Racemes umbellate, 2–4 × 2–3.5 cm, 7–20– or more flowered; rachis and pedicels glabrous or sparsely pubescent; pedicels 3–8 mm; bracts linear or lanceolate, 2–3 mm, glabrous. Flowers 5–6 mm in diam. Hypanthium campanulate, glabrous or subglabrous abaxially. Sepals triangular, 1–1.5 mm, erect or spreading in fruit, apex acute. Petals white, suborbicular, 2–3 mm, about as broad as long, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20, equaling petals. Disk annular, 10-lobed. Carpels puberulous; styles shorter than stamens. Follicles spreading, glabrous, puberulous only on adaxial suture, or densely pubescent throughout; styles terminal, divergent. Fl. Jun–Jul, fr. Aug–Sep.

● Mixed forests, open forests, valleys, slopes, shady places; 1500–3100 m. Gansu, Henan, Hubei, Jiangxi, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan.

1a. Follicles glabrous or puberulous only on adaxial suture ......................... 52a. var. myrtilloides

1b. Follicles densely pubescent throughout ........................................... 52b. var. pubicarpa

52a. Spiraea myrtilloides var. myrtilloides

细枝绣线菊(原变种) xi zhi xiu xian ju (yuan bian zhong)

Spiraea microphylla H. Léveillé; S. virgata Franchet.

毛果细枝绣线菊 mao guo xi zhi xiu xian ju

Follicles densely pubescent throughout.

- Open forests, slopes, shady places; 2800–3000 m. Gansu.


宁夏绣线菊 ning xia xiu xian ju

Shrubs small. Branchlets dark red-brown, flexuose, distinctly angled, densely pubescent initially, subglabrous when old; buds ovoid, nearly equaling pediotes, with several dark brown scales, pubescent. Petiole 1–3 mm, pubescent when young; leaf blade broadly ovate, 7–14 × 5–9 mm, slightly pubescent on both surfaces when young, glabrous when old, 3-veined basally, base broadly cuneate to rounded, margin entire or sometimes 3-lobed apically, apex obtuse. Racemes pedunculate, umbellate, 1.5–1.5 cm; rachis and pedicels glabrous or pubescent; pedicels 4–5 mm, to 8 mm in fruit; bracts lanceolate to elliptic, 2–4 mm, glabrous, apex acute to shortly acuminate. Hypanthium campanulate, abaxially glabrous. Sepals triangular or ovate-triangular, 1–1.5 mm, about as broad as long, erect in fruit, apex acute. Follicles erect-spreadling, slightly pubescent on adaxial suture; styles on abaxial side, divergent. Fl. May–Jun, fr. Aug–Sep.

- Mountain valleys, river banks; 1700–2000 m. N Ningxia (Helan Shan).


窄叶绣线菊 zhai ye xiu xian ju


Shrubs 1–1.5 m tall. Branchlets arching, red-brown when young, dark gray-brown when old, shining, slender, terete, glabrous; buds brownish, ovoid, 1–3 mm, with several scales, glabrous, apex acute. Petiole 1–2(–4) mm, glabrous; leaf blade long elliptic to linear-lanceolate, 0.9–2.5 × 0.4–0.9 cm, glabrous on both surfaces, pinnately veined, base cuneate, margin entire or 2–5-serrate apically, apex acute. Racemes umbellate, 1.5–2 cm, usually 10–20-flowered; rachis and pedicels glabrous; pedicels 7–18 mm; bracts linear to lanceolate, 2–3 mm, glabrous, caducous. Flowers 6–7 mm in diam. Hypanthium broadly campanulate, glabrous abaxially. Sepals shortly triangular, 1–1.5 mm, glabrous, reflexed in fruit, apex subobtuse or acute. Petals white, suborbicular or broadly ovate, 1.5–2.5 mm, about as broad as long. Disk 10-lobed; lobes suborbicular. Carpels glabrous or puberulous; styles shorter than stamens. Follicles straightly divergent, glabrous or puberulous on adaxial suture; styles terminal.

Thickets, slopes, rocks; below 1000 m. Hebei, Heilongjiang, Liaoning, Nei Mongol [Mongolia, Russia].


曲萼绣线菊 qu e xiu xian ju

Shrubs to 1.5 m. Branchlets, brown-yellow to purple-brown, slender and slightly flexuose, angled when young, glabrous; buds long ovoid, 2–5 mm, with 2 scales, puberulous initially, finally glabrous, apex acuminate. Petiole 2–5 mm, glabrous or pubescent; leaf blade abaxially glaucescent, oblong-elliptic to oblong-ovate, 1–5 × 0.9–2.5 cm, abaxially subglabrous to pubescent (especially on veins) or pilose, adaxially glabrous or pubescent, base cuneate to rounded, margin sharply serrate above middle or near apex, rarely entire, apex acute or shortly acuminate. Racemes pedunculate, umbellate, 1.5–3 × 1.5–2.5 cm, 4–10-flowered; rachis and pedicels glabrous or pilose; pedicels 5–15(–20) mm; bracts elliptic-lanceolate to linear, 1.5–3 mm, glabrous, caducous. Flowers 5–8 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals ovate-triangular, 2.2–5 × 1.5–2 mm, reflexed in fruit, apex acute. Petals white, sometimes pinkish, ovate to oblong, 3–4 mm, nearly as broad as long, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20, longer than petals. Disk annular, 10-lobed. Styles shorter than stamens. Follicles erect, pubescent; styles terminal, erect. Fl. May–Jun, fr. Aug–Sep.

Broad-leaved and mixed forests, forest margins, river banks, sandy hills, slopes; 600–2000 m. Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi, Xianjiang [Korea, Mongolia, Russia].

1a. Leaf blades subglabrous or pilose abaxially, base cuneate, rarely subrounded; inflorescences glabrous ............................ 55a. var. flexuosa

1b. Leaf blades pubescent, more densely so on veins abaxially, base rounded; inflorescences pilose ............................. 55b. var. pubescens

55a. Spiraea flexuosa var. flexuosa
cur zao zhe xiu xian ju (yu xia bian zhong)

Spiraea chamaedryfolia Linnaeus var. flexuosa (Fischer ex Cambessèdes) Maximowicz.

Leaf blades subglabrous or pilose abaxially, base cuneate, rarely subrounded. Inflorescences glabrous.

Broad-leaved and mixed forests, forest margins, river banks, sandy hills, rocky slopes; 600–2000 m. Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi, Xianjiang [Korea, Mongolia, Russia].

55b. Spiraea flexuosa var. pubescens

柔毛曲萦绣线菊 rou mao qu e xiu xian ju

Leaf blades pubescent, more densely so on veins abaxially, base rounded. Inflorescences pilose.

- Mixed forests, slopes; below 1000 m. Liaoning, Nei Mongol, Shanxi.


石蚕叶绣线菊 shi can ye xiu xian ju

Spiraea ussuriensis Pojarkova.

Shrubs 1–1.5 m tall. Branchlets brownish or red-brown,
turning gray-brown when old, slender, sometimes flexuose, slightly angled, glabrous; buds long ovoid, with 2 scales, glabrous or sparsely puberulous on scale margins, apex acuminate. Petiole 4–7 mm, glabrous or sparsely pilose; leaf blade broadly ovate, 2–4.5 × 1–3 mm, tufled pubescent in vein axils abaxially, glabrous adaxially, base rounded or broadly cuneate, margin minutely sharply serrate and doubly serrate (on or sterile branchlets sometimes incised doubly serrate), apex acute. Racemes pedunculate, umbellate, 2–4 × 2–3 mm, 5–12-flowered; rachis and pedicels glabrous; pedicels 6–10 mm; bracts linear, 2–3 mm, glabrous, caducous. Flowers 6–9 mm in diam. Hypanthium broadly campanulate, glabrous abaxially. Sepals ovate-triangular, 1.5–2.5 × 1.5–2 mm, reflexed in fruit, apex acute. Petals white, broadly ovate or suborbicular, 2.5–3.5 × 2–3 mm, glabrous, base shortly clawed, apex obtuse or somewhat incised. Stamens 35–50, longer than petals. Disk undulate annular. Carpels puberulous on adaxial suture; styles shorter than stamens. Follicles erect, appressed pubescent; styles terminal on adaxial side, slightly spreading. Fl. May–Jun, fr. Jul–Sep.

Slopes in mixed forests, forest clearings; 600–1000 m. Hebei, Heilongjiang, Henan, Jilin, Liaoning, Shanxi, Xinjiang [Japan, Korea, Mongolia, Russia; Europe].


蒙古绣线菊 meng gu xiu xian ju

Shrubs to 3 m tall. Branchlets red-brown to gray-brown, slender, angled, glabrous or densely shortly tomentose when young; buds long ovoid, longer than petioles, with 2 brownish scales, glabrous or densely shortly tomentose, apex long acuminate. Petiole 1–2 mm, glabrous or densely shortly tomentose; leaf blade abaxially paler, oblong or elliptic, 8–20 × 3.5–7 mm, glabrous on both surfaces, rarely puberulous abaxially, pinately veined, base cuneate, margin entire, rarely with a few teeth near apex, apex obtuse, acute, or mucronate. Racemes pedunculate, umbellate, 2–5 × 1.5–3 cm, 8–15-flowered; rachis and pedicels glabrous; pedicels 5–10 mm; bracts linear, 1.5–3 mm, glabrous, caducous. Flowers 5–7 mm in diam. Hypanthium subcampanulate, glabrous abaxially. Sepals triangular, 1–2 × 1.5–2.5 mm, erect or slightly reflexed in fruit, apex acute. Flowers white, suborbicular, 2–4 mm, about as broad as long, glabrous, base shortly clawed, apex obtuse, rarely emarginate. Stamens 18–25, nearly equaling petals. Disk annullar, 10-lobed; lobes orbicular. Carpels pubescent; styles shorter than stamens. Follicles straightly spreading, glabrous, wholly pubescent, or puberulous only on adaxial suture; styles abaxial. Fl. May–Jul, fr. Jul–Sep.

- Forests, thickets, sunny rocky slopes, stream sides; 1500–4700 m. Gansu, Nei Mongol, Ningxia, Xinjiang, Xizang.

57a. Spiraea mongolica var. mongolica

毛叶绣线菊(原变种) mao ye xiu xian ju (yuan bian zhong)


Branchlets, buds, and petioles glabrous. Follicles glabrous, or puberulous only on adaxial suture.

- Thickens on slopes, mountain summits, rocky valleys; 1600–3600 m. Gansu, Hebei, Henan, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shansi, Sichuan, Xinjiang, Xizang.


毛枝蒙古绣线菊 mao zhi meng gu xiu xian ju

Spiraea mongolica var. pubescens Y. Z. Zhao & T. J. Wang; S. tomentulosa (T. T. Yu) Y. Z. Zhao (1987), not Rydberg (1908).

Branchlets, buds, and petioles densely shortly tomentose. Follicles wholly pubescent.

- Forests, thickets, sunny rocky slopes, stream sides; 1500–4700 m. Gansu, Nei Mongol, Ningxia, Xinjiang, Xizang.


毛叶绣线菊 mao ye xiu xian ju

Shrubs to 2 m. Branchlets brown to red-brown, conspicuously angled, villous initially, later glabrescent; buds ovoid-lanceolate, 5–7 × 3–4 mm, with 2 red-brown scales, pubescent when young, apex long acuminate. Petiole 2–6 mm, pubescent; leaf blade oblong, elliptic, rarely obovate, 1–2 × 0.4–0.8 cm, sericeous-villous on both surfaces or subglabrous to glabrous abaxially, base cuneate, margin entire or with a few obtuse teeth apically, apex obtuse or acute. Racemes pedunculate, umbellate, 2–4 × 1.5–3 cm, 10–18-flowered; rachis and pedicels villous or pilose; pedicels 4–8 mm; bracts narrowly oblong or linear, 2–4 mm, villous on both surfaces, margin entire, apex shortly acuminate. Flowers 5–7 mm in diam. Hypanthium campanulate, glabrous to villous abaxially, sometimes pilose. Sepals triangular, 1.5–2.5 × 1.5–2 mm, erect in fruit, apex acute. Petals white, suborbicular, 2–3 mm, about as broad as long, apex obtuse. Stamens ca. 20, nearly equaling petals. Disk annular, 10-lobed; lobes broadly orbicular. Styles shorter than stamens. Follicles straightly spreading, pubescent; styles subterminal on abaxial side. Fl. Jun–Aug, fr. Jul–Oct.

- Forests, forest margins, thickets, mountain valleys, subalpine meadows, slopes, river banks; 2600–4400 m. Gansu, Guizhou, Shaanxi, Sichuan, Xizang, Yunnan.

58a. Spiraea mollifolia var. mollifolia

毛叶绣线菊(原变种) mao ye xiu xian ju (yuan bian zhong)
Leaf blades abaxially, inflorescences, and hypanthium abaxially villous.

- Forests, forest margins, thickets, mountain valleys, slopes; 2600–4200 m. Gansu, Guizhou, Shaanxi, Sichuan, Xizang, Yunnan.


Leaf blades abaxially glabrous or subglabrous. Inflorescences pilose. Hypanthium abaxially glabrous, or pilose only on tube.

- Valley thickets, subalpine meadows, rocky slopes, river banks; 3200–4400 m. Xizang.


假笑靥花  jia xiao yan hua

Shrubs to 3 m. Branchlets red-brown, turning gray-brown to black-brown when old, slender, slightly angled, pubescent initially, later gradually glabrescent; buds ovoid, small, with several scales, glabrous, apex subobtuse or subacute. Petiole 2–4 mm, pubescent; leaf blade ovate to oblong-lanceolate, 1.5–3 × 0.7–1.4 cm, pubescent on both surfaces initially, later glabrescent adaxially or on both surfaces, or glabrous, pinnately veined, base cuneate, margin minutely sharply serrate from near base or above middle to apex, or 1–4-serrate on each side near apex, or 1–4-serrate on each side near apex. Flowers single, less than 1 cm in diam. Hypanthium campanulate, short-tubed, glabrous abaxially, margin 1–4-serrate on each side near apex; hypanthium often pubescent abaxially. Follicles glabrous. Inflorescences pilose. Hypanthium pubescent abaxially. Follicles glabrous, or pubescent along adaxial suture. 59a. Spiraea prunifolia var. prunifolia

笑靥花(原变种)  xiao yan hua (yuan bian zhong)

Spiraea prunifolia var. plena C. K. Schneider.

Leaf blades thinly pubescent abaxially, margin minutely sharply serrate from near base or above middle to apex. Flowers double, 1–1.2 cm in diam. Hypanthium pubescent abaxially.

- Commonly cultivated in China [native to Japan and Korea].


单瓣笑靥花  dan ban xiao yan hua


Leaf blades sparsely thinly pubescent abaxially, glabrescent when old, margin mostly minutely sharply serrate from near base or above middle to apex. Flowers single, less than 1 cm in diam. Hypanthium pubescent abaxially. Follicles pubescent on adaxial suture.

- Thickets, slopes, rocks; 500–1000 m. Anhui, Fujian, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Zhejiang [Japan, Korea].

59c. Spiraea prunifolia var. pseudoprunifolia (Hayata ex Nakai) H. L. Li, Lloydia 14: 236. 1951.

假笑靥花  jia xiao yan hua


Leaf blades densely persistently appressed pubescent abaxially, margin mostly minutely sharply serrate from near base or above middle to apex. Flowers single, less than 1 cm in diam. Hypanthium pubescent abaxially. Follicles glabrous.

- Sunny places; ca. 1500 m. Taiwan.


光秃绣线菊  guang tuo xiu xian ju


Leaf blades glabrous abaxially, margin 1–4-serrate on each side near apex. Flowers single, less than 1 cm in diam. Hypanthium glabrous abaxially. Follicles glabrous.

- Steep dry cliffs; near sea level to 300 m. Hubei, Shaanxi.


珍珠绣线菊  zhen zhu xiu xian ju

Shrubs to 1.5 m. Branchlets spreading, arching, slender; branchlets brown to red-brown, angled, pubescent at first, finally glabrous; buds ovoid, very small, with several scales, gla-
brous or puberulous. Petiole 1–2 mm, pubescent; leaf blade linear-lanceolate, 25–40 × 3–7 mm, glabrous on both surfaces, pinnately veined, base narrowly cuneate, margin sharply serrate above middle, apex long acuminate. Umbels sessile, with clustered leaves at base, 10–18 mm, 3–7-flowered; pedicels slender, 6–10 mm, glabrous. Flowers 6–8 mm in diam. Hypanthium campanulate, glabrous axially. Sepals triangular or ovate-triangular, 1.5–2 × 1–1.5 mm, erect or reflexed in fruit, apex acute. Petals white, obovate to suborbicular, 2–4 × 2–3.5 mm, glabrous, base shortly clawed, apex emarginate or obtuse. Stamens 18–20, to 1/3 as long as petals. Disk prominent, annular, 10-lobed. Carpels glabrous or puberulous; styles nearly equaling stamens. Follicles spreading, glabrous; styles subterminal, divergent. Fl. Apr–May, fr. Jul–Aug.

Native in E China; cultivated for ornament in Fujian, Jiangsu, Liaoning, Shaanxi, Shandong, Zhejiang, and other provinces [Japan].


毛枝绣线菊 mao zhi xiu xian ju

Shrubs 1.5–2.5 cm. Branchlets terete or slightly angled, yellow-brown and densely tomentose when young, brownish to red-brown and glabrescent when old; buds ovoid, small, pubescent, with several scales, apex subobtuse. Petiole 1–2 mm, yellow pubescent initially, later glabrescent; leaf blades abaxially gray, unequal, broadly obovate, rarely suborbicular or broadly elliptic, larger ones 8–17 × 5–10 mm, smaller ones 2–5 × 2–3 mm, densely yellow tomentose on both surfaces, or abaxially densely pubescent, adaxially puberulous when young and later glabrescent, pinnately veined or prominently 3-veined, base cuneate or broadly so, margin usually 3-lobed above middle, entire or with a few coarse, obtuse teeth, apex obtuse, rarely acute. Umbels sessile, with unequal, clustered leaves at base, 1–2(–2.5) cm, 5–18-flowered; pedicels 5–15 mm, glabrous or pubescent; bracts lanceolate, 2–4 mm, puberulous or glabrous. Flowers 5–6 mm in diam. Hypanthium campanulate, 1.5–2 mm, glabrous abaxially. Sepals ovate-triangular or triangular, 1.5–2.5 mm, erect in fruit, apex acute. Petals white, suborbicular or obovate, 3–4 mm, about as broad as long, glabrous, base shortly clawed, apex obtuse. Stamens 20–25, shorter than petals. Disk prominent, annular, 10-lobed. Carpels puberulous; styles shorter than stamens. Follicles spreading, puberulous on adaxial suture or pilose; styles subterminal, erect or slightly divergent. Fl. Feb–Mar, fr. Apr–May.

- Thickets, mountain valleys, dry slopes, roadsides, sometimes on limestone; 700–2100 m. Guangxi, Guizhou, Sichuan, Yunnan.

61a. Spiraea martini var. martini

毛枝绣线菊(原变种) mao zhi xiu xian ju (yuan bian zhong)

*Spiraea fulvescens* Rehder.

Leaf blades pubescent on both surfaces. Pedicels 5–9 mm, glabrous. Follicles glabrous or puberulous only on adaxial suture.

- Thickets, mountain valleys, dry slopes; 1400–2100 m. Guangxi, Guizhou, Sichuan, Yunnan.


长梗毛枝绣线菊 chang geng mao zhi xiu xian ju

Leaf blades pubescent on both surfaces. Pedicels 8–15 mm, pubescent. Follicles pilose.

- Mountain thickets on limestone; ca. 700 m. SE Yunnan (Funing Xian).


绒毛毛枝绣线菊 rong mao mao zhi xiu xian ju

Leaf blades densely yellow tomentose on both surfaces.

- Roadsides; ca. 2000 m. SE Yunnan (Jianshui Xian).


独山绣线菊 du shan xiu xian ju

Shrubs small. Branchlets slender, terete, pubescent; buds small, with several brown scales, apex acute or subobtuse. Petiole 2–4 mm, densely tomentose-pubescent; leaf blade broadly ovate or suborbicular, 1.5–2(–2.5) × 1–1.5 cm, abaxially densely gray tomentose-pubescent, adaxially puberulous when young, later glabrescent, base subrounded and prominently 3-veined, margin not lobed, coarsely and obtusely crenate above base, apex obtuse, sometimes mucronate. Umbels shortly pedunculate, 2–2.5 × 2.5–3 cm, 10–12-flowered, with small, bractlike leaves at base; pedicels 1–1.5 cm, glabrous; bracts linear to lanceolate, 2–4 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1.5–2.5 mm, apex acute to shortly acuminated. Petals white, suborbicular or obovate, 3–4 × 2.5–3.5 mm, glabrous, base shortly clawed, margin entire or slightly undulate. Stamens ca. 1/2 as long as petals or slightly shorter. Disk annular, 10-lobed. Styles shorter than stamens. Follicles divergent, pubescent apically; styles subterminal. Fl. Apr–Jun, fr. Jul–Sep.

- Mountain regions. S Guizhou (Dushan Xian).


稻城绣线菊 dao cheng xiu xian ju

Shrubs small, to 2 m tall. Branchlets purple-brown, distinctly angled, appressed villous; buds ovoid, small, with several scales, villous. Petiole 1–2 mm, villous; leaf blade rhombic-elliptic, rarely ovate-elliptic, 1–2 × 0.8–1 cm, appressed villous on both surfaces, more densely so abaxially, lateral veins 5–8 on each side of midvein, base cuneate, margin not lobed, with 5–9 large, sharp teeth above middle, apex acute. Umbels sessile, 1–1.5 cm, few flowered, with a few clustered, unequal leaves at base; pedicels to 1 cm, villous; bracts lanceolate, small. Flowers unknown. Hypanthium campanulate, villous...
when young, glabrous when mature. Sepals broadly ovate or triangular-ovate, 3–4 mm, reflexed or rarely erect in fruit, apex acute. Follicles straightly spreading, glabrous or puberulous on adaxial suture; styles terminal on abaxial side, divergent. Fl. Aug–Sep.

- Coniferous and mixed forests on slopes; ca. 3800 m. W Sichuan (Daocheng Xian).


67. **Spiraea hypericifolia** Linnaeus, Sp. Pl. 1: 489. 1753.

absent; leaf blade gray-green on both surfaces, oblong or obovate-oblong, 4–14 × 3–5 mm, abaxially slightly pubescent, adaxially glabrous, indistinctly pinnately veined, base cuneate, margin entire (or on sterile branchlets 3- or 4-serrate), apex obtuse or acute. Umbels usually sessile, rarely shortly pedunculate, 10–15 mm in diam., 3–7-flowered; pedicels 8–10 mm, glabrous. Flowers 5–6 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, erect or reflexed in fruit, apex acute. Petals white, suborbicular. Stamens ca. 20. Disk annular, 10-lobed; lobes obtuse at apex, rarely marginate. Styles shorter than stamens. Follicles slightly spreading, pubescent; styles terminal on abaxial side, erect or somewhat divergent. Fl. Jul–Sep, fr. Sep–Oct.

- Mixed forests, rocky cliffs and gullies; 2000–4000 m. NW Yunnan.

70. Spiraea aquilegiifolia Pallas, Reise Russ. Reich. 3: 734. 1776.

yszuiiljzui jw zyui xj uj

Spiraea hypericifolia Linnaeus var. thalictroides (Pallas) Ledebour, S. thalictroides Pallas.

Shrubs low, to 1 m tall. Branchlets brown or gray-brown, terete, densely pubescent initially, becoming subglabrous; buds ovoid, small, with several brownish scales, glabrous. Petiole 1–2 mm, minutely pubescent; leaf blades unequal: those on flowering branchlets usually obovate, 4–8 × 2–5 mm, base cuneate, margin entire or obtusely 3-lobed; those on sterile branchlets abaxially gray-green, often flabellate, 7–10 mm, about as broad as long, abaxially densely pubescent, adaxially glabrous or sparsely pubescent, base narrowly cuneate, inconspicuously 3-veined, margin 3–5-lobed. Umbels sessile, 1–1.5 cm, 3–6-flowered, with several small, clustered leaves at base; pedicels 6–10 mm, glabrous; bracts small, caducous. Flowers 4–5 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1–1.5 × 2–2.5 mm, erect or reflexed in fruit, apex acute. Petals white, suborbicular, 2–3 mm, nearly as broad as long, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20, nearly equaling petals. Disk annular, deeply 10-lobed. Carpels pubescent; styles shorter than stamens. Follicles pubescent distally or on adaxial suture; styles terminal on abaxial side. Fl. May–Jun, fr. Jul–Aug.

Dry grasslands, rocky slopes; 600–1300 m. Gansu, Hebei, Henan, Nei Mongol, Qinghai, Shaanxi, Shanxi [Mongolia, Russia].


鲜卑花属 xian bei hua shu

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Crinan Alexander


About four species: W China, Russia (Siberia); Europe; three species (two endemic) in China.

The species of Sibiraea are very similar and are sometimes all placed in S. laevigata.

1a. Peduncle, pedicels, and leaf blades glabrous ................................................................. 1. S. laevigata
1b. Peduncle and pedicels pubescent to villous.

2a. Leaf blades narrowly lanceolate or oblanceolate, rarely long elliptic, glabrescent when old; peduncle and pedicels pubescent; petals white .................................................................................. 2. S. angustata
2b. Leaf blades oblong-obovate to oblanceolate, abaxially densely tomentose; peduncle and pedicels villous; petals yellow-white .......................................................................... 3. S. tomentosa


鲜卑花 xian bei hua

Spiraea laevigata Linnaeus, Mant. Pl. 2: 244. 1771; Sibiraea altaiensis (Laxmann) C. K. Schneider; S. glaberrima K. S. Hao; Spiraea altaica Pallas; S. altaensis Laxmann.
ROSACEAE

3. **ARUNCUS** Linnaeus, Opera Var. 259. 1758.

**假升麻属** jia sheng ma shu

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Crinan Alexander


- Open forests, slopes, valley roadsides; 3000–4000 m. Gansu, Qinghai, Sichuan, Xizang, Yunnan.


**毛叶鲜卑花** mao ye xian bei hua

Shrubs to 1 m tall. Branchlets sericeous-pubescent when young, almost glabrescent; buds long ovoid, slightly tomentose. Leaves clustered at tips of short branches; leaf blade oblong-obovate to oblanccolate, 5–7 × 2–2.5 cm, slightly leathery, densely white sericeous-tomentose on both surfaces when young, later sparsely tomentose only abaxially, base cuneate, apex acute. Panicle 5–8 × 3–4.5 cm; peduncle sparsely villous; bracts ca. 2 mm, slightly pubescent, apex obtuse. Flowers 5–8 mm in diam.; pedicel ca. 2 mm, slightly villous. Hypanthium sparsely villous axially. Sepals triangular or broadly so, ca. 1.5 mm, sparsely villous on both surfaces. Petals yellow-white, spatulate, base cuneate, apex obtuse. Carpels pubescent along adaxial suture. Follicles erect, 3–4 mm; fruiting pedicel 2–3 mm, sparsely villous. Fl. Jun, fr. Aug.

- Slopes, stream sides, moist places on rocks; 3500–4000 m. NW Yunnan.


**假升麻** jia sheng ma

*Spiraea aruncus* Linnaeus, Sp. Pl. 1: 490. 1753; **Aruncus asiaticus** Pojarkova; **Aruncus dioicus** (Walder) Fernald var. **kamtschaticus** (Maximowicz) H. Harra; **Aruncus dioicus** var. **tenuifolius** (Nakai ex H. Harra) H. Harra; **Aruncus dioicus** var. **triternatus** (Walllich ex Maximowicz) H. Harra; **Aruncus dioicus** var. **vulgaris** (Maximowicz) H. Harra; **A. kamtschaticus** (Maximowicz) Rydberg; **A. kamtschaticus** var. **tomentosus** (Koidzumi) Miyabe & Tatewaki; **A. sylvester** var. **kamtschaticus** Maximowicz; **A. sylvester** var. **tenuifolius** Nakai ex H. Harra; **A. sylvester** var. **tomentosus** Koidzumi; **A. sylvester** var. **triternatus** Walllich ex Maximowicz.

1a. Plants to 3 m tall; leaves 2- or 3-pinnate, leaflets rhombic-ovate, ovate-lanceolate, or long elliptic, apex acuminate or acipulate. Panicles 5–8 × 4–6 cm; peduncle densely pubescent; bracts 2–3 mm, glabrous on both surfaces, apex acuminate. Flowers ca. 8 mm in diam.; pedicel 3–5 mm, pubescent. Hypanthium pubescent axially. Sepals broadly triangular, ca. 1.5 mm, pubescent on both surfaces. Petals white, broadly obovate, base cuneate, apex rounded. Carpels glabrous. Follicles ca. 4 mm; fruiting pedicel 3–5 mm, pubescent. Fl. Jun, fr. Aug–Sep.

1b. Plants to 0.7 m tall; leaves 1- or 2-pinnate or 1- or 2-ternate, leaflets suborbicular or broadly ovate, rarely rhombic-ovate, apex rounded, obtuse, or acute; pedicel dense, 5–25 cm

- Three to six poorly defined species: N temperate zone; two species (one endemic) in China.

Plants to 3 m tall, woody at base. Stems dark purplish, glabrous. Leaves 2- or 3-pinnate; petiolules 4–10 mm; leaflets rhombic-ovate, ovate-lanceolate, or long elliptic, 5–13 × 2–8 cm, subglabrous on both surfaces, base cuneate, margin irregularly toothed, apex acuminate to long acuminate. Panicle lax, 10–40 × 7–17 cm; peduncle and pedicels glabrescent in fruit; bracts and bracteoles sparsely pubescent. Flowers 2–4 in diam.; pedicel ca. 2 mm. Hypanthium slightly pubescent. Sepals spreading or erect in fruit. Male flowers with filaments ca. 2 × as long as petals. Fl. Jun, fr. Aug–Sep.

Mixed forests on montane slopes, valleys; 1800–3500 m. Anhui, Gansu, Guangxi, Heilongjiang, Henan, Hunan, Jiangxi, Jilin, Liaoning, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, NW India (Himalaya Pradesh), Japan, Korea, Mongolia, Nepal, Russia, Sikkim; SW Asia, Europe; ?NW North America (Alaska)].


Shrubs deciduous. Branchlets yellow to green when young, later dark reddish or yellowish brown, terete; buds ovoid to cylindrical, with several exposed, alternate scales, glabrous or slightly pubescent at apex. Leaves alternate, stipulate, pinnate; leaflets opposite, sessile or subsessile, doubly serrate. Inflorescence a large, terminal panicle. Flowers small, numerous. Hypanthium shallowly cupular. Sepals 5, reflexed, short, broad, persistent. Petals 5, imbricate, white, ovate to orbicular, base cuneate, apex obtuse. Stamens 20–50, nearly equaling or longer than petals. Carpels 5, opposite sepals, basally connate, glabrous or subglabrous. Follicles glabrous, dehiscing along adaxial suture. Seeds several.

About nine species: temperate Asia; three species (two endemic) in China.

1a. Panicles lax, with spreading branches; fruiting pedicels recurved, pendulous .................................................. 3. *S. arborea*

1b. Panicles rather dense, with erect branches; fruiting pedicels erect.

2a. Stamens 40–50, longer than petals; style terminal ................................................................................................. 1. *S. sorbifolia*

2b. Stamens ca. 20, equaling or shorter than petals; style lateral ........................................................................................................... 2. *S. kirilowii*


珍珠梅 zhen zhu mei

Gu Cuizhi (谷梓芝 Ku Tsue-chih); Crinan Alexander

*Spiraea* Linnaeus sect. *Sorbaria* Seringe ex Candolle, Prodr. 2: 545. 1825; *Schizotonus* Lindley, nom. rej.

Shrubs deciduous. Branchlets yellow to green when young, later dark reddish or yellowish brown, terete; buds ovoid to cylindrical, with several exposed, alternate scales, glabrous or slightly pubescent at apex. Leaves alternate, stipulate, pinnate; leaflets opposite, sessile or subsessile, doubly serrate. Inflorescence a large, terminal panicle. Flowers small, numerous. Hypanthium shallowly cupular. Sepals 5, reflexed, short, broad, persistent. Petals 5, imbricate, white, ovate to orbicular, base cuneate, apex obtuse. Stamens 20–50, nearly equaling or longer than petals. Carpels 5, opposite sepals, basally connate, glabrous or subglabrous. Follicles glabrous, dehiscing along adaxial suture. Seeds several.

About nine species: temperate Asia; three species (two endemic) in China.

1a. Panicles lax, with spreading branches; fruiting pedicels recurved, pendulous .................................................. 3. *S. arborea*

1b. Panicles rather dense, with erect branches; fruiting pedicels erect.

2a. Stamens 40–50, longer than petals; style terminal ................................................................................................. 1. *S. sorbifolia*

2b. Stamens ca. 20, equaling or shorter than petals; style lateral ........................................................................................................... 2. *S. kirilowii*


珍珠梅属 zhen zhu mei shu

Gu Cuizhi (谷梓芝 Ku Tsue-chih); Crinan Alexander

*Spiraea* Linnaeus sect. *Sorbaria* Seringe ex Candolle, Prodr. 2: 545. 1825; *Schizotonus* Lindley, nom. rej.
 ROSACEAE

Open forests; 200–1500 m. Heilongjiang, Jilin, Liaoning, Nei Mongolia [Japan, Korea, Mongolia].


*Sorbaria stellipila* (Maximowicz) C. K. Schneider.

Leaflets abaxially densely stellate hairy.

Open secondary forests; 200–300 m. Heilongjiang, Jilin [Korea].


*Spirea kirilowii* Regel & Tiling, Fl. Ajan. 81. 1858; *Sorbaria sorbifolia* (Linnaeus) A. Brown var. *kirilowii* (Regel & Tiling) Ito.

Shrubs to 3 m tall. Branches erect; branchlets glabrous; buds red-brown. Stipules linear-lanceolate, 8–15 mm, glabrous or subglabrous, apex obtuse or acute. Leaflets 13–21, lanceolate to oblong-lanceolate, 4–7 × 1.5–2 cm, glabrous on both surfaces or abaxially pubescent in vein axils, lateral veins in 15–23 pairs, reticulate veins conspicuous, base cuneate to rounded, apex acuminate or caudate. Panicle dense, 7–11 × 5–20 cm; peduncle and pedicels glabrous; bracts lanceolate, 2–5 mm, glabrous, apex acuminate. Flowers 5–7 mm in diam.; pedicel 3–4 mm. Hypanthium shallowly cupular, glabrous. Sepals oblong-ovate, 4–5 mm, slightly pubescent, apex obtuse. Petals white, obovate or broadly ovate, 4–5 mm. Stamens ca. 20, slightly shorter than or equaling petals. Style lateral. Carpels 5, glabrous. Follicles cylindric, ca. 3 mm, glabrous, with persistent, reflexed sepals; fruiting pedicel pendulous. Fl. Jun–Jul, fr. Sep–Oct.

- Dense forests, forest margins, slopes, stream sides, roadsides; 1600–3500 m. Gansu, Guizhou, Hubei, Jiangxi, Shaanxi, Sichuan, Xingjiang, Xizang, Yunnan.

3a. *Sorbaria arborea* var. *arborea* (Regel & Tiling) Bean.

Rachis, leaflets abaxially, and inflorescence densely stellate hairy.

1a. Rachis, leaflets abaxially, and inflorescence densely stellate hairy .............. 3c. var. *subtomentosa*

1b. Rachis, leaflets abaxially, and inflorescence glabrous or slightly stellate hairy.

2a. Rachis, leaflets abaxially, and inflorescence slightly stellate hairy.................... 3a. var. *arborea*

2b. Rachis, leaflets abaxially, and inflorescence glabrous .................................... 3b. var. *glabrata*


- Dense forests, mountain slopes, stream sides; 2500–3500 m. Gansu, Hubei, Shaanxi, Sichuan, Yunnan.


- Slopes, roadsides; 1600–3100 m. Shaanxi, Sichuan, Yunnan.


风箱果属 *feng xiang guo shu*

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Crinan Alexander

ROSAACEAE


About 20 species: mostly in North America, also in NE Asia; one species in China.


Shrubs to 3 m tall. Branchlets slightly curved, terete, glabrous or subglabrous; buds ovoid, pubescent. Stipules caducous, linear-lanceolate, 6–7 mm, glabrous or subglabrous, margin serrate; petiole 1.2–2.5 cm, sparsely pubescent or subglabrous; leaf blade triangular-ovate to broadly ovate, 3.5–5.5 × 3–5 cm, abaxially stellate hairy and pubescent, densely so on veins, base cordate or subcordate, rarely truncate, margin 3(–5)-lobed, doubly serrate, apex acute or acuminate. Corymb 3–4 cm in diam., many flowered, most parts sparsely stellate pubescent to stellate tomentose; peduncle glabrescent; bracts linear-lanceolate, serrate at apex, caducous. Flowers 8–13 mm in diam.; pedicel 1–1.8 cm. Sepals triangular, 3–4 × ca. 2 mm, margin entire, apex acute. Petals white, obovate, ca. 4 × 2 mm, apex obtuse. Stamens 20–30. Carpels 2–4; style terminal. Follicles ovoid, 9–10 mm, glabrescent; fruiting pedicel 1–1.8 cm, glabrescent. Seeds 2–4. Fl. Jun, fr. Jul–Aug.

Broad-leaved forest margins, valleys. NE Hebei (Chengde, Wuling Shan), S Heilongjiang (Mao'ershan) [N Korea, Russia (Far East)].


绣线梅属 xiu xian mei shu

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Crinan Alexander

Adenilema Blume.

Shrubs, rarely subshrubs, deciduous. Branchlets spreading, slender, terete or angled; buds ovoid, scales imbricate, apex acute. Leaves often 2-ranked; stipules conspicuous, deciduous; leaf blade simple, margin doubly serrate and usually 3-parted or shallowly 3–5(-7)-lobed. Inflorescence a terminal or sometimes axillary raceme or panicle; bracts linear-lanceolate to ovate, small, caducous. Flowers bisexual. Hypanthium campanulate, urceolate-campanulate, or cylindric. Sepals 5, erect, persistent in fruit and becoming densely pubescent and stipitate glandular abaxially. Petals white or pink-red, subequaling sepals. Stamens 10–30, irregularly 2-whorled on rim of hypanthium, not exceeding petals. Carpels 1(–5); ovary with 2–10 ovules; style erect. Follcles enclosed by persistent hypanthium, dehiscent along adaxial suture. Seeds several, obovoid; testa lustrous; caruncle convex.

About 17 species: C, E, and SE Asia; 15 species (12 endemic) in China.

1a. Inflorescence a panicle; hypanthium campanulate.

2a. Branchlets densely yellowish brown pubescent ................................................................. 4. N. densiflora

2b. Branchlets glabrous to slightly pubescent.

3a. Flowers 7–10 mm in diam.; petals reddish; stamens 23–27 .............................................. 3. N. grandiflora

3b. Flowers 4–5 mm in diam.; petals white; stamens 10–20.

4a. Hypanthium sparsely pubescent abaxially; ovules 8–12 per ovary ..................................... 1. N. thyrsiflora

4b. Hypanthium densely pubescent abaxially; ovules 3–5 per ovary ............................. 2. N. serratisepala

1b. Inflorescence a raceme; hypanthium urceolate-campanulate or cylindric.

5a. Hypanthium campanulate to urceolate-campanulate.

6a. Hypanthium glabrous abaxially; branchlets, petioles, and peduncles red glandular ........................ 7. N. sparsiflora

6b. Hypanthium pubescent abaxially; branchlets, petioles, and peduncles eglundular.

7a. Subshrubs to 0.5 m; leaf blade to 3 cm; raceme to 1.8 cm, 3–7-flowered .......................... 8. N. graecitis

7b. Shrubs to 2 m; leaf blade more than 3 cm; racemes more than 2 cm, 5–25-flowered.

8a. Stipules herbaceous; ovules 2 per ovary ............................................................... 9. N. uekii

8b. Stipules membranous; ovules 4 or more per ovary.

9a. Buds with 2 or 3 scales; stipules entire at margin ............................................................... 5. N. rubiflora

9b. Buds with 4 or 5 scales; stipules serrate at margin ..................................................... 6. N. affinis

5b. Hypanthium cylindric (longer than broad).

10a. Hypanthium abaxially glabrous, sometimes glandular pubescent at base.

11a. Branchlets and petioles glabrous to slightly pubescent; hypanthium 10–20 mm .................. 10. N. sinensis

11b. Branchlets (when young) and petioles densely pubescent; hypanthium 8–9 mm ........... 11. N. ribesoides

10b. Hypanthium abaxially hairy.

12a. Ovary wholly pubescent.

Shrubs erect, to 2 m tall. Branchlets red-brown, angled, glabrous to slightly pubescent; buds red-brown, ovoid, with 2 or 3 scales, apex obtuse; often 2 or 3 buds superposed in axils of flowering branches. Stipules ovate-lanceolate, ca. 6 mm, subglabrous, margin remotely serrate, apex acute; petiole 1–1.5 cm, subglabrous; leaf blade ovate to ovate-elliptic, 6–8.5 × 4–6 cm, abaxially sparsely pubescent on veins or subglabrous, base rounded or subcordate, margin usually 3-parted, rarely with 3–5 equal lobes, sharply doubly serrate, apex long acuminate. Panicle 6–15.5 cm in diam., densely or laxly branched, usually many flowered; peduncle and pedicels slightly pubescent. Flowers ca. 4 mm in diam.; pedicel ca. 3 mm. Hypanthium campanulate, 2–3 mm, abaxially pubescent. Sepals triangular, equaling hypanthium, sparsely pubescent on both surfaces, margin entire, apex caudate. Petals white, obovate, ca. 2 mm. Stamens 10–15. Ovary cylindric, glabrous or only pubescent on sutures, or wholly pubescent; ovules (8–)10–12. Follicles cylindric. Seeds ovoid. Fl. Jul, fr. Sep–Oct.

Dense forests, open forests, forest margins in valleys, scrub; 1000–3000 m. Guangxi, Guizhou, Sichuan, Xizang, Yunnan [Bhutan, India, Indonesia (Java, Sumatra), Myanmar, Nepal, Sikkim, N Vietnam].

1a. Panicle densely branched; ovary pubescent only on sutures .......................... 1a. var. thyrsiflora
1b. Panicle few branched; ovary wholly pubescent .............................................. 1b. var. tunkinensis

1a. Neillia thyrsiflora var. thyrsiflora

绣线梅 xiú xiàn méi

Shrubs erect, to 2 m tall. Branchlets red-brown, angled, glabrous to slightly pubescent; buds red-brown, ovoid, with 2 or 3 scales, apex obtuse; often 2 or 3 buds superposed in axils of flowering branches. Stipules ovate-lanceolate, ca. 6 mm, subglabrous, margin remotely serrate, apex acute; petiole 1–1.5 cm, subglabrous; leaf blade ovate to ovate-elliptic, 6–8.5 × 4–6 cm, abaxially sparsely pubescent on veins or subglabrous, base rounded or subcordate, margin usually 3-parted, rarely with 3–5 equal lobes, sharply doubly serrate, apex long acuminate. Panicle 6–15.5 cm in diam., densely or laxly branched, usually many flowered; peduncle and pedicels slightly pubescent. Flowers ca. 4 mm in diam.; pedicel ca. 3 mm. Hypanthium campanulate, 2–3 mm, abaxially pubescent. Sepals triangular, equaling hypanthium, sparsely pubescent on both surfaces, margin entire, apex caudate. Petals white, obovate, ca. 2 mm. Stamens 10–15. Ovary cylindric, glabrous or only pubescent on sutures, or wholly pubescent; ovules (8–)10–12. Follicles cylindric. Seeds ovoid. Fl. Jul, fr. Sep–Oct.

Dense forests, open forests, forest margins in valleys, scrub; 1000–3000 m. Guangxi, Guizhou, Sichuan, Xizang, Yunnan [Bhutan, India, Myanmar, Nepal, Sikkim, N Vietnam].


毛果绣线梅 mào guǒ xiú xiàn méi


Panicle laxly branched. Ovary wholly pubescent.

Dense forests, forest margins in valleys; 1000–2700 m. Guangxi, Guizhou, Sichuan, Xizang, Yunnan [N Vietnam, NE India (Assam), Indonesia (Java, Sumatra)].


Shrubs to 2 m tall. Branchlets red-purple, angled, hairy when young, glabrescent; buds purple-red, ovoid, with 2 or 3 scales glabrous or slightly pubescent at margin, apex acute. Stipules ovate-lanceolate or linear-lanceolate, membranous, slightly pubescent, margin entire, apex acuminate; petiole 1–2 cm, pubescent; leaf blade broadly ovate to oblong, 3.5–6 × 2–3.5 cm, glabrous on both surfaces or abaxially slightly pubescent, base cordate, rarely rounded, margin sharply doubly serrate, apex acuminate. Raceme 2–4 cm, 5–12-flowered; peduncle and pedicels glabrous. Flowers 5–6 mm in diam.; pedicel 2–3 mm. Hypanthium urceolate-campanulate, 2–3 mm, abaxially pubescent. Sepals triangular-lanceolate, shorter than or nearly equaling hypanthium, densely pubescent, margin entire, apex acuminate. Petals pinkish white, obovate, ca. 3 cm. Stamens 25–30. Ovary subglobose, slightly hairy at apex; ovules 8–10. Follicles ellipsoid, glabrous. Seeds ovoid. Fl. Jul–Aug–Sep.

Grassy slopes by streams in mixed forests; 2500–3000 m. Sichuan, Xizang, Yunnan [Bhutan, India, Nepal, Sikkim].


川康绣线梅  chuan kang xiu xian mei

Shrubs to 2 m tall. Branchlets recurred, angled, glabrous; buds red-brown, long ovoid, with 2 or 3 subglabrous scales, apex obtuse. Stipules ovate or triangular-ovate, 4–6 mm,
subglabrous, margin serrate, ciliate, apex acute; petiole 1–6 cm, slightly pubescent; leaf blade ovate to triangular-ovate, rarely subreniform, 2.5–3 × 2–3 cm, pubescent on both surfaces or subglabrous, base cordate, margin irregularly 3–5-lobed, sharply doubly serrate, apex acute to acuminate, rarely obtuse. Racemes axillary, 1–1.8 cm, 3–7-flowered; peduncle and pedicels subglabrous. Flowers ca. 6 mm in diam.; pedicel ca. 2 mm. Hypanthium urceolate-campanulate, 3.5–4 mm, abaxially slightly pubescent. Sepals triangular-ovate, 2–3 mm, shorter than hypanthium, slightly pubescent on both surfaces, margin entire, apex acuminate. Petals white or pinkish, orbicular, ca. 4 mm. Stamens 15–20. Ovary narrowly ovoid, densely villous; ovules 2. Follicles pubescent. Seeds ovoid. Fl. May–Jul.

● Alpine meadows, moist slopes; 2800–3000 m. W Sichuan, N Yunnan.


东北绣线梅  dong bei xiu xian mei

Neillia millsii Dunn.

Shrubs erect, to 2 m tall. Branchlets red-brown, slender, slightly pubescent when young, glabrescent; buds purple, ovoid, with 3 or 4 scales pubescent at margin. Stipules ovate-lanceolate to triangular-lanceolate, herbaceous, margin serrate, apex acute; petiole 5–10 mm, densely pubescent; leaf blade ovate to elliptic-ovate, rarely triangular-ovate, 3–6 × 2–4 cm, abaxially slightly pubescent on veins, adaxially glabrous, base rounded to truncate, margin pinnately lobed, doubly serrate, apex long acuminate or caudate. Racemes 4–9 cm, 10–25-flowered; peduncle and pedicels slightly pubescent and stellate hairy. Flowers 5–6 mm in diam.; pedicel 3–4 mm. Hypanthium urceolate-campanulate, 3–4 mm, abaxially pubescent. Sepals triangular, slightly shorter than hypanthium, pubescent on both surfaces, margin entire, apex acuminate. Petals white, spatulate, ca. 4 mm. Stamens ca. 10. Ovary ovoid, pubescent along adaxial suture and at apex; ovules 2. Follicles long ovoid. Seeds ovoid.

SE Liaoning (Changdian) [Korea].

10. Neillia sinensis Oliver, Hooker’s Icon. Pl. 16: t. 1540. 1886.

中华绣线梅 zhong hua xiu xian mei

Shrubs to 4 m tall. Branchlets red-brown, glabrous; buds red-brown, ovoid, with 3 or 4 scales slightly pubescent at margin, apex obtuse. Stipules lanceolate to ovate-lanceolate, membranous, margin entire, apex acute or acuminate; petiole 7–15 mm, slightly pubescent or subglabrous; leaf blade ovate or ovate-elliptic, 5–11 × 3–6 cm, glabrous on both surfaces or abaxially pubescent in vein axils, base rounded or subcordate, margin often irregularly lobed or parted, doubly serrate, apex long acuminate. Racemes 4–9 cm, many flowered; peduncle and pedicels glabrous. Flowers 6–8 mm in diam.; pedicel 1–10 mm. Hypanthium cylindric, 0.7–1.2 cm, abaxially glabrous or glandular. Sepals triangular, 3–4 mm, much shorter than hypanthium, glabrous, margin entire, apex acute to caudate-acuminate. Petals pinkish, orbicular, ca. 3 mm. Stamens 10–15; filaments unequal. Ovary long ovoid, pubescent at apex; ovules 4 or 5. Follicles long ellipsoid. Seeds ovoid. Fl. May–Jun, fr. Aug–Sep.

● Valley slopes and mixed forests; 1000–2500 m. Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan.

10a. Neillia sinensis var. sinensis

中华绣线梅(原变种) zhong hua xiu xian mei (yuan bian zhong)

Neillia glandulocalyx H. Léveillé; N. sinensis f. glanduligera (Hemsley) Rehder; N. sinensis var. glanduligera Hemsley.

Pedicels 3–10 mm. Hypanthium 10–12 mm, abaxially glabrous.

● Valley slopes and mixed forests; 1000–2500 m. Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan.

10b. Neillia sinensis var. caudata


尾叶中华绣线梅 wei ye zhong hua xiu xian mei

Neillia thibetica Bureau & Franchet var. caudata (Rehder) J. E. Vidal.

Leaf blade margin parted; lobes caudate-acuminate at apex. Pedicels 2–3 mm. Hypanthium ca. 8 mm, abaxially glandular. Sepals caudate-acuminate at apex.

● 2000–2100 m. SE Yunnan.


滇东中华绣线梅 dian dong zhong hua xiu xian mei


Leaf blade lobed; lobes obtuse or acute at apex. Pedicels 1–2 mm. Hypanthium 7–8 mm, abaxially sparsely glandular. Sepals acute at apex.

● About 2000 m. E Yunnan.

11. Neillia ribesoides


毛叶绣线梅 mao ye xiu xian mei

Neillia hypomalaca Rehder; N. sinensis Oliver var. hypo-
shrubs to 2 m tall. Branchlets densely yellow-brown pubescent when young, later gray-brown; buds red-brown, ovoid, with 4 or 5 scales pubescent at margin. Stipules oblong to lanceolate, 5–10 mm, herbaceous, slightly pubescent, margin entire, apex obtuse; petiole ca. 5 mm, densely pubescent; leaf blade triangular to triangular-ovate, 4–6 × 3.5–4 cm, abaxially densely pubescent particularly on veins, adaxially sparsely pubescent, base truncate or subcordate, margin 3–5-lobed, sharply doubly serrate, apex acuminate. Racemes 4–5 cm, 10–15-flowered; peduncle and pedicels subglabrous. Flowers ca. 6 mm in diam.; pedicel 3–4 mm. Hypanthium cylindric, 8–9 mm, abaxially glabrous, sparsely glandular pubescent at base. Sepals triangular, ca. 2 mm, shorter than hypanthium, margin entire, apex caudate. Petals white or pinkish, obovate, ca. 2 mm. Stamens 10–15. Ovary narrowly ovoid, pubescent; ovules 2–4. Follicles cylindric, pubescent. Seeds cylindric. Fl. May, fr. Jun–Jul.

- Open forests; 1000–2500 m. Gansu, Hubei, Shaanxi, Sichuan, Yunnan.


西康绣线梅 xi kang xiu xian mei

shrubs to 3 m tall. Branchlets densely yellow-brown pubescent when young, purple-brown when old; buds purple-brown, ovoid, with 3 or 4 scales pubescent at margin, apex acute. Stipules lanceolate or ovate-lanceolate, 4–8 mm, herbaceous, pubescent on both surfaces, margin serrate or repand-serrate, ciliate, apex acute; petiole 8–10 mm, densely pubescent; leaf blade ovate to long elliptic, rarely triangular-ovate, 5–10 × 3–6 cm, abaxially pubescent, adaxially sparsely pubescent, base rounded or cordate, margin sharply doubly serrate, often irregularly 3–5-lobed or distinctly lobed ca. 1/2 way to midvein, apex acuminate. Racemes 5–15 cm, 3–5-flowered; peduncle and pedicels densely pubescent. Flowers ca. 4 mm in diam.; pedicel 3–4 mm. Hypanthium cylindric, 5–6 mm, densely pubescent on both surfaces. Sepals triangular, 2–3 mm, shorter than hypanthium, densely pubescent on both surfaces, margin entire, apex caudate. Petals pinkish white, obovate, ca. 3 mm. Stamens 15–20. Ovary cylindric, simple, pubescent only at apex; ovules 5–8. Follicles cylindric. Seeds ovoid. Fl. May–Jun, fr. Jul–Sep.

- Stream sides in mixed forests; 1500–3000 m. W Sichuan, NW Yunnan.

12a. Neillia thibetica var. thibetica

西康绣线梅(原变种) xi kang xiu xian mei (yuan bian zhong)

Neillia longiracemosa Hemsley; N. velutina Bureau.

Stipules lanceolate, margin serrate and ciliate; leaf blade margin irregularly 3–5-lobed.

- Stream sides in mixed forests; 1500–3000 m. W Sichuan, NW Yunnan.


裂叶西康绣线梅 lie ye xi kang xiu xian mei

Neillia longiracemosa var. lobata Rehder, J. Arnold Arbor. 1: 257. 1920.

Stipules ovate-lanceolate, margin repand-serrate and ciliate; leaf blade margin distinctly lobed ca. 1/2 way to midvein.

- About 2900 m. SW Sichuan, NW Yunnan.


短序绣线梅 duan xu xiu xian mei

shrubs to 70 cm tall. Branchlets greenish, subglabrous or slightly pubescent; buds purple-red, long ovoid, with 3 or 4 subglabrous scales, apex acute. Stipules ovate, ca. 5 mm, herbaceous, subglabrous, margin remotely serrate, apex acute; petiole 6–9 mm, densely pubescent; leaf blade ovate-oblong, 4–7 × 2–3.5 cm, abaxially glabrous except on veins, adaxially sparsely pubescent, base cordate or subrounded, margin often with 1 pair of lobes at base, irregularly doubly serrate, apex long caudate. Racemes 1.5–3 cm, 5–8-flowered; peduncle subglabrous. Pedicel 3–4 mm, pubescent. Hypanthium cylindric, ca. 6 mm, abaxially densely pubescent. Sepals triangular-lanceolate, 6–7 mm, slightly longer than hypanthium, densely pubescent on both surfaces, margin entire, apex long caudate. Petals and stamens not seen. Ovary slightly pubescent or subglabrous; ovules not seen. Follicles cylindric, sparsely pubescent, later glabrescent. Seeds not seen. Fr. Jun.

- About 2000 m. W Yunnan (Lushui Xian).


福贡绣线梅 fu gong xiu xian mei

shrubs to 3 m tall. Branchlets red-brown, pubescent when young, glabrescent; buds not seen. Stipules ovate, 4–5 mm, herbaceous, subglabrous, margin with remote stipitate glandular teeth, apex acuminate; petiole 5–8 mm, pubescent; leaf blade oblong or ovate-oblong, 4.5–5 × 2–4 cm, abaxially densely pubescent on veins, adaxially sparsely appressed pubescent, base subcordate, rarely truncate, margin irregularly doubly serrate and usually irregularly 5- or 6-lobed, apex long caudate-acuminate. Raceme 4–5.5 cm, 4–5-flowered; peduncle and pedicels densely pubescent. Hypanthium cylindric, abaxially densely pubescent. Sepals triangular-lanceolate, slightly shorter than or equaling hypanthium, pubescent on both surfaces. Petals not seen. Stamens numerous. Ovary cylindric, pubescent; ovules 2–4. Follicles cylindric, pubescent. Seeds cylindric. Fl. Jun–Jul.

- 1700–2600 m. NW Yunnan (Fugong Xian).

井冈山绣线梅 jing gang shan xiu xian mei

Shrubs to 3 m tall, yellowish brown pubescent in most parts. Branchlets red-brown, angled; buds purple-red, ovoid, with 3 or 4 subglabrous scales, apex acute. Stipules oblong, 3.5–4.5 mm, herbaceous, subglabrous, margin remotely serrate, apex obtuse; petiole 4–10 mm; leaf blade ovate-oblong or triangular-oblong, 3.9–5.5 × 2.3–4.5 cm, abaxially pubescent, densely so on veins, adaxially sparsely pubescent, base cuneate to cordate, rarely rounded, margin doubly serrate and usually 4- or 5-lobe, apex acuminate or caudate-acuminate. Racemes 5–6 cm, 20–40-flowered. Flowers 3–5 mm in diam.; pedicel 3–4 mm. Hypanthium cylindric, abaxially yellowish brown pubescent and stipitate glandular. Sepals triangular, shorter than hypanthium, margin entire, apex acuminate. Petals not seen. Stamens 15–20. Ovary cylindric, yellowish brown villous; ovules 4 or 5. Follicles cylindric. Seeds ovoid-globose. Fl. Jun.

・ About 400 m. W Jiangxi (Jinggangshan).


野珠兰属 ye zhu lan shu

Gu Cuizhi (谷梓芝 Ku Tsue-chih); Crinan Alexander

Shrubs deciduous. Branchlets reddish brown when young, terete, slightly pubescent; buds usually 2 or 3 superposed, ovoid, small, with 2–4 scales. Leaves petiolate; stipules acuminate at apex; leaf blade simple, margin serrate, usually lobed. Inflorescence a terminal corymb or panicle, many flowered; bracts small, margin entire. Flowers small, bisexual; pedicel slender. Hypanthium cupular. Sepals 5, persistent in fruit, apex obtuse. Petals 5, white, shorter than sepals. Stamens 10–20, borne on margin of hypanthium; filaments short. Carpel 1; ovules 2, pendulous; style terminal, erect. Follicle obliquely subglobose, crustaceous, dehiscing from base. Seeds 1 or 2, lustrous, globose to ovoid.

About five species: E Asia; two species (one endemic) in China.

1a. Leaf blades ovate to long elliptic-ovate, 5–7 cm, margin usually shallowly lobed; pedicels and hypanthium glabrous ............................................................... 1. S. chinensis

1b. Leaf blades triangular-ovate to ovate, 2–4 cm, margin lobed ca. 1/3 way to midvein; pedicels and hypanthium pubescent ........................................................................................................... 2. S. incisa


野珠兰 ye zhu lan

Stephanandra flexuosa Siebold & Zuccarini var. chinensis (Hance) Pampanini.

Shrubs to 1.5 m. Buds reddish brown, pubescent at scale margins. Stipules linear-lanceolate to elliptic-lanceolate, 6–8 mm, glabrous; petiole 6–8 mm, subglabrous; leaf blade ovate to long elliptic-ovate, 5–7 × 2–3 cm, glabrous or abaxially pubescent on veins, lateral veins in 7–10 pairs, base subcordate or rounded, rarely broadly cuneate, margin doubly serrate, usually shallowly lobed, apex acuminate, rarely caudate. Panicle 2–3 cm in diam.; peduncle and pedicels glabrous; bracts lanceolate to linear-lanceolate, apex obtuse. Flowers 4–5 mm in diam.; pedicel 3–6 mm. Hypanthium glabrous. Sepals erect in fruit, triangular-ovate, ca. 2 mm, margin entire. Petals ovate, rarely oblong, ca. 2 mm. Stamens ca. 10, ca. 1/2 as long as petals. Follicle ca. 2 mm in diam., pubescent, later sparsely so. Seed 1, ovoid. Fl. May, fr. Jul.–Aug.

・ Broad-leaved forest margins; 1000–1500 m. Anhui, Fujian, Guangdong, Henan, Hubei, Hunan, Jiangxi, Sichuan, Zhejiang.

2. Stephanandra incisa (Thunberg) Zabel, Gart.-Zeitung (Berlin) 4: 511. 1885.

2. Stephanandra incisa (Thunberg) Zabel, Gart.-Zeitung (Berlin) 4: 511. 1885.


白鹃梅属 bei juan mei shu

Gu Cuizhi (谷梓芝 Ku Tsue-chih); Crinan Alexander

Shrubs deciduous. Branches spreading; branchlets angled, glabrous; buds ± ovoid, with several imbricate scales, glabrous or
subglabrous, apex obtuse or acute. Leaves petiolate; stipules absent or small and caducous; leaf blade simple, margin entire or serrate. Inflorescence a terminal raceme. Flowers rather large, more than 2 cm in diam. Hypanthium shallowly campanulate. Sepals 5, very short and broad. Petals 5, imbricate, white, oblong to broadly obovate, base attenuate into a claw. Stamens 15–30; filaments borne on margin of large disk, short. Carpels 5, connate; ovary superior, deeply furrowed, 5-loculed; styles free. Fruit a capsule, obconic, 5-angled, dehiscent along both sutures. Seeds 1 or 2, oblate, winged.

About four species: C and E Asia; three species (two endemic) in China.

1a. Leaf blades serrate above middle .......................................................... 3. *E. serratifolia*

1b. Leaf blades mostly entire, occasionally serrate at apex.

2a. Pedicels 3–5 mm; petals with short claws; stamens 15–20; petiole 5–15 mm or nearly absent .............. 1. *E. racemosa*

2b. Pedicels short or nearly absent; petals with long claws; stamens 25–30; petiole 15–25 mm .................. 2. *E. giraldii*


白鹃梅 bai jian mei


Shrubs to 3 m tall. Branchlets red-brown when young, later brown; buds dark purple, trigonous-ovoid, apex obtuse. Petiole 5–15 mm or nearly absent; leaf blade elliptic or narrowly so to oblance-obovate, 3.5–6.5 × 1.5–3.5 cm, glabrous on both surfaces, base cuneate or broadly so, margin entire, rarely obtusely serrate above middle, apex obtuse or obtuse, rarely apiculate. Raceme 2.5–3.5 cm in diam., 6–10-flowered; peduncle and pedicels glabrous; bracts broadly lanceolate, ca. 3 mm, glabrous. Flowers 2.5–3.5 cm in diam.; pedicel 3–5 mm. Hypanthium shallowly campanulate, glabrous. Sepals broadly triangular, ca. 2 mm, glabrous, apex obtuse or acute. Petals obovate, 1.5 × 1 cm, base shortly clawed, apex obtuse. Stamens 15–20, 3- or 4-fascicled. Capsule glabrous; fruiting pedicel 3–8 mm. Fl. May, fr. Jun–Jul.

● Shady slopes; 200–500 m. Henan, Jiangsu, Jiangxi, Zhejiang.


红柄白鹃梅 hong bing bai juan mei

*Amelanchier Racemosa* (Lindley) Rehder subsp. *giraldii* (Hesse) F. Y. Gao & Maesen; *E. racemosa var. giraldii* (Hesse) Rehder.

Petiole red, 1.5–2.5 cm; leaf blade elliptic or narrowly so, rarely oblance-obovate, margin entire, rarely obtusely serrate above middle. Flowers 3–4.5 cm in diam. Stamens 25–30.


绿柄白鹃梅 lu bing bai juan mei


Petiole green, 1–2 cm; leaf blade elliptic to oblong, margin sometimes serrate. Flowers ca. 5 cm in diam. Stamens 20–25.

● Rocky places in valleys; 600–1300 m. Anhui, Hubei, Zhejiang.


齿叶白鹃梅 chi ye bai juan mei


Shrubs to 2 m tall. Branchlets red-purple when young, later dark purple; buds purple-red, ovoid, apex obtuse. Petiole 1–2 cm, glabrous; leaf blade elliptic to oblance-obovate, 5–9 × 3–5 cm, slightly pubescent when young, later glabrous, base cuneate or broadly so, margin entire below middle, serrate above middle, apex obtuse or acute. Raceme 3–4 cm, 4–7-flowered; peduncle and pedicels glabrous; bracts linear-lanceolate, ca. 3 mm, glabrous. Flowers 3–4 cm in diam.; pedicel 2–3 mm. Hypanthium shallowly campanulate, glabrous. Sepals triangular, ca. 2 mm, glabrous, apex acute. Petals oblong to obovate, ca. 1.5 × 1 cm, base long clawed, apex emarginate. Stamens ca.

Scrub, slopes, river sides. NE Hebei (Wuling Shan), Liaoning (Qian Shan) [Korea].

2. Subfam. MALOIDEAE

ROSACEAE

2a. Leaves pinnate, leaflets small, entire; carpels 5 .................................................................................. 13. Osteomeles

2b. Leaves simple, entire, serrate, or lobed; carpels 1–5.

3a. Leaves entire; branches unarmed.

4a. Carpels 3- to many seeded.

4b. Carpels 2–5, wholly to mostly united with hypanthium ......................................................................... 10. Cotoneaster

5a. Plant evergreen; flowers in erect racemes or sometimes panicles; fruit black, smaller, ellipsoid; inflorescence umbellate or racemose.

5b. Plant deciduous; flowers in umbel-like racemes; fruit yellow, yellowish green, red, or brown, larger, 2–5-loculed; inflorescence racemose ................................................................................. 17. Rhaphiolepis

6a. Inflorescence compound-corymbose or paniculate, rarely umbellate, many flowered.

7a. Leaves simple or compound, plant usually deciduous; pulp of fruit heterogeneous (with large prominent stone cells) to homogeneous (without stone cells) ................................................................................. 18. Sorbus

7b. Leaves simple, plant evergreen or deciduous; pulp of fruit homogeneous.

8a. Carpels partly free; ovary semi-inferior; inflorescence a compound corymb.

9a. Ovary in fruit free to middle; endocarp dehiscent when mature; leaves entire or minutely serrate ................................................................................................................. 14. Stranvaesia

9b. Ovary in fruit only free apically or to 1/3 length; endocarp not dehiscent; leaves serrate, rarely entire ................................................................................................................. 15. Photinia

10a. Sepals persistent in fruit; inflorescence paniculate, rarely racemose; leaves with excurrent lateral veins; carpels (2 or)3–5 ......................................................................................... 16. Eriobotrya

10b. Sepals caducous in fruit; inflorescence racemose, rarely paniculate; leaves with curved lateral veins; carpels 2(or 3) ............................................................................................................. 17. Rhaphiolepis

6b. Inflorescence umbellate or racemose, sometimes flowers fascicled or solitary.

11a. Carpels 3- to many seeded.

12a. Styles free; branches inermous; leaves entire ................................................................................................................. 19. Cydonia

12b. Styles connate at base; branches sometimes spiny; leaves serrate or entire.

13a. Calyx densely pubescent abaxially, with persistent lobes; ovules 3–10 per locule; flowers fascicled or 2–5 in umbellate inflorescence ............................................................................. 20. Docynia

13b. Calyx glabrous abaxially, with caducous lobes; ovules many per locule; flowers solitary or fascicled .................................................................................................................. 21. Chaenomeles

11b. Carpels 1- or 2-seeded.

14a. Ovary and fruit incompletely 6–10-loculed, with 1 ovule per locule ........................................................................ 24. Amelanchier

14b. Ovary and fruit 2–5-loculed, with 2 ovules per locule.

15a. Plant evergreen; flowers in erect racemes or sometimes panicles; fruit black, smaller, 2-loculed, with caducous sepals ............................................................................................................. 17. Rhaphiolepis

15b. Plant deciduous; flowers in umbel-like racemes; fruit yellow, yellowish green, red, or brown, larger, 2–5-loculed, with persistent or caducous sepals.

16a. Styles free; fruit usually pear-shaped, with numerous grit cells; inflorescence corymbose-racemose .................................................................................................................. 22. Pyrus
16b. Styles connate basally; fruit usually apple-shaped, without or with few grit cells; inflorescence a fascicle ................................................................. 23. *Malus*

9. **DICHTOMANTHES** Kurz, J. Bot. 11: 195. 1873  

**牛筋条属  niu jin tiao shu**

Lu Lingdi (陆玲娣 Lu Ling-ti); Stephen A. Spongberg

Shrubs or small trees. Leaves alternate, simple, venation camptodromous, margin entire, rarely serrate; stipules caducous, small; petiole short. Inflorescences terminal, compound-corymbose, many flowered; bracts usually caducous. Hypanthium campanulate. Calyx fleshy and enlarged in fruit, with 2 bracteoles basally; sepals 5, white, suborbicular or obovate. Stamens (15–)20; filaments alternately shorter; anthers didymous. Carpel 1, inserted at base of hypanthium; ovary superior, 1-loculed; style subterminal to lateral; stigma discoid, margin irregular; ovules 2, collateral, erect. Fruit dry, usually exserted from fleshy hypanthium, sepals persistent and erect; carpel leathery, 1-seeded; seeds compressed; cotyledons plano-convex.

- One species.

1. **Dichotomanthes tristaniicarpa** Kurz, J. Bot. 11: 195. 1873.

**牛筋条  niu jin tiao**

Shrubs to small trees, 2–7 m tall. Branchlets grayish brown to grayish black when old, initially densely yellowish white tomentose, glabrescent, small, initially tomentose, gradually glabrescent, apex obtuse or ± acute. Petiole 4–6 mm, thick, densely yellowish white tomentose; stipules caducous, filiform; leaf blade elliptic to oblong-lanceolate, sometimes obovate or oblanceolate, 3–6 × 1.5–2.5 cm, lateral veins 7–12 pairs, abaxially initially densely yellowish white tomentose, later thinly so or glabrescent, adaxially glabrescent or with few hairs only along midvein, base cuneate to rounded, margin entire, rarely sparsely serrate above middle, apex acute or obtuse, usually abruptly pointed. Inflorescences 2–5 × 3–6 mm; rachis and pedicels yellowish white tomentose; bracts caducous, lanceolate, membranous. Pedicel 1–3 mm. Flowers 5–9 mm in diam. Hypanthium 2–3 mm, both sides densely tomentose. Sepals green, triangular, shorter than hypanthium, margin toothed, apex obtuse. Petals white, suborbicular or broadly ovate, 3–4 mm, base shortly clawed, apex obtuse or emarginate. Stamens (15–)20, shorter than petals; filaments glabrous, smooth. Ovary pubescent abaxially; style subterminal to lateral at anthesis, becoming subterminal at fruiting, not exceeding stamens, glabrous; stigma discoid-capitate, lobulate. Fruit red, long terete, 5–7 mm, hard, glabrescent except apex slightly pubescent, exserted from fleshy hypanthium, base of style forming a small apicula. Fl. Apr–May, fr. Aug–Nov.

- Mixed forests, evergreen forest margins, open slopes; 1300–2500 m. Sichuan, Yunnan.

1a. **Dichotomanthes tristaniicarpa var. tristaniicarpa**

**牛筋条(原变种)  niu jin tiao (yuan bian zhong)**

Leaf blade initially densely yellowish white tomentose abaxially, thinly so when old.  

- Mixed forests, evergreen forest margins, open slopes; 1500–2500 m. Sichuan, Yunnan.


**光叶牛筋条  guang ye nius jin tiao**

Leaf blade initially densely yellowish white tomentose abaxially, gradually glabrescent, subglabrous or slightly pubescent only along midvein when old.

- Mixed forests, evergreen forest margins, open slopes; 1300–1500 m. S Yunnan (Simao Xian).

Wu Zhengyi (editor’s note) believes this variety is merely a form occurring on the southern margin of the distribution of the species.


**栒子属  xun zi shu**

Lu Lingdi (陆玲娣 Lu Ling-ti); Anthony R. Brach

Shrubs, rarely small trees, erect, decumbent, or prostrate, deciduous, semi-evergreen, or evergreen. Branchlets mostly terete, rarely slightly angulate, unarmed. Winter buds small; scales several, imbricate, exposed. Leaves alternate, simple, shortly petiolate; stipules caducous, usually subulate, small; margin of leaf blade entire, venation camptodromous. Inflorescences terminal or axillary,

12 Extensive contributions were received from Kenneth R. Robertson (ILLS), Herbarium, Illinois Natural History Survey, 607 East Peabody Drive, 172 Natural Resources Building, Champaign, Illinois 61820-6970, U.S.A.
cymose or corymbose, sometimes flowers several fascicled or solitary. Hypanthium turbinate or campanulate, rarely cylindric, adnate to ovary. Sepals 5, persistent, short. Petals 5, erect or spreading, imbricate in bud, white, pink, or red. Stamens 10–20(–22), inserted in mouth of hypanthium. Ovary inferior or semi-inferior, 2–5-loculed; carpels 2–5, connate abaxially, free adaxially; ovules 2 per carpel, erect; styles 2–5, free; stigmas dilated. Fruit a drupe-like pome, red, brownish red, or orange to black, with persistent, in-curved, fleshy sepals, containing pyrenes; pyrenes (1 or)2–5, bony, 1-seeded; seeds compressed; cotyledons plano-convex.

About 90 species in the broad sense: widespread in temperate N Africa, Asia (except Japan), Central America (Mexico), and Europe, most abundant in SW China; 59 species (37 endemic) in China.

The shrubs are widely planted as ornaments for their attractive fruits and flowers, and as borders, hedges, and ground cover. Further studies are necessary to clarify a taxonomy complicated by hybridization and apomixis.

1a. Inflorescences compact compound corymbs, more than 20-flowered; petals white, spreading; leaves large, more than 2.5 cm.

2a. Leaf blade abaxially initially pilose, glabrate.

3a. Leaf blade elliptic to ovate, apex obtuse or acute; fruit reddish yellow, ovoid to obovoid, 6–7 mm in diam. ................................................................. 8. C. glaucophyllus

3b. Leaf blade oblong-lanceolate to oblong-oblongate, apex acuminate or acute; fruit red, globose, 4–5 mm in diam. ............................................................... 9. C. glabratus

2b. Leaf blade abaxially persistently densely tomentose.

4a. Deciduous shrub to small tree.

5a. Leaf blade narrowly elliptic to ovate-lanceolate; fruit bright red, ellipsoid, 4–5 mm in diam. ......................... 6. C. frigidus

5b. Leaf blade ovate or elliptic-ovate; fruit purplish brown to black, ovoid, 6–8 mm in diam. ......................... 7. C. affinis

4b. Evergreen or semi-evergreen shrub.

6a. Leaf blade abaxially persistently densely tomentose, apex obtuse or acute.

7a. Inflorescences densely yellow tomentose; fruit obovoid; leaf blade obovate to elliptic ............................. 4. C. coriaceus

7b. Inflorescences densely gray tomentose; fruit turbinate; leaf blade obovate-lanceolate to oblong-lanceolate ................................................................. 5. C. turbinatus

6b. Leaf blade abaxially initially tomentose, glabrescent, apex acute to acuminate.

8a. Pedicel very short or nearly absent; inflorescences 2–3.5 cm; fruit ellipsoid, pyrenes always 2 ............ 3. C. harrovianus

8b. Pedicel 2–4 mm; inflorescences 3–5 cm; fruit subglobose or pyriform, pyrenes 2–4.

9a. Leaf blade adaxially shallowly rugose, abaxially glaucous and tomentose; fruit subglobose ................. 1. C. salicifolius

9b. Leaf blade adaxially deeply rugose, abaxially yellow tomentose; fruit pyriform ............................. 2. C. rhytidophyllus

1b. Inflorescences lax corymb, fewer than 20-flowered, sometimes reduced to a solitary flower; petals pink and erect, or white and spreading; leaves often smaller.

10a. Corymb 3–15(–20)-flowered, sometimes reduced to a solitary flower; leaf blade longer than 2 cm, rarely slightly shorter.

11a. Petals white, spreading; fruit red.

12a. Leaf blade abaxially glabrous or slightly pilose.

13a. Pedicel and abaxial surfaces of leaf blade and hypanthium sparsely pilose ........................................ 15. C. submultiflorus

13b. Pedicel and abaxial surfaces of leaf blade and hypanthium glabrous .................................................. 16. C. multiflorus

12b. Leaf blade abaxially tomentose, rarely tomentose-villos.

14a. Hypanthium abaxially glabrous.

15a. Leaf blade oblong-elliptic, abaxially gray tomentose, sometimes adaxially initially pubescent; petals 3.5–4 mm; fruit purplish red, with slightly glaucous bloom, obovoid ............................. 13. C. mongolicus

15b. Leaf blade elliptic to broadly ovate, abaxially tomentose-villos, with glaucous bloom, always adaxially glabrous; petals 5–6 mm; fruit dark red, ovoid, rarely oblong ............................. 14. C. hebephylus

14b. Hypanthium abaxially tomentose or villous.

16a. Semi-evergreen shrub; anthers purplish red; leaf blade leathery; fruit with 2 pyrenes ...................... 10. C. pannosus

16b. Deciduous shrub; anthers yellow; leaf blade herbaceous; fruit with 1 or 2 pyrenes.

17a. Leaf blade apically obtuse, abaxially white tomentose; hypanthium abaxially tomentose; petals 2.5–3.5 mm; fruit ovoid to ellipsoid ......................................................... 11. C. soongoricus

17b. Leaf blade apically acute, rarely obtuse, abaxially gray tomentose; hypanthium abaxially villous; petals 4–5 mm; fruit subglobose ......................................................... 12. C. silvestrii

11b. Petals pink, very rarely white; ovate; fruit red, rarely black (C. melanocarpus, C. tenuipes).

18a. Leaf blade abaxially tomentose; fruit red, rarely black.

19a. Hypanthium abaxially glabrous or slightly puberulous.

20a. Fruit black; inflorescences 3–15-flowered, rachis tomentose ................................................ 29. C. melanocarpus

20b. Fruit red; inflorescences 2–7-flowered, rachis glabrous to pilose.

21a. Hypanthium abaxially puberulous; flowers 2–4 in short fascicles, nearly 1/2 as long as leaves ...... 26. C. oliganthus
21b. Hypanthium abaxially glabrous; flowers 2–7 in corymbs.

22a. Inflorescences nearly 1/2 as long as leaves; rachis and pedicels glabrous, rarely puberulous; leaf blade broadly elliptic, broadly ovate, or suborbicular; fruit subglobose, rarely ovoid, glabrous .......................................................... 27. *C. integerrimus*

22b. Inflorescences nearly as long as leaves; rachis and pedicels pilose; leaf blade ovate to oblong-ovate; fruit obovoid, puberulous .......................................................... 28. *C. gracilis*

19b. Hypanthium abaxially densely tomentose or pilose.

23a. Leaf blade apically obtuse, rarely acute.

24a. Fruit black, ovoid, with 1 or 2 pyrenes; inflorescences 2–4-flowered ........................................ 19. *C. tenuipes*

24b. Fruit red, globose to ovoid or obovoid, with 2 or 3 pyrenes; inflorescences 3–15-flowered.

25a. Leaf blade elliptic to ovate; inflorescences 3–10-flowered; fruit obovoid or ovoid-globose, with 2 pyrenes .......................................................... 17. *C. zabelii*

25b. Leaf blade broadly ovate to suborbicular; inflorescences 10–15-flowered; fruit oblong, with 3 pyrenes .................................................................................. 18. *C. fangianus*

23b. Leaf blade apically acute to acuminate.

26a. Rachis, pedicels, and hypanthium abaxially glabrous; fruit purplish black, subglobose, with 5 pyrenes .................................................................................. 25. *C. reticulatus*

26b. Rachis, pedicels, and hypanthium abaxially pubescent; fruit red or orangish red, obovoid, ovoid, or subglobose, with 2–5 pyrenes.

27a. Rachis, pedicels, and hypanthium abaxially densely white tomentose; petals white; fruit obovoid, pyrenes 2 .................................................................................................. 20. *C. wardii*

27b. Rachis, pedicels, and hypanthium abaxially pilose; petals usually pink, sometimes white or red; fruit subglobose to obovoid, pyrenes 3–5 or if pyrenes 2, then fruit ovoid.

28a. Inflorescences 5–11-flowered; fruit orangish red, with 3–5 pyrenes ........................................ 24. *C. franchetti*

28b. Inflorescences 3–7(–11)-flowered; fruit dark or bright red, with 2–5 pyrenes.

29a. Fruit ovoid, dark red, with 2 or 3 pyrenes; petals red ...................................................... 23. *C. obscurus*

29b. Fruit subglobose or obovoid, bright red, with 3–5 pyrenes; petals white or pink.

30a. Inflorescences 2-flowered; petals pink; leaf blade elliptic to ovate, abaxially densely tomentose; fruit subglobose or obovoid, with 3–5 pyrenes .......................................................... 21. *C. dielsianus*

30b. Inflorescences 3–11-flowered; petals white; leaf blade ovate-lanceolate to oblong-ovate, abaxially sparsely tomentose; fruit subglobose, with 5 pyrenes ........................................ 22. *C. glomeratus*

18b. Leaf blade abaxially glabrous or pilose.

31a. Fruit red.

32a. Hypanthium abaxially glabrous when old; flowers 5–13 in corymbs; leaf blade adaxially conspicuously rugose, veins prominently raised abaxially; styles 4 or 5; fruit with 4 or 5 pyrenes .......................... 33. *C. bullatus*

32b. Hypanthium abaxially slightly puberulous; flowers 1–9; leaf blade adaxially not rugose, veins raised but not prominently; styles 2; fruit with 2 pyrenes.

33a. Flowers (1 or)2 or 3(–5); leaf blade elliptic-ovate to ovate-lanceolate, adaxially pilose; fruit ellipsoid ........................................................................ 30. *C. acuminatus*

33b. Flowers 3–9; leaf blade elliptic-lanceolate, abaxially glabrous or initially pilose, glabrescent; fruit subglobose or obovoid.

34a. Leaf blade elliptic-lanceolate; fruit subglobose, glabrous ...................................................... 31. *C. nitidifolius*

34b. Leaf blade broadly elliptic or broadly ovate, sometimes obovate or suborbicular; fruit obovoid, pilose or subglabrous ................................. 32. *C. schantungensis*

31b. Fruit black.

35a. Hypanthium abaxially glabrous or subglabrous; inflorescences 5–10-flowered; fruit ovoide or subglobose .......................................................... 37. *C. ambiguus*

35b. Hypanthium abaxially pilose; inflorescences 2–25-flowered; fruit ellipsoid, obovoid, or subglobose.

36a. Leaf blade apically acute; inflorescences 2–5-flowered; fruit ellipsoid or obovoid, with 2 or 3 pyrenes .................................................................................. 34. *C. acutifolius*

36b. Leaf blade apically acuminate; inflorescences 3–25-flowered; fruit subglobose or obovoid, with 3–5 pyrenes.

37a. Inflorescences 9–25-flowered; leaf blade adaxially rugose and conspicuously bullate; pyrenes 4 or 5, smooth .................................................................................. 35. *C. moupinensis*

37b. Inflorescences 3–7-flowered; leaf blade adaxially not bullate, veins slightly impressed; pyrenes 3 or 4, furrowed and shallowly pitted on back ........................................ 36. *C. foveolatus*

10b. Inflorescences solitary flowers, rarely 2– or 3(–7)-flowered (but 3–9(–11)-flowered in *C. sherriffii*); leaf blade often less than 2 cm, rarely slightly longer.

38a. Petals white, spreading; fruit red, with 2 or 3(–5) pyrenes; prostrate or low evergreen shrub.
39a. Abaxial surfaces of leaf blade and hypanthium tomentose .......................................................... 38. C. buxifolius
39b. Abaxial surfaces of leaf blade and hypanthium pilose.
40a. Leaf blade ovate or oblong-ovate to elliptic, rarely obovate; fruit with 2–5 pyrenes.
   41a. Leaf blade elliptic to oblong-elliptic, 1–2(–3) cm; fruit subglobose, with 4 or 5 pyrenes .......... 39. C. dammeri
   41b. Leaf blade ovate or oblong-ovate, rarely obovate, 0.9–1.5 cm; fruit ellipsoid-ovoid or ellipsoid,
       with 2 or 3 pyrenes .......................................................................................................................... 40. C. morrisonensis
40b. Leaf blade suborbicular, ovate, obovate, or elliptic to oblanceolate; fruit with 1 or 2 pyrenes.
42a. Leaf blade elliptic, oblong or obovate to oblong-ovate, rarely oblanceolate, base cuneate.
   43a. Flowers solitary, rarely 2 or 3; shrub prostrate or suberect; leaf blade obovate to oblone-ovovate,
       margin slightly revolute.
   44a. Prostrate shrubs; leaf blade obovate to oblong-ovovate, 4–10 mm; fruit scarlet-red, 5–7 mm
       in diam. ........................................................................................................................................ 41. C. microphyllus
   44b. Suberect shrubs; branches spreading to 40 cm; leaf blade elliptic to oblanceolate, rarely
       oblong, 6–16(–20) mm; fruit bright scarlet, 8–10 mm in diam. .................................................. 42. C. conspicuus
43b. Flowers 3–9(–11); shrub erect; leaf blade oblong-ovovate, rarely oblanceolate, margin not
       revolute ........................................................................................................................................ 43. C. sherriffii
42b. Leaf blade suborbicular or broadly ovate, base broadly cuneate to rounded.
   45a. Leaf blade adaxially glabrous, abaxially pilose; flowers 1–3, petals white or tinged reddish,
       spreading; fruit red, obovate, with 2 or 3 pyrenes ................................................................. 44. C. rotundifolius
   45b. Leaf blade villous on both surfaces; flowers solitary, petals pink, erect; fruit dark red, oviod-
       globose, with 2 pyrenes .................................................................................................................. 51. C. langei
38b. Petals red, rarely pink, erect; fruit red, rarely purplish black, with (1 or)2 or 3(4) pyrenes; spreading or
     erect, deciduous or semievergreen shrub.
46a. Leaf blade abaxially densely tomentose; flowers usually solitary.
   47a. Petals red; hypanthium abaxially pilose; leaf blade suborbicular or broadly elliptic, apex obtuse,
       abaxially persistently yellow tomentose .................................................................................... 45. C. rubens
   47b. Petals pink; hypanthium abaxially glabrous; leaf blade ovate, rarely ovate-elliptic, apex acute or
       obtuse, abaxially tomentose, gradually glabrescent, subglabrous when old ............................ 46. C. uniflorus
46b. Leaf blade abaxially glabrous or pilose; flowers 1–3(4).
48a. Hypanthium abaxially glabrous; erect shrub.
   49a. Stems irregularly branched; fruit subglobose, sessile, erect.
   50a. Leaf apically apiculate, rarely emarginate, blade suborbicular or orbicular-ovate, rarely broadly
       obovate, glabrous on both surfaces or slightly puberulous only along veins abaxially; petals
       pinkish ........................................................................................................................................ 58. C. apiculatus
   50b. Leaf apically acute, sometimes obtuse, blade obovate or elliptic-ovate, pilose on both surfaces;
       petals red ..................................................................................................................................... 59. C. sanguineus
49b. Stems distichously branched; fruit obovoid or globose, shortly pedicellate, pendent.
   51a. Branchlets conspicuously verruculous; leaf blade emarginate or partly mucronulate; flowers
       solitary ........................................................................................................................................ 57. C. verruculosus
   51b. Branchlets strigose, not verruculous; leaf apically acute or obtuse; flowers 1–3.
   52a. Flowers solitary; stamens 20; leaf blade broadly ovate or broadly obovate, apex acute, rarely
       obtuse ........................................................................................................................................ 55. C. nitidus
   52b. Flowers 2 or 3; stamens 10; leaf blade suborbicular or broadly ovate, apex obtuse or acute .... 56. C. taylorii
48b. Hypanthium abaxially pubescent; prostrate or erect shrub.
50a. Stems horizontally spreading, regularly distichously branched ................................................. 49. C. horizontalis
50b. Stems tufted on ground, irregularly branched.
   55a. Leaf blade thinly papery, margin undulate; fruit subglobose, 7–9 mm in diam., pyrenes
       2 or 3 ........................................................................................................................................ 47. C. adpressus
   55b. Leaf blade leathery, margin thick, not undulate; fruit ovoid, 5–6 mm in diam., pyrenes 2 .... 48. C. subadpressus
53b. Erect shrub; flowers 2 or 3(4).
56a. Fruit black.
   57a. Leaf apically obtuse, rarely acute, blade ovate, rarely elliptic, adaxially glabrous, abaxially
       villous or subglabrous; fruit ellipsoid, pyrenes 1 or 2 ............................................................ 53. C. nitens
   57b. Leaf apically acute to acuminate, blade elliptic to ovate-elliptic, both surfaces appressed
       strigose-villous; fruit ovoid or subglobose, pyrenes 2 or 3 .................................................... 54. C. harrismithii
56b. Fruit red.
   58a. Branchlets verruculous; leaf blade appressed pilose on both surfaces; fruit with 3
       pyrenes .................................................................................................................................. 52. C. chengkangensis
58b. Branchlets not verruculose; leaf blade strigose-villous or subglabrous, fruit with 2 pyrenes.

59a. Leaf blade elliptic or broadly elliptic, rarely obovate, abaxially slightly puberulous, adaxially subglabrous, apex acute, rarely + obtuse; fruit ellipsoid, shortly stalked .......... 50. C. divaricatus

59b. Leaf blade broadly ovate to suborbicular, both surfaces strigose-villous, apex obtuse, rarely acute; fruit ovoid-globose, subsessile ................................................................. 51. C. langei


柳叶栒子 liu ye xun zi

Shrubs evergreen, rarely semievergreen, to 5 m tall, with spreading to erect branches. Branchlets reddish brown to grayish brown, initially densely tomentose, glabrescent. Petiole often red, robust, 4–5 mm, tomentose; stipules caducous, brown, linear or linear-lanceolate, 4–7 mm, membranous, tomentulose; leaf blade elliptic-oblong to ovate-lanceolate or linear-lanceolate, 4–8.5 × 1.5–2.5 cm, laterals veins 12–16 pairs, prominently raised abaxially and impressed adaxially, abaxially gray tomentose, with bloom, abaxially glabrous or pilose, rugose, base cuneate, margin entire, revolute or not, apex acute or acuminate. Compound corymbs 3.5–6 × 3–4 cm, many flowers, rachis and pedicels densely gray tomentose; bracts caducous, reddish, membranous, pilose; leaf blade strigose-villous or subglabrous, fruit with 2 pyrenes.

1a. Leaf blade broadly ovate to suborbicular, both surfaces strigose-villous, apex obtuse, rarely acute; fruit ovoid-globose, subsessile ................................................................. 51. C. langei


皱叶柳叶栒子 zhui ye liu ye xun zi

Leaf blade elliptic-oblong, adaxially deeply rugose, veins slightly impressed. Fruit subglobose, 6–7 mm in diam. 2n = 34*.


大叶柳叶栒子 da ye liu ye xun zi

Leaf blade elliptic-oblong, adaxially deeply rugose, margin revolute, veins deeply impressed. Fruit subglobose, ca. 6 mm in diam. 2n = 68*.

1d. Cotoneaster salicifolius var. angustus (T. T. Yu) G. Klotz.

窄叶柳叶栒子 zai ye liu ye xun zi

Leaf blade elliptic-oblong, adaxially pilose, veins slightly impressed. Fruit ovoid, 5–7 mm in diam. 2n = 34*.


麻叶栒子 ma ye xun zi

Shrubs evergreen or semievergreen, to 2 m tall. Branchlets reddish brown, terete, stout, initially densely yellow tomentose, glabrous when old. Petiole robust, 3–5 mm, densely yellow tomentose; stipules caducous, reddish, membranous, pilose; leaf blade yellowish green adaxially, elliptic-oblong or ovate-oblong to oblong-lanceolate, 4–7 × (1.3–)1.8–3 cm, thickly leathery, midvein conspicuously raised abaxially and deeply impressed adaxially, lateral veins 5–8 pairs, abaxially densely yellow to-
mentose, adaxially deeply rugose, initially sparsely villous, glabrescent, base cuneate, margin revolute, apex acuminate, rarely acute. Compound corymbs 3–4 cm, many flowered; rachis and pedicels densely yellow tomentose; bracts caducous, linear-lanceolate, 2–4 mm, slightly tomentose. Pedicel 1–2 mm. Flowers 4–5 mm in diam. Hypanthium campanulate, densely tomentose. Sepals triangular, 1.5–2 mm, apex acute. Petals spreading, white, broadly ovate or suborbicular, 2.5–3.5 × 2.5–3 mm, adaxially tomentose near base, base shortly clawed, apex obtuse. Stamens 20, slightly shorter than petals. Ovary tomentose apically; styles 2, free, nearly as long as stamens. Fruit red, obvoid, 4–6 × 4–5 mm, sparsely tomentose; pyrenes 2. Fl. May–Jun, fr. Sep–Oct. 2n = 68*.

- Rocky mountains, cliffs, forests, waste places, dry places; 1200–2600 m. Guizhou, Sichuan.


蒙自栒子 meng zi xun zi

Shrubs evergreen, 1.5–2 m tall, much branched. Branchlets dark brown, initially yellowish gray appressed tomentose, glabrous when old. Petiole 4–5 mm, pilose; stipules lanceolate, 4–5 mm, membranous, pilose; leaf blade elliptic-oblong or ovate, rarely obovate-oblong, 2.5–5 × 1.2–2 cm, subleathery, midvein prominently raised abaxially and impressed adaxially, lateral veins 8–10 pairs, abaxially densely tomentose, glabrous when old, with glaucous bloom, adaxially initially puberulous, later subglaabrous, slightly rugose, base cuneate, apex acute or shortly acuminate. Compound corymbs 2–3.5 × 3–5 cm, densely many flowered; rachis and pedicels densely villous; bracts linear-lanceolate or subulate, 3–5 mm, pubescent. Pedicel very short or nearly absent. Flowers 5–6 mm in diam. Hypanthium campanulate, abaxially densely tomentose. Sepals triangular, 1.5–2 mm, apex acute. Petals spreading, broadly ovate or suborbicular, 2–3 × 2–2.5 mm, puberulous near base, base nearly not clawed, apex obtuse and cuneate. Stamens 20, slightly shorter than petals; anthers purple, capitate. Ovary pilose apically; styles 2, free, nearly as long as stamens. Fruit orange red, pyriform, 5–6 × 5–5 mm; pyrenes 2. Fl. May–Jun, fr. Sep–Oct.

- Waste places or slopes; 1500–1600 m. SE Yunnan.


厚叶栒子 hou ye xun zi

Cotoneaster lacteus W. W. Smith; C. oligocarpus C. K. Schneider, C. smithii G. Klotz.

Shrubs evergreen, 1–3 m tall. Branchlets dark purplish brown to grayish brown, glabrous when old. Petiole 4–8 mm, initially densely yellow tomentose, glabrous when old. Petiole 4–8 mm, initially densely yellow tomentose, subglabrous when old; stipules linear-lanceolate, 4–5 mm, sparsely tomentose or glabrescent at fruiting; leaf blade obovate to elliptic, 2.4–4.5 × 1.2–2.8 cm, thickly leathery, midvein prominently raised abaxially and deeply impressed adaxially, lateral veins 7–10 pairs, abaxially densely yellow tomentose, adaxially lustrous, glabrous, base cuneate, margin entire, apex obtuse or acute and mucronate. Compound corymb 3–5(–6) × 4–7 cm, densely many smallflowered; rachis and pedicels densely yellow tomentose; bracts caducous, linear-lanceolate, 2–4 mm, slightly tomentose. Pedicel 1–2 mm. Flowers 4–5 mm in diam. Hypanthium campanulate, densely tomentose. Sepals triangular, 1.5–2 mm, apex acute. Petals spreading, white, broadly ovate or suborbicular, 2.5–3.5 × 2.5–3 mm, adaxially tomentose near base, base shortly clawed, apex obtuse. Stamens 20, shorter than petals. Ovary tomentose apically; styles 2, free, nearly as long as stamens. Fruit red, obvoid, 4–6 × 4–5 mm, sparsely tomentose; pyrenes 2. Fl. May–Jun, fr. Sep–Oct. 2n = 68*.

- Waste places or slopes; 1500–2700 m. Guizhou, Sichuan, Xizang, Yunnan.


陀螺果栒子 tuo luo guo xun zi

Shrubs evergreen, 3–5 m tall, with spreading branches. Branchlets grayish brown to blackish brown, initially densely gray tomentose, glabrous when old. Petiole 4–7 mm, tomentose; stipules caducous or partly persistent, brownish, linear, 3–5 mm, tomentose; leaf blade obovate-lanceolate to oblanceolate, 2.5–5 × 1–2 cm, midvein distinctly raised abaxially and impressed adaxially, lateral veins 8–10 pairs, abaxially densely gray tomentose, adaxially glabrous or with few white soft hairs along midvein, base cuneate, apex acute and abruptly mucronate. Compound corymbs 2.5–4.5 × 4–5 cm, many flowered; rachis and pedicels densely gray tomentose; bracts linear, 2–4 mm, tomentose. Pedicel 2–5 mm. Flowers 5–6 mm in diam. Hypanthium campanulate, abaxially gray tomentose. Sepals triangular, 1.5–2 mm, apex acute. Petals spreading, milky white, ovate or suborbicular, 2–3 mm in diam., adaxially puberulous near base, base shortly clawed, apex obtuse. Stamens 20, slightly shorter than petals. Ovary pilose apically; styles 2, free, ca. as long as stamens. Fruit pendent, dark red, turbinate, 4–5 mm, tomentose; pyrenes 2. Fl. Jun–Jul, fr. Sep–Oct.

- River banks, river valleys, gullies; 1800–2700 m. Guizhou, Hubei, Sichuan, Yunnan.


耐寒栒子 nai han xun zi

Cotoneaster himalaiensis Hortorum ex Zabel.

Shrubs or small trees, deciduous, to 10 m tall, with spreading branches. Branchlets purplish brown or grayish brown, glabrescent, base cuneate, margin revolute, apex acuminate, rarely acute. Compound corymbs 3–4 cm, many flowered; rachis and pedicels densely yellow tomentose; bracts caducous, linear-lanceolate, 2–4 mm, slightly tomentose. Pedicel 1–2 mm. Flowers 4–5 mm in diam. Hypanthium campanulate, densely tomentose. Sepals triangular, 1.5–2 mm, apex acute. Petals spreading, white, broadly ovate or suborbicular, 2.5–3.5 × 2.5–3 mm, adaxially tomentose near base, base shortly clawed, apex obtuse. Stamens 20, shorter than petals. Ovary tomentose apically; styles 2, free, nearly as long as stamens. Fruit red, obvoid, 4–6 × 4–5 mm, sparsely tomentose; pyrenes 2. Fl. May–Jun, fr. Sep–Oct. 2n = 68*.

- Grassly slopes along river sides or thickets; 1800–2700 m. Guizhou, Sichuan, Xizang, Yunnan.

River valleys, broad-leaved deciduous forests on slopes; 2800–3300 m. Xizang [Bhutan, N India, Nepal, Sikkim].


粉叶栒子 fen ye xun zi

Cotoneaster bacillaris Lindley var. affinis (Lindley) J. D. Hooker; C. frigidus Lindley var. affinis (Lindley) Wenzig; Mespilus affinis (Lindley) D. Don.

Shrubs deciduous, to 5 m tall. Branchlets dark reddish brown, terete. Petiole 4–5 mm, densely yellow tomentose; stipules linear or lanceolate, tomentum; leaf blade ovate or elliptic-ovate, 2.5–5 × 1.4–2 cm, midvein raised abaxially and impressed adaxially, abaxially densely yellow tomentose, gradually glabrescent, adaxially glabrous or puberulous only along midvein, base broadly cuneate, apex obtuse or acute. Compound corymbs 3–4 cm in diam., 15–30-flowered or more; rachis and pedicels densely yellow tomentose; bracts linear-lanceolate, tomentose. Pedicel 2–3 mm. Flowers ca. 1 cm in diam. Hypanthium campanulate, abaxially tomentose. Sepals broadly elliptic, 1–2 × 1.5–2.5 mm, apex acute. Petals spreading, white, suborbicular or broadly obovate, 3–4 mm, slightly pubescent. Pedicel 2–4 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, abaxially pilose. Sepals triangular, 1–2 × 1.5–2.5 mm, apex acute. Petals spreading, white, suborbicular or broadly obovate, 3–4 mm, adaxially puberulous near base, base shortly clawed, apex obtuse, rarely emarginate. Stamens 20, ca. as long as petals. Ovary puberulous apically; styles 2, free, nearly equaling or lower than stamens. Fruit reddish yellow, ovoid to obovoid, 6–7 mm in diam., glabrous when mature; pyrenes usually 2. Fl. Jun–Jul, fr. Sep–Oct.

- Mixed forests, thickets, clearings, mountain regions and valleys; 1200–3000 m. Guangxi, Guizhou, Sichuan, Yunnan.

1a. Leaf blade 3–6 cm, abaxially white tomentose or with soft yellow hairs.

2a. Inflorescences with soft yellow hairs, to 40-flowered .............. 8a. var. glaucophyllus

2b. Inflorescences initially white tomentose, glabrescent, to more than 50-flowered .............. 8b. var. serotinus

1b. Leaf blade 1.5–3 cm, abaxially yellow tomentose or slightly pubescent.

3a. Leaf blade abaxially initially densely yellow tomentose, glabrescent; inflorescences up to 40-flowered, larger, initially densely white tomentose ......................... 8c. var. vestitus

3b. Leaf blade abaxially slightly pubescent or subglabrous; inflorescences 6–12-flowered, smaller, with soft hairs .............. 8d. var. meiophyllus

8a. Cotoneaster glaucophyllus var. glaucophyllus

粉叶栒子(原变种) fen ye xun zi (yuan bian zhong)

Cotoneaster transensis G. Klotz; Photinia rosifoliolata H. Léveillé.

Leaf blade 3–6 cm, abaxially initially slightly pubescent, later glabrous. Inflorescences to 40-flowered, with soft yellow hairs.

- Mixed forests on slopes, clearings; 1200–2800 m. Guangxi, Guizhou, Sichuan, Yunnan.


多花粉叶栒子 duo hua fen ye xun zi


- Mountain regions; 1900–3000 m. W Yunnan.


毛萼粉叶栒子 mao e fen ye xun zi

Cotoneaster vestitus (W. W. Smith) Flinck & Hylmö.

Leaf blade 2–2.5 × 1–2 cm, abaxially initially densely yellow tomentose, glabrescent. Inflorescences relatively large, to 40-flowered, initially densely white tomentose, glabrescent.

- Mixed forests, thickets, mountain regions; 2000–3000 m. W Yunnan.


Shrubs semievergreen, 3–5 m tall. Branchlets robust, purplish red to purplish black, terete, slightly angular, initially sparsely appressed pubescent, gradually glabrescent. Petiole 5–7 mm, initially puberulous, later glabrous; stipules caducous, brown, lanceolate, 4–5 mm, membranous; leaf blade oblong-lanceolate to oblong-oblanceolate, 4–9 × 1.5–3.3 cm, leathery, midvein slightly raised abaxially, laterally veins 7–10 pairs, abaxially with bloom, initially puberulous, glabrate, adaxially lucid, glabrous, base cuneate, apex acuminate or acute. Compound coryllms 3–6 × 3.5–5.5 cm, densely many flowered; rachis and pedicels sparsely pilose; peduncles 1.5–2.5 cm; bracts caducous, lanceolate, 3–5 mm, membranous, puberulous. Pedicel 2–3 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, abaxially sparsely pilose. Sepals ovate-triangular, 1–2 mm, apex acute. Petals spreading, white, ovate or suborbicular, 2.5–3 × 2–3 mm, glabrous, base shortly clawed, apex rounded. Stamens 20, unequal in length; anthers purple. Ovary puberulous near base, base shortly clawed, apex rounded.Styles 2(or 3), free, ca. as long as stamens. Fruit red, globose, 4–5 mm in diam.; pyrenes usually 2. Fl. Jun–Jul, fr. Sep–Oct.

● Rocky slopes, dense forests; 1600–2800 m. Guizhou, Hubei, Sichuan, Yunnan.


Shrubs semievergreen, to 2 m tall. Branchlets dark grayish brown or purplish brown, thin, initially densely white tomentose, glabrescent. Petiole 2–7 mm, tomentose; stipules caducous, linear, pubescent; leaf blade narrowly elliptic, elliptic, or ovate, 2–3.4 × 0.8–1.5 cm, leathery, midvein impressed adaxially, lateral veins 4–6 pairs, abaxially densely white tomentose, adaxially slightly pubescent or glabrous, base broadly cuneate, apex obtuse or acute. Coryllms 1–3 × 1.5–2.5 cm, to 10–20(–40)-flowered; rachis and pedicels densely tomentose; bracts caducous, linear, pubescent. Pedicel 2–3 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, abaxially densely tomentose. Sepals triangular, apex shortly acuminate or acute. Petals spreading, white, broadly ovate or suborbicular, 3–3.5 mm, base shortly clawed and puberulous adaxially, apex obtuse. Stamens 20, nearly as long as petals; anthers purplish red. Ovary pubescent apically; styles 2(or 3), free, ca. as long as stamens. Fruit dark red, globose or ovoid, 7–8 mm in diam.; pyrenes often 2. Fl. Jun, fr. Oct–Nov. 2n = 34*, 68*.

● Thickets, rocky places, waste places in mountain regions, slopes; 1100–3200 m. Sichuan, Yunnan.

1a. Leaf blade broadly elliptic or ovate, 2–3 cm ..... 10a. var. pannosus
1b. Leaf blade narrowly elliptic, to 3–4 cm ........................................... 10b. var. robustior

10a. Cotoneaster pannosus var. pannosus

毡毛栒子 (原变种) zhan mao xun zi (yuan bian zhong)

Cotoneaster vernae C. K. Schneider.

Leaf blade elliptic or ovate, 2–3 cm, relatively broad. 2n = 68*.

● Thickets, rocky places, waste places in mountain regions; 1100–3200 m. Sichuan, Yunnan.


毡毛栒子 (原变种) zhan mao xun zi (yuan bian zhong)

Cotoneaster robustior (W. W. Smith) Flinck & Hylmö.

Leaf blade narrowly elliptic, to 3–4 cm, relatively narrow.

● Thickets, slopes; 1800–2200 m. NW Yunnan.


准噶尔栒子 zhun ga er xun zi

Shrubs deciduous, 1–2.5 m tall, with spreading or ascending branches. Branchlets grayish brown or reddish brown, terete, slender, initially densely gray tomentose, glabrescent when old. Petiole (1.5–)2–5 mm, tomentose; leaf blade oblong to elliptic, suborbicular, or ovate, rarely obovate, (1–)1.5–5 × 1–2 cm, herbaceous, veins raised abaxially and slightly impressed adaxially, abaxially white tomentose, adaxially glabrous or slightly pilose, base rounded or broadly cuneate, apex usually obtuse and mucronate, sometimes emarginate. Coryllms 1.5–2 cm, 3–12-flowered; rachis and pedicels white tomentose. Pedicel 2–3 mm. Flowers 8–9 mm in diam. Hypanthium campanulate, abaxially tomentose. Sepals broadly triangular, 1–2 mm, subglabrous or glabrous, apex acute. Petals spreading, white, ovate to suborbicular, 2.5–3 × 2–3 mm, adaxially white puberulous near base, base shortly clawed, apex obtuse, rarely emarginate. Stamens 18–20, slightly shorter than petals; anthers yellow. Ovary densely white pubescent apically; styles 2, free, not exceeding stamens. Fruit red, ovoid to ellipsoid, (5–)7–10 mm; pyrenes 1 or 2. Fl. May–Jun, fr. Sep–Oct.

● Dry slopes, forests, forest margins, river and mountain valleys; 1400–2600 m. Gansu, Hebei, Nei Mongol, Ningxia, Qinghai, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan.

11a. Cotoneaster soongoricus var. soongoricus

准噶尔栒子 (原变种) zhun ga er xun zi (yuan bian zhong)

Cotoneaster vernae var. soongoricus

叶柄粉叶栒子 xiao ye fen ye xun zi

Cotoneaster arbusculus G. Klotz; C. meiophyllus (W. W. Smith) G. Klotz.

Leaf blade 1.5–3 × 1–2 cm, abaxially slightly pubescent or subglabrous. Inflorescences relatively small, 6–12-flowered, with soft hairs.

● Mountain valleys; 1900–2400 m. W Yunnan.
**Cotoneaster nummularia** Fischer & C. A. Meyer var. soongoricus Regel & Herder, Bull. Soc. Imp. Naturalistes Moscou 39(2): 59. 1866; *C. fontanesii* Spach var. soongoricus Regol; *C. nummularia* var. ovalifolius Boissier; *C. racemiflorus* (Desfontaines) K. Koch var. ovalifolius (Boissier) Hurusawa; *C. racemiflorus* var. soongoricus (Regel & Herder) C. K. Schneider; *C. suavis* Pojarkova; *C. tibeticus* G. Klotz; *C. tomentellus* Pojarkova; *C. zayulenesis* G. Klotz.

Leaf blade broadly elliptic, suborbicular, or ovate, 1.5–5 cm. Fruit 7–10 mm.

- Dry slopes, forests, forest margins, river valleys; 1400–2400 m. Gansu, Nei Mongol, Ningxia, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan.

Further study is necessary to determine the identity of *Cotoneaster albohermosinus* J. Fryer & B. Hylmö, which might be synonymous with this taxon.


小果准噶尔栒子 xiao guo zhun ga er xun zi


Leaf blade oblong to narrowly elliptic, rarely obovate, 1–1.5 cm. Fruit 5–6 mm.

- Mountain valleys; 2300–2600 m. Gansu, Hebei, Sichuan.


华中栒子 huá zhōng xùn zǐ

*Cotoneaster hupehensis* Rehder & E. H. Wilson; *C. kantinensis* G. Klotz; *C. racemiflorus* (Desfontaines) K. Koch var. veitchii Rehder & E. H. Wilson; *C. veitchii* (Rehder & E. H. Wilson) G. Klotz.

Shrubs deciduous, 1–2 m tall. Branchlets reddish brown to grayish brown, slender, initially reddish brown pubescent, soon glabrescent. Petiole 3–5 mm, thin, tomentose; stipules caducous, linear, 3–5 mm, puberulous; leaf blade elliptic to ovate, 1.5–3.5 × 1–1.8 cm, herbaceous, lateral veins 4 or 5 pairs, raised abaxially and slightly impressed adaxially, abaxially thinly gray tomentose, adaxially glabrous or slightly appressed pubescent, base rounded or broadly cuneate, apex acute or obtuse, sometimes mucronate, rarely emarginate. Corymb 3–7-flowered; rachis and pedicels thinly pubescent; peduncles 1–2 cm. Pedicel 1–3 mm. Flowers 9–10 mm in diam. Hypanthium campanulate, abaxially thinly villous. Sepals triangular, 1.5–2.5 mm, apex acute. Petals spreading, white, suborbicular, 4–5 mm in diam., adaxially white pubescent near base, base shortly clawed, apex emarginate. Stamens 20, somewhat shorter than petals; anthers yellow. Ovary white pubescent apically; styles 2, free, not exceeding stamens. Fruit red, subglobose, 7–8 mm in diam.; pyrenes 2, sometimes united into 1. Fl. May–Jun, fr. Aug–Sep. 2n = 68*.

- Mixed forests; 500–2600 m. Anhui, Gansu, Henan, Hubei, Jiangsu, Jiangxi, Sichuan.


蒙古栒子 meng gu xun zi

*Cotoneaster tumeticus* Pojarkova.

Shrubs deciduous, to 1.8 m tall. Branchlets spreading, dark reddish brown, terete, robust, initially white pubescent, glabrous when old. Petiole 2–3 mm, gray pubescent; stipules persistent, subulate, reddish brown, margin pubescent; leaf blade oblong-elliptic, (1.3–)2–3 × (0.5–)1–1.8 cm, veins raised abaxially, abaxially sparsely gray tomentose, adaxially lucid, glabrous or slightly pubescent, base cuneate, apex usually obtuse. Corymb 3–6(or 7)-flowered; rachis and pedicels white pubescent; bracts subulate. Pedicel 2–3(–4) mm. Flowers 9–10 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals dark red, triangular, glabrous or sparsely pubescent only apically, apex subacute. Petals spreading, white, suborbicular, 3.5–4 mm, glabrous, margin irregularly emarginate, base not or shortly clawed. Stamens 20. Ovary densely pubescent apically; styles 2, free, not exceeding stamens. Fruit dark red or purplish red, obovoid, 8–9 mm, with slightly glaucous bloom, glabrous; pyrenes 2(or 3). Fr. Sep.

Dry stony places, thickets. Nei Mongol [E Mongolia].


钝叶栒子 dun ye xun zi

Shrubs, sometimes treelike, deciduous, 1.5–3 m tall. Branchlets dark reddish brown, slender, initially pilose, soon glabrescent. Petiole 5–7 mm, sparsely tomentose-villos; stipules caducous at fruiting, linear-lanceolate, 3–4 mm, sparsely villous; leaf blade elliptic to broadly ovate, (1.5–)2–3 × (1–)1.2–2 cm, subleathery, abaxially sparsely tomentose-villos or tomentose, with glaucous bloom, adaxially glabrous, base broadly cuneate to rounded, apex obtuse or emarginate, mucronate. Corymb (1–)1.5–3 cm, 5–15-flowered; rachis and pedicels sparsely villous; bracts linear-lanceolate, 2–3 mm, slightly villous. Pedicel 2–3 mm. Hypanthium campanulate, abaxially glabrous or slightly pilose near base. Sepals broadly triangular, abaxially glabrous or puberulous only apically, apex acute. Petals spreading, white, suborbicular, 5–6 mm in diam., adaxially puberulous near base, base very shortly clawed, apex obtuse. Stamens 20, slightly shorter than petals; anthers purple. Ovary densely pilose apically; styles 2, free, somewhat not exceeding stamens. Fruit dark red, ovoid or pyriform, rarely oblong, (5–)6–8 mm in diam.; pyrenes 2, sometimes united into 1. Fl. May–Jun, fr. Aug–Sep.

- Mountain regions, clearings at forest margins, thickets, river valleys; 1300–3400 m. Gansu, Hebei, Sichuan, SE Xizang, Yunnan.

1a. Fruit 7–8 mm in diam.; leaf blade abaxially sparsely tomentose-villos.
## 14. Cotoneaster hebephyllus

**Cotoneaster hebephyllus** var. **hebephyllus**


- **Leaf blade abaxially sparsely tomentose-villous.** Fruit ovoid, sometimes oblong, 7–8 mm in diam.; pyrenes 2 usually united into 1.
  - Rocky mountain regions, clearings at forest margins, thickets; 1300–3400 m. Gansu, Hebei, Sichuan, SE Xizang, Yunnan.

### 14a. **Cotoneaster hebephyllus** var. **hebephyllus**

**钝叶栒子** (原变种) 钝叶栒子 (原变种)

- **Leaf blade abaxially sparsely tomentose-villous.** Fruit ovoid, sometimes oblong, 7–8 mm in diam.; pyrenes 2 usually united into 1.
  - Rocky mountain regions, clearings at forest margins, thickets; 1300–3400 m. Gansu, Hebei, Sichuan, SE Xizang, Yunnan.

### 14b. **Cotoneaster hebephyllus** var. **majusculus**

**C. monopyrenus**

- **Leaf blade abaxially densely yellow tomentose.** Fruit usually ovoid, 7–8 mm in diam.; pyrenes 2 usually united into 1.
  - Mountain regions; 2000–3300 m. NW Yunnan.

### 14c. **Cotoneaster hebephyllus** var. **incanus**

**C. incanus**

- **Leaf blade abaxially densely gray or yellowish gray tomentose.** Fruit broadly pyriform, 7–8 mm in diam.; pyrenes 2.
  - Mountain regions; 2000–3300 m. NW Yunnan.

### 14d. **Cotoneaster hebephyllus** var. **fulvidus**

**C. fulvidus**

- **Leaf blade abaxially densely yellow tomentose.** Fruit broadly pyriform, 7–8 mm in diam.; pyrenes 2.
  - Open thickets, river valleys; 2000–2300 m. W Yunnan.

## 15. Cotoneaster submultiflorus


- **Leaf blade abaxially densely yellow tomentose.** Fruit usually ovoid, 5–7 mm in diam.; pyrenes 2.
  - Mountain regions; 2000–3300 m. NW Yunnan.

### 16. Cotoneaster multiflorus

**Bunge in Ledebour, Fl. Altaic. 2: 220. 1830.**

**水栒子**

- Shrubs deciduous, erect, (0.5–)4 m tall. Branchlets arching, reddish brown or brownish, terete, slender, initially pubescent, soon glabrescent. Petiole 3–8(–10) mm, initially pilose, glabrate; stipules linear, 2.5–5 mm, initially sparsely pilose, glabrate; leaf blade ovate to broadly ovate, (1.5–)2–4(–5) × (1.2–)1.5–3(–4) cm, midvein raised abaxially and impressed adaxially, abaxially pilose, glabrescent, adaxially glabrous, base broadly cuneate or rounded, apex acute or obtuse. Corymbs lax, 5–21-flowered; rachis and pedicels glabrous, rarely slightly puberulous; bracts linear, 2–4 mm, glabrous or slightly puberulous. Pedicel 4–6 mm. Flowers 1–1.2 cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular, 1.5–2 × 2–2.5 mm, apex acute. Petals spreading, white, suborbicular, 4.5–5 mm in diam., adaxially white puberulous near base, base slightly clawed, apex obtuse or emarginate. Stamens ca. 20, slightly shorter than petals. Ovary pubescent apically; styles usually 2, free, not exceeding stamens. Fruit bright red, subglobose, 6–7 mm in diam.; pyrenes usually 2, united into 1. Fl. May–Jun, fr. Aug–Sep.
  - Rock crevices, thickets; 900–2000 m. Gansu, Hebei, Henan, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang [C Asia].

### 16a. **Cotoneaster multiflorus** var. **fulvidus**

- **Leaf blade abaxially densely yellow tomentose.** Fruit usually ovoid, 5–7 mm in diam.; pyrenes 2.
  - Open thickets, river valleys, dense and mixed forests on slopes, forest margins, thickets, stream sides; 1200–3500 m. Gansu, Hebei, Heilongjiang, Henan, Hebei, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Russia; C and SW Asia].

### 16b. **Cotoneaster multiflorus** var. **atropurpureus**

- **Leaf blade abaxially densely yellow tomentose.** Fruit usually ovoid, 5–7 mm in diam.; pyrenes 2.
  - Open thickets, river valleys; 2000–2300 m. W Yunnan.

**Cotoneaster calocarpus** (Rehder & E. H. Wilson) Flinck & Hylmö; *C. przewalskii* Pojarkova.

- Fruit red, 1–1.2 cm in diam. $2n = 68$.
- Dense forests on slopes; 1600–2600 m. Gansu, Shaanxi, Sichuan.


**Cotoneaster zabelii** C. K. Schneider, Ill. Handb. Laubholz. 1: 749. 1906.


Shrubs deciduous, to 2 m tall. Branchlets dark reddish brown, terete, initially densely yellow pubescent, glabrous when old. Petiole 2–4 mm, tomentose; stipules lanceolate, 2–4 mm, pubescent, usually glabrescent at fruiting; leaf blade elliptic to ovate, 1.5–3 × 1–2 cm, abaxially densely yellow or gray tomentose, adaxially sparsely pubescent, base rounded or broadly cuneate, apex obtuse, rarely emarginate. Corymb pendulum, 1.5–3 cm, 3–10-flowered or more; rachis and pedicels tomentose. Pedicel 2–4 mm. Hypanthium campanulate, abaxially tomentose. Sepals triangular, 1–2 × 1.5–2.5 mm, apex slightly obtuse or shortly pointed. Petals erect, pinkish, obovate or suborbicular, 2–3 mm in diam., apex obtuse. Stamens 18–20, shorter than petals. Ovary pilose apically; styles 2, free, not exceeding stamens. Fruit bright red, obovoid to ovoid-globose, 7–8 mm in diam.; pyrenes often 2. Fl. May–Jun, fr. Aug–Sep.

- Forests, rocky mountain areas; 1900–3100 m. Gansu, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan.
- River banks; 1300–1400 m. SW Hubei.


**细枝栒子** xi bei xun zi

Shrubs deciduous, 1–2 m tall. Branchlets brownish red, terete, slender, initially grayish yellow appressed villous, soon glabrescent, glabrous when old. Petiole 3–5 mm, villous; stipules caducous or partly persistent, lanceolate, 2.5–5 mm, slightly villous; leaf blade ovate or elliptic-ovate to narrowly elliptic-ovate, 2–2.5(–3.5) × 1.2–2 cm, veins somewhat raised abaxially and slightly impressed adaxially, abaxially gray appressed tomentose, adaxially initially sparsely pilose, subglabrous when old, base broadly cuneate, apex acute or ± obtuse. Corymb 1.5–2.5 cm, 2–4-flowered; rachis and pedicels densely appressed villous; bracts linear or linear-lanceolate, 2–4 mm, puberulous. Pedicel 1–3 mm, slender. Flowers ca. 7 mm in diam. Hypanthium densely appressed villous abaxially. Sepals ovate-triangular, ca. 1.2 mm, apex acute. Petals erect, white, ovate or suborbicular, 3–4 mm and nearly as broad, base clawed, apex obtuse. Stamens 15, shorter than petals. Ovary puberulous apically; styles 2, free, not exceeding stamens. Fruit purplish black, ovoid, 8–9 × 5–6 mm; pyrenes 1 or 2. Fl. May–Jun, fr. Sep–Oct. $2n = 68$.

- Forests, rocky mountain areas; 1900–3100 m. Gansu, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan.


**白毛栒子** bai mao xun zi

Shrubs evergreen, to 3 m tall. Branchlets terete, initially white tomentose, glabrescent. Petiole robust, 2–4 mm, densely tomentose; stipules linear, 4–6 mm, sparsely pubescent; leaf blade dark green adaxially, ovate or elliptic, 2.5–4 × 1.5–2 cm, midvein distinctly raised abaxially and impressed adaxially, lateral veins 5 or 6 pairs, abaxially densely silvery tomentose, adaxially initially sparsely pilose, glabrous when old, base...
rounded or broadly cuneate, apex acute. Corymbs 9–15-flow-ered; rachis and pedicels densely white tomentose; bracts red-
dish brown, linear, 4–5 mm, sparsely pubescent. Pedicel 1–3 mm. Flowers 6–7 mm in diam. Hypanthyum campanulate, abax-
ially densely white tomentose. Sepals triangular, apex acute. Petals erect, white, tinged reddish, suborbicular or broadly obo-
vate, 3–4 × 2.5–3.5 mm, base shortly clawed, margin slightly incised, apex obtuse. Stamens 20, somewhat shorter than petals. Ovary white pubescent apically; styles 2(–4), free, not exceeding stamens. Fruit orangish red, obovoid, 8–9 mm in diam.; pyrenes usually 2. Fl. May–Jun; fr. Sep–Oct.


木帚栒子 mu zhou xun zi

Shrubs deciduous, 1–2 m tall. Branchlets grayish black or brownish black, terete, thin, initially densely villous, glabre-
scent. Petiole 1–3 mm, tomentose; stipules triangular, tomentose at petioles, initially tomentose, glabrous when mature; leaf blade elliptic to ovate, (0.6)–1.25 × 0.8–1.5 cm, abaxially densely yellowish gray or gray tomentose, adaxially puberulous or subglabrous and shiny, base broadly cuneate or rounded, apex acute, rarely obtuse or emarginate. Corymbs 1.5–3 mm, 3–7-flowered; rachis and pedicels villous; bracts linear-lanceolate, 2–3 mm, pubescent. Pedicel 1–3 mm. Flowers 6–7 mm in diam. Hypanthyum villous abaxially. Sepals triangular, 1.2 × 1.5–2.5 mm, apex acute, rarely obtuse or emarginate. Petals erect, pinkish, suborbicular or broadly obovate, 3–4 mm in diam., base shortly clawed, apex obtuse. Stamens 15–20, shorter than petals. Ovary pilose apically; styles 3–5, free, very short. Fruit dark red or coral-red, subglobose or obovoid, 5–8 mm in diam.; pyrenes 3–5. Fl. Jun–Jul; fr. Sep–Oct.

- Forest margins; 3000–4000 m. SE Xizang.

21a. Cotoneaster dielsianus var. dielsianus

木帚梅子 (原变种) mu zhou xun zi (yuan bian zhong)


1a. Leaf blade 1–2.5 cm, adaxially puberulous; fruit red ......................... 21a. var. dielsianus

1b. Leaf blade 0.6–1.5 cm, adaxially shiny, subglabrous; fruit coral-red .......... 21b. var. elegans

21a. Cotoneaster dielsianus var. dielsianus

木帚梅子 (变种) mu zhou xun zi (bian zhong)


Leaf blade 1–2.5 cm, adaxially puberulous. Fruit red.

- Waste slopes, river valleys, grassy places, thickets, dense forests; 1000–3600 m. Gansu, Guizhou, Hubei, Sichuan, Xizang, Yunnan.

Further study is necessary to determine the identities of Cotoneaster bradyi J. Fryer & E. C. Nelson and C. sikangensis J. Fryer & B. Hylmö, which might be synonymous with this taxon.

21b. Cotoneaster dielsianus var. elegans

Shrubs deciduous, (0.5)–1.5–3 m tall, much branched. Branchlets brown or purplish brown to blackish brown, terete, initially yellowish strigose, gradually glabrescent. Petiole 2–4 mm, sparsely pilose; stipules lanceolate, 2–4 mm, membranous, pilose; leaf blade elliptic-ovate or rhombic-ovate, 2.5–4.5 × 1.5–2.5 cm, lateral veins 5–7 pairs, raised abaxially and slightly impressed adaxially, abaxially yellowish gray tomentose, adaxially sparsely puberulous, base broadly cuneate, apex acuminate, rarely acute. Corymbs 1.5–2.5 cm, 3–7-flowered; rachis and pedicels puberulous; bracts linear-lanceolate, 2–3 mm, membranous, slightly pubescent. Flowers 7–8 mm in diam. Hypanthyum campanulate, abaxially pubescent. Sepals triangular, 1.5–2 mm and ca. as broad, apex shortly acuminate. Petals erect, reddish, elliptic to ovate, 3–4 × 2–3 mm, base shortly clawed, apex obtuse. Stamens 16–20, shorter than petals. Ovary white pubescent apically; styles 2 or 3, free, somewhat not exceeding stamens. Fruit dark red, ovoid, 7–8 × 5–6 mm; pyrenes usually 2–4. Fl. May–Jun; fr. Sep–Oct. 2n = 68*.

*Cotoneaster amoenus* E. H. Wilson; *C. franchetii* var. cinerascens Rehder; *C. insculptus* Diels; *C. mairei* H. Lév.; *C. mairei* var. albiflorus H. Lév.

Shrubs semievergreen, 1–3 m tall, with spreading, arching-inflexed branches. Branchlets dark grayish brown or grayish black, initially densely striigose, gradually glabrescent. Petiole 2–4 mm, tomentose; stipules linear-lanceolate, 2–4 mm, initially tomentose, glabrate; leaf blade elliptic to ovate, 2–3 × 1–1.5 cm, thick, lateral veins 4 or 5 pairs, raised abaxially and deeply impressed adaxially, abaxially densely yellow or white tomentose, adaxially initially appressed pubescent, glabrescent, base cuneate, apex acute or acuminate. Corymbs 1.5–2.5 cm, 5–11-flowered; rachis and pedicels densely tomentose; bracts linear, 2–3.5 mm, tomentose. Pedicel 2–4 mm. Flowers 6–7 mm in diam. Hypanthium campanulate, abaxially densely pubescent. Sepals triangular, 1.2 × 1.5–2.5 mm, apex acute or shortly acuminate. Petals erect, pink, broadly oval or elliptic, 3–4 × 2–3 mm, adaxially puberulous near base, base shallowly clawed, apex obtuse. Stamens 20, shorter than petals. Ovary pubescent apically; styles 2 or 3(–5), free, not exceeding stamens. Fruit orange or red, ovoid-globose, 6–7 mm in diam., initially pubescent, finally glabrous; pyrenes usually 3, rarely to 5. Fl. Jun–Jul, fr. Sep–Oct. 2n = 68*.

Thickets in rocky sunny mountain regions, open hillsides; 1600–2900 m. Guizhou, Sichuan, Xizang, Yunnan [Thailand].

Further study is necessary to determine the identity of *Cotoneaster inadatrus* J. Fryer & B. Hylmö, which might be synonymous with this taxon.


网脉栒子 wang mai xun zi

Shrubs deciduous, to 4 m tall. Branchlets brown to dark reddish brown, terete, initially yellow striigose, glabrescent. Petiole 2–3–4 mm, pilose, glabrate; stipules lanceolate, 2–3 mm, pilose; leaf blade bright green adaxially, elliptic-ovate, rarely rhombic-ovate, 1.2–2.5 × 0.8–1.6 cm, subleathery, lateral veins 4 or 5 pairs, distinctly raised abaxially and impressed adaxially, abaxially yellowish gray tomentose, adaxially glabrous, rugose, base broadly cuneate to rounded, apex acuminate to acute. Corymbs 1.5–2.5 cm, 3–6-flowered; rachis and pedicels glabrous; bracts linear or linear-lanceolate. Pedicel 5–6 mm. Petals pink. Fruit purplish black, subglobose, 5–7 mm in diam., glabrous; pyrenes (2–)3. Fl. May–Jun, fr. Sep–Oct.

- Waste places, forest margins; 2600–3000 m. W Sichuan.


少花栒子 shao hua xun zi

Shrubs deciduous, 1–2 m tall. Branchlets dark brown, initially densely greenish gray appressed tomentose, glabrescent, subglobose when old. Petiole 2–4 mm, tomentose; leaf blade bright green adaxially, elliptic or ovate-ovaricle, 0.8–1.2 × 0.4–0.7 × 2 cm, abaxially greenish gray tomentose, adaxially sparsely appressed pubescent or glabrous, base broadly cuneate to rounded, apex usually obtuse, rarely ± acute, sometimes emerginate, often mucronate. Fascicles or racemes ca. 1/2 as long as leaves, on very short lateral branchlets in leaf axils, 2–4-flowered; rachis 2–4 mm, tomentose. Pedicel 2–5 mm, tomentose. Flowers 7–8 mm in diam. Hypanthium campanulate, abaxially sparsely appressed pubescent or subglaucous. Sepals broadly ovate, margin purple and tomentose-ciliate, apex obtuse or ± acute. Petals erect or somewhat divaricate, pink, base floccose. Stamens 20. Styles 2(3) or free. Fruit red, subglobose to ellipsoid, 5–8 mm in diam.; pyrenes often 2(3). Fl. May–Jun, fr. Aug–Sep. 2n = 68.

Mountain regions. Nei Mongol, Xinjiang [Kazakhstan, Kyrgyzstan].

27. **Cotoneaster integerrimus** Medikus, Gesch. Bot. 85. 1793.

全缘栒子 quan yuan xun zi

*Cotoneaster vulgaris* Lindley; *Mespilus cotoneaster* Linnaeus; *Ostinia cotoneaster* (Linnaeus) Clairville.

Shrubs deciduous, erect, to 2 m tall, much branched, with broad spreading crown. Branchlets brown or grayish brown, terete, initially densely gray tomentose, soon glabrescent. Petiole 2–5 mm, tomentose; stipules mostly persistent at fruiting, lanceolate, puberulous; leaf blade broadly elliptic, broadly ovate, or suborbicular, 2.5 × (0.5–)1.3–2.5(–3) cm, veins raised abaxially and impressed adaxially, abaxially densely gray tomentose, adaxially glabrous or sparsely pubescent, base round-ed, apex acute or obtuse, usually mucronate. Corymbs 1.5–2.5 cm, 2–5(–7)-flowered; rachis and pedicels glabrous or puberulous; bracts lanceolate, puberulous. Pedicel 3–6 mm. Flowers ca. 8 mm in diam. Hypanthium campanulate, glabrous or puberulous abaxially. Sepals triangular-ovate, 1.2–1.5 × 1–2 mm, apex obtuse. Petals erect, pink, suborbicular, ca. 3 mm in diam., base shallowly clawed, apex obtuse. Stamens 15–20, nearly as long as petals. Ovary pubescent apically; styles 2, rarely 3, free, not exceeding stamens. Fruit red or dark red, subglobose, rarely ovoid, 6–7(–8) mm in diam., glabrous, pyrenes usually 2, rarely 3 or 4. Fl. May–Jun, fr. Aug–Sep. 2n = 68.

Rocky slopes, forests; below 2500 m. Hebei, Heilongjiang, Nei Mongol, Qinghai, Xinjiang [Korea; Russia; N Asia, Europe].


细弱栒子 xi ruo xun zi

Shrubs deciduous, 1–3 m tall. First year’s branches glabrous; branchlets brownish red to grayish brown, terete, slender, initially densely tomentose-villosus, gradually glabrescent. Petiole 2–3 mm, white tomentose; stipules caducous, subulate, 2–4 mm, membranous, pubescent; leaf blade ovate to oblanceolate, 2–3.5 × 1–2 cm, lateral veins 3 or 4 pairs, conspicuously raised abaxially and impressed adaxially, abaxially densely white tomentose, white tomentose or puberulous, base round-
ed, apex obtuse or acute, rarely emarginate. Corymb (1–)1.5–2.5 cm, 3–7-flowered; rachis and pedicels pilose; bracts linear, 2–3 mm, pilose. Pedicel 3–6 mm. Flowers 6–7 mm in diam. Hypanthium red, campanulate, abaxially glabrous. Sepals triangular, 1.5–2.5 mm, apex obtuse. Petals erect, pinkish, reddish, or reddish white, suborbicular, 3–4 mm in diam. Stamens 20, slightly shorter than petals. Ovary subglobose, 6–7(–9) mm in diam.; pyrenes 2 or 3. Fl. May–Jun, fr. Aug–Sep.

● Mountain regions, slopes, river banks, thickets; 1000–3000 m. Gansu, Henan, Hubei, Shaanxi, Sichuan.

1a. Leaf blade ovate to oblong-ovate, 2–3.5 × 1–2 cm, abaxially densely tomentose. Inflorescences 3–7-flowered. 28a. var. gracilis

Leaf blade ovate to oblong-ovate, 2–3.5 × 1–2 cm, abaxially densely tomentose. Inflorescences 3–7-flowered. 28a. var. gracilis

1b. Leaf blade ovate-elliptic to broadly elliptic, 7–14 × 5.5–8 mm, tenuously tomentose abaxially; inflorescences 1–3(–6)-flowered. 28b. var. difficilis

28a. Cotoneaster gracilis var. gracilis

细弱栒子 (原变种) xi ruo xun zi (yuan bian zhong)

Leaf blade ovate to oblong-ovate, 2–3.5 × 1–2 cm, abaxially densely tomentose. Inflorescences 3–7-flowered.

● Slopes, river banks, thickets; 1000–3000 m. Gansu, Hubei, Shaanxi, Sichuan.


小叶细弱栒子 xiao ye xi ruo xun zi


Leaf blade ovate-elliptic to broadly elliptic, 7–14 × 5.5–8 mm, abaxially tenuously tomentose. Inflorescences 1–3(–6)-flowered.

● Mountain regions; 1800–3000 m. SE Gansu, W Sichuan.


黑果栒子 hei guo xun zi

Cotoneaster niger (Wahlberg) Fries; C. orientalis A. Kerner, C. pedunculare Boissier; C. vulgaris Lindley var. melanocarpus (Loddiges) Ledebour, Mespilus cotoneaster var. nigra Wahlberg.

Shrubs deciduous, 1–2(–2.5) m tall. Branchlets brown or purplish brown, terete, initially tomentose, soon glabrate, glabrous when old. Petiole (1–)2.5–5 mm, tomentose; stipules partly persistent, lanceolate, pubescent; leaf blade ovate-elliptic to broadly ovate, 2.5–7.5 × 1–3 cm, abaxially white tomentose, adaxially slightly subglobose, pubescent when mature, base rounded or broadly cuneate, apex obtuse or ± acute, mucronate, sometimes emarginate. Corymb nodding, 2–4 cm, 3–15-flowered; rachis and pedicels pubescent; bracts linear, pubescent. Pedicel 3–7(–9) mm. Flowers ca. 7 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular, 1.5–2.5 mm, apex obtuse. Petals erect, pinkish, reddish, or reddish white, suborbicular, 3–4 mm in diam. Stamens 20, shorter than petals. Ovary subglobose, 6–7(–9) mm in diam.; pyrenes 2 or 3. Fl. May–Jun, fr. Aug–Sep.

Slopes, sparse forests, thickets; 700–2600 m. Gansu, Hebei, Heilongjiang, Jilin, Nei Mongol, Shanxi, Xinjiang [Japan, N Mongolia, Russia; E Europe].


尖叶栒子 jian ye xun zi

Cotoneaster bakeri G. Klotz; C. kongboensis G. Klotz; C. mucronatus Franchet; C. nepalensis André; Mespilus acuminata Loddiges.

Shrubs deciduous, erect, 2–3(–4) m tall. Branchlets grayish brown to brownish, terete, initially densely yellowish striated, glabrous when old. Petiole 3–5 mm, villous; stipules partly caducous at fruiting, lanceolate, 3–5 mm, villous; leaf blade ovate-elliptic to ovate-lanceolate, 2.5–6 × 2–3 cm, both surfaces villous, more densely so abaxially, base broadly cuneate, apex acuminate, rarely acute. Cymes 1–2 cm, (1 or)2 or 3(–5)-flowered; rachis and pedicels yellowish villous; bracts lanceolate or linear, 2–4 mm, margin villous. Pedicel 3–5 mm. Flowers 6–8 mm in diam. Hypanthium campanulate, abaxially appressed villous. Sepals triangular, 1.5–2.5 × 2–3 mm, apex acute. Petals erect, pink or whitish, ovate to obovate, 3–4 mm and nearly as broad, glabrous, base clawed, apex obtuse or erose. Stamens 20, shorter than petals. Ovary pilose apically; styles 2, free, not exceeding stamens. Fruit bright red, ellipsoid, 8–10 × 7–8 mm; pyrenes 2. Fl. May–Jun, fr. Sep–Oct. 2n = 34, 68.

Mixed forests, thickets, fields; 1500–3000 m. Sichuan, Xizang, Yunnan [Bhutan, N India, Nepal, Sikkim].


亮叶栒子 liang ye xun zi

Shrubs deciduous, erect, 2–3 m tall. Branchlets grayish brown to reddish brown, terete, slender, initially densely yellow pubescent, gradually glabrescent. Petiole 3–5 mm, pubescent; stipules reddish, lanceolate, 3–5 mm, initially sparsely pubescent, glabrescent; leaf blade elliptic-lanceolate, 4.5–6.5 × 1.5–2.5 cm, veins raised abaxially and impressed adaxially, abaxially pubescent, more densely so along veins, abaxially glabrous, base cuneate, apex acuminate. Corymb 1.5–2.5 cm, 3–9-flowered; rachis and pedicels pubescent; bracts reddish, linear-lanceolate, 3–4 mm, puberulous. Pedicel 1–3 mm, pubescent. Flowers nodding, 5–6 mm in diam. Hypanthium campanulate, abaxially pubescent. Sepals triangular, 1.5–2 × 1.5–2 mm, apex acute. Petals erect, red basally, white apically, suborbicular or elliptic, 3–4 mm, base clawed, apex obtuse and whitish. Stamens 16–18, shorter than petals. Ovary with pubescent apex; styles 2, free, not exceeding stamens. Fruit crimson,

- Open thickets by streams, mixed forests; 2000–3000 m. Sichuan, Yunnan.


山东栒子

Shrubs deciduous, to 2 m tall. Branchlets reddish brown or grayish brown, terete, slender, initially densely gray villous, glabrous when old. Petiole 2–4.5 mm, slightly villous; stipules caducous or partly persistent, lanceolate, 1–2 mm, villous; leaf blade broadly elliptic or broadly ovate, slightly obovate or suborbicular, 2–3.5 × 1.5–2.4 cm, papery, lateral veins 3–5 pairs, slightly raised axially, abaxially initially densely villous, glabrate, adaxially initially villous, glabrescent, base broadly cuneate to rounded, apex usually obtuse or emarginate, rarely mucronate. Corymbs suberect or spreading, 3–6-flowered; rachis and pedicels initially villous, finally subglabrous. Hypanthium campanulate, abaxially sparsely pilose. Sepals rarely mucronate. Corymbs suberect or spreading, 3–6-flowered; rachis and pedicels initially villous, finally subglabrous. Hypanthium campanulate, abaxially sparsely pilose. Sepals broadly triangular. Petals not seen. Fruit dark red, obovoid, 6–8 mm, sparsely pilose or subglaubrous; pyrenes 2. Fl. May–Jun, fr. Aug–Sep.

- Stony slopes; 900–1900 m. Shandong.


泡叶栒子

Shrubs deciduous, spreading, to 2 m tall. Branchlets slightly inflexed, grayish black, terete, stout, initially strigose, gradually glabrescent. Petiole (1.5–)3–6 mm, pilose; stipules caducous, brown, lanceolate, 3–5 mm, pilose; leaf blade oblong-ovate to elliptic or lanceolate-oblong, 3.5–7×(15) × 2–4(–8) cm, veins prominently raised axially, abaxially pilose, more densely so along veins, sometimes subglaubrous, adaxially glabrous or pilose, conspicuously rugose and bullate, base cuneate or rounded, apex acuminate, rarely acute. Corymbs 2.5–5 cm in diam., (3–)5–13–(3–)1-flowered; rachis and pedicels pilose; bracts lanceolate, 2–3 mm, pilose. Pedicel 1–3 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, abaxially initially pilose, glabrate. Sepals triangular, 1–1.5 × 1.5–2.5 mm, apex acute. Petals erect, pinkish, obovate, 4–4.5 mm and nearly as broad, base shortly clawed, apex obtuse. Stamens 20–22; shorter than petals. Ovary pubescent apically; styles 4 or 5, free, very short. Fruit red, globose or obovoid, 6–8 × 6–8 mm; pyrenes 4 or 5. Fl. May–Jun, fr. Aug–Sep.

- Slopes, sparse forests, thickets, river banks, mountain forests and valleys; 900–3200 m. Hepu, Sichuan, Xizang, Yunnan.

3a. Petiole 3–6 mm; corymbs (3–)5–13–flowered.

3a. **Cotoneaster bullatus** var. **buccocephalus** (Klotz, Wiss. Z. Friedrich-Schiller-Univ. Jena, Math.-Naturwiss. Reihe 21: 987. 1972), synonymous with this taxon, is invalid under Arts. 8.1 and 37 of the St. Louis Code because Klotz cited two specimens (from different gatherings) as types.

3b. Petiole 1.5–2.5 mm; corymbs 9–31–flowered.

3b. **Cotoneaster bullatus** var. **camilli-schneideri** (Pojarkova) L. T. Lu, comb. et stat. nov.

少花泡叶栒子


Petiole 3–6 mm; leaf blade ovate-elliptic or elliptic, rarely obovate, 3–6.5 × 2–4 cm. Inflorescences small, 3–5–flowered.

- Slopes. Hubei.


大叶泡叶栒子

Petiole ca. 2 mm; leaf blade obovate-elliptic or elliptic, rarely elliptic-oblong or lanceolate-oblong, 5–15 × 2.5–8 cm. Inflorescences 5–8 cm in diam., 11–31–flowered. Fruit globose, 7–9 mm, with 5 pyrenes.

- Thickets; 1300–2800 m. W Sichuan.

33d. **Cotoneaster bullatus** var. **floribundus** (Stapf) L. T. Lu & A. R. Brach, Novon 12: 496. 2002.

多花泡叶栒子

Petiole 1.5–2.5 mm; leaf blade ovate or obovate to elliptic, less than 5 cm. Inflorescences 4–6 cm in diam., (9–)15–31–flowered. Fruit with 4 or 5 pyrenes.

- Mountain forests; 900–2800 m. W Sichuan.

The name **Cotoneaster boissianus** (Klotz, Wiss. Z. Friedrich-Schiller-Univ. Jena, Mat. Naturwiss. Reihe 21: 987. 1972), synonymous with this taxon, is invalid under Arts. 8.1 and 37 of the St. Louis Code because Klotz cited two specimens (from different gatherings) as types.


灰栒子

Shrubs deciduous, 2–4 m tall. Branchlets brownish or red-
Cotoneaster acutifolius

1a. Hypanthium abaxially glabrous or slightly villous.
   2a. Leaf blade adaxially glabrous, abaxially villous; hypanthium
       abaxially glabrous or slightly villous  ..................................  34c. var. lucidus
   2b. Leaf blade villous on both surfaces; hypanthium
       abaxially glabrous ..................................................  34d. var. glabricalyx

1b. Hypanthium abaxially villous; leaf blade villous on both surfaces.
   3a. Abaxial surfaces of both leaf blade and hypanthium sparsely villous
       .................................................................  34a. var. acutifolius
   3b. Abaxial surfaces of both leaf blade and hypanthium densely
       villous ..............................................................  34b. var. villosulus

34a. Cotoneaster acutifolius var. acutifolius


密毛灰栒子 mi mao hui xun zi

Cotoneaster dissimilis G. Klotz; C. villosulus (Rehder & E. H. Wilson) Finck & Hylmö.


光萼灰栒子 guang e hui xun zi

Cotoneaster lucidus Schlechtendal, Linnaea 27: 541. 1854.

Leaves blade villous abaxially, glabrous adaxially. Hypanthium glabrous or only slightly villous abaxially. Fruit obovoid or subglobose, 8–10 mm in diam. 2n = 68.


密毛灰栒子 mi mao hui xun zi

Leaf blade 2.5–3.5 cm, both surfaces villous, more densely so abaxially. Hypanthium glabrous abaxially. Fruit not seen.


宝兴栒子 bao xing xun zi

Shrubs deciduous, to 5 m tall. Branchlets somewhat inflexed, grayish black, with conspicuous lenticels, terete, initially strigose, gradually glabrescent. Petiole 2–4(–8) mm, pubescence; stipules caducous; leaf blade elliptic-ovate or rhombic-ovate, 4–12 × 2–4.5 cm; veins prominently raised abaxially and impressed adaxially, abaxially pubescent along reticulate veins, adaxially slightly pilose, rugose, bullate, base broadly cuneate or subrounded, apex acuminate. Corymb usually 9–25-flowered; rachis and pedicels pubescent; bracts lanceolate, sparsely pubescent. Pedicel 2–3 mm. Flowers 8–10 mm in diam. Hypanthium campanulate, abaxially pubescent. Sepals triangular, apex acute. Petals erect, pink, ovate or suborbicular, 3–4 × 2–3 mm, apex obtuse. Stamens ca. 20, shorter than petals. Ovary pubescent at apex; styles 4 or 5, free, not exceeding stamens. Fruit black, subglobose or obovoid, 6–8 mm in diam.; pyrenes 4 or 5. Fl. Jun–Jul, fr. Sep–Oct. 2n = 68*.

Forest margins, coniferous forests, stream sides; 1300–3200 m. Gansu, Guizhou, Hubei, Ningxia, Shaanxi, Sichuan, Xizang, Yunnan.

麻核栒子 ma he xun zi


Shrubs deciduous, to 3 m tall. Branchlets dark reddish brown, terete, initially densely yellow strigose, glabrescent. Petiole 2–4 mm, pubescent; stipules partly persistent, linear or lanceolate, 3–4 mm, pubescent; leaf blade elliptic, elliptic-ovate, or elliptic-ovate, (2–)3.5–8(–10) × (1.2–)1.5–3(–4.5) cm, veins prominently raised abaxially and impressed adaxially, abaxially initially pubescent, more densely so along veins, subglabrous when old, adaxially sparsely pubescent, glabrescent, base broadly cuneate or subrounded, apex acuminate or acute. Corymb 3–7-flowered; rachis and pedicels pubescent; bracts linear, 2–3 mm, pubescent. Pedicel 3–4 mm. Flowers 7–8 mm.

Hypanthium campanulate, abaxially pilose. Sepals triangular, 1.5–2 × 2–2.5 mm, apex acute. Petals erect, pink, obovate or suborbicular, 4–5 × 3–4 mm, base shortly clawed, apex obtuse. Stamens 15–17, slightly shorter than petals. Ovary densely pilose apically; styles often 3, rarely 2–5, free, very short. Fruit black, subglobose, 8–9 mm in diam.; pyrenes 3 or 4, furred and shallowly pitted on back. Fl. May–Jun, fr. Sep–Oct. 2n = 68*.

- Thickets, dense forests, forest margins, near water courses, waste fields; 1400–3400 m. Gansu, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Xizang, Yunnan.

Further study is necessary to determine the identity of *Cotoneaster hsingshangensis* J. Fryer & B. Hylmö, which might be synonymous with this taxon.


川康栒子 chuan kang xun zi

*Cotoneaster ambiguus* var. *tenuirameus* (Franchet) G. Klotz; *C. pseudoambigua* J. Fryer & B. Hylmö.

Shrubs deciduous, to 2 m tall. Branchlets reddish brown or grayish brown, slender, initially strigose, subglabrous or glabrous when old. Petiole 2–5 mm, pilose; stipules caducous, subulate, 2–3 mm, tomentulose; leaf blade elliptic-ovate, (2–)3–5(–9)-flowered; bracts lanceolate, nearly as long as pedicels, pedicel 3–5 mm, tomentose. Flowers 7–9 mm in diam. Hypanthium campanulate, axially tomentose. Sepals ovate-triangular, 1.5–2 mm, apex acute. Petals spreading, white, suborbicular or broadly ovate, 3–4 mm in diam., glabrous, base shortly clawed, apex obtuse. Stamens 20, slightly shorter than petals. Ovary pubescent apically; styles 2, free, nearly as long as stamens. Fruit red, subglobose, 5–6 mm in diam.; pyrenes usually 2. Fl. Apr–Jun, fr. Sep–Oct.

- Mountain regions, rocky mountain slopes, thickets, roadsides; 1000–3000 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, India, Myanmar, Nepal].

1a. Dwarf shrub to 0.5–1 m tall; pedicel, hypanthium and sepals abaxially initially sparsely villous-tomentose, glabrate; flowers 1 or 2(–4); leaves apically obtuse, rarely ± acute and mucronate ...... 38c. var. *rockii*

1b. Shrubs 1–3 m tall; pedicel, hypanthium and sepals abaxially densely and persistently strigose-tomentose; flowers (1–)3–5(–9); leaves apically mucronate or mucronulate.

2a. Shrub 1–2 m tall; leaves elliptic to elliptic-ovate, 5–10 mm or slightly longer, apex acute and mucronate, rarely ± obtuse; flowers (1–)3–5(–9) ................... 38a. var. *brevirameus*.

2b. Shrub to 3 m tall; leaves elliptic, rarely obovate-elliptic, 7–16 mm, apex obtuse and mucronate; flowers 2–5(–8) ................... 38b. var. *marginatus*

38a. **Cotoneaster buxifolius** var. *brevirameus* (Franchet) G. Klotz; *C. brevirameus* Rehder & E. H. Wilson; *C. buxifolius f. vellaeas* Franchet; *C. buxifolius var. vellaeas* (Franchet) G. Klotz; *C. hodginsensis* G. Klotz; *C. lidjiangensis* G. Klotz; *C. microphyllus* Wallich ex Lindley; *C. microphyllus* var. *vellaeas* (Franchet) Rehder & E. H. Wilson.

Shrubs evergreen to semievergreen, low to 1.5(–3) m tall. Branchlets dark grayish brown or brownish, terete, initially densely whitish tomentose, glabrate. Petiole 1–3 mm, tomentose; stipules caducous, subulate, 2–3 mm, tomentulose; leaf blade elliptic to elliptic-ovate, 5–10(–16) × (2–)4–9 mm, abaxially densely gray tomentose, adaxially initially pressed pubescent, glabrescent, base narrowly to broadly cuneate, apex acute and mucronate, rarely ± obtuse. Inflorescences (1–)2–3–5(–9)-flowered; bracts lanceolate, nearly as long as pedicels, pedicel 3–5 mm, tomentose. Flowers 7–9 mm in diam. Hypanthium campanulate, abaxially tomentose. Sepals ovate-tororic, 1.5–2 mm, apex acute. Petals spreading, white, suborbicular or broadly ovate, 3–4 mm in diam., glabrous, base shortly clawed, apex obtuse. Stamens 20, slightly shorter than petals. Ovary pubescent apically; styles 2, free, nearly as long as stamens. Fruit red, subglobose, 5–6 mm in diam.; pyrenes usually 2. Fl. Apr–Jun, fr. Sep–Oct.

- Mountain regions, rocky mountain slopes, thickets, roadsides; 1000–3000 m. Guizhou, Sichuan, Xizang, Yunnan.
hypanthium, and sepals abaxially densely and persistently strigose-tomentose.

Rocky mountain slopes, thickets, roadsides; 1000–3300 m. Gui-zhou, Sichuan, Xizang, Yunnan [Bhutan, India, Myanmar, Nepal].

Zhou and Wu (Acta Bot. Yunnan. 23: 29–36. 2001) treated Coto-neaster buxifolius f. vellaese as a synonym of C. polanini G. Klotz (from Nepal) and recognized C. delavayanus G. Klotz as a distinct species. Although they are sometimes aligned here, we consider both C. astrophoros J. Fryer & E. C. Nelson and C. delavayanus to be doubtful species.


多花黄杨叶栒子 duo hua hang yan ye xun zi

Cotoneaster marginatus Lindley ex Loudon; C. microphyllus Wallich ex Lindley var. buxifolius Dippel f. lanatus Dippel; C. prostratus var. lanatus (Dippel) Rehder; C. rotun-difolius Wallich ex Lindley var. lanatus (Dippel) C. K. Schnei-der.

Shrubs evergreen, to 3 m tall. Leaf blade elliptic, rarely obovate-elliptic, 7–16 mm, abaxially tomentose, apex obtuse and mucronulate. Inflorescences 2–5(–8)-flowered. Pedicels, obovate-elliptic, 7–16 mm, abaxially tomentose, apex obtuse, rarely ± acute and mucronulate. Flowers 1 or 2, rarely 3 abaxially sparsely villous-tomentose or more so, apex usually 1–2(–3) × 0.7–2.2 cm, thickly leathery, lateral veins 4–6 pairs, somewhat raised abaxially and impressed adaxially, abaxially slightly glaucous, initially appressed pilose, glabrate, adaxially lustrous, glabrous, base broadly cuneate to rounded, apex obtuse, emarginate, or ± acute. Inflorescences ca. 1 cm in diam., usually 1-flowered, rarely 2- or 3-flowered corymb; bracts linear-lanceolate, 2–3 mm, pilose. Pedicel 4–6 mm, rarely to 1.5 cm, pilose. Hypanthium campanulate, abaxially puberulent. Sepals triangular, 1.5–2 mm and nearly as broad, apex acute. Petals spreading, white, suborbicular or broadly ovate, 4–5 mm in diam., glabrous, base shortly clawed, apex obtuse. Stamens 20, unequal in length; anthers purple. Ovary pilose apic ally; styles (3 or)4 or 5, free, nearly as long as stamens. Fruit bright red, subglobose, 6–7 mm in diam., glabrous; pyrenes (3 or)4 or 5. Fl. May–Jun; fr. Sep–Oct. 34*

Mountain regions; 2500–3300 m. SE Xizang [Bhutan, India].


38c. Cotoneaster buxifolius var. rockii (G. Klotz) L. T. Lu & A. R. Brach, comb. et stat. nov.

西南黄杨叶栒子 xi nan huang yang ye xun zi


Shrubs evergreen, dwarf, 0.5–1 m tall. Leaves elliptic or oblong-elliptic; pedicel 10–15 mm .................. 39b. var. radicans

Mountain areas, rocks, sparse mixed forests; 1300–4100 m. Gansu, Guizhou, Hubei, Sichuan, Xizang, Yunnan.

39a. Cotoneaster dammeri var. dammeri

矮生栒子(原变种) ai sheng xun zi (yuan bian zhong)

Cotoneaster dammeri subsp. songmingensis C. Y. Wu & Lihua Zhou; C. humifusus Duthie ex Veitch; C. kweitscho- viensis G. Klotz.

Petiole 2–3 mm; leaf blade elliptic or oblong-elliptic. Pedicel 4–6 mm.

Mountain areas, rocks; 1300–2600 m. Gansu, Guizhou, Hubei, Sichuan, Yunnan.


长柄矮生栒子 chang bing ai sheng xun zi


Petiole 6–10 mm; leaf blade usually obovate. Pedicels 1–1.5 cm.

Mountain areas, rocks; 2000–4100 m. Gansu, Hubei, Sichuan, Xizang.


台湾栒子 tai wan xun zi

Cotoneaster morrisonensis Hayata.

Shrubs semievergreen, prostrate, less than 1 m tall, much branched. Branchlets grayish brown to reddish brown, terete, initially striose, glabrous when old. Petiole 2–3(–5) mm, pilose; stipules partly persistent, linear-lanceolate, puberulent; leaf blade ovate or oblong-ovate, rarely obovate, 9–15(–20) × (5–)6–10 mm, thickly leathery, midvein raised abaxially and impressed adaxially, abaxially initially appressed pilose, later...

**小叶栒子** xiao ye xun zi

Shrubs evergreen, low, to 1 m tall, with stiffly spreading branches. Branchlets reddish brown to blackish brown, tereete, initially yellow pubescent, gradually glabrate. Petiole 1–2 mm to more than 4 mm, pubescent; stipules caducous, lanceolate or linear, nearly as long as petioles, slightly pubescent; leaf blade obovate to oblong-obovate, 4–10(–16) × 4–8 mm, thickly leathery, midvein raised abaxially and impressed adaxially, abaxially gray pubescent, rarely glabrous, adaxially glabrous or sparsely pubescent, base broadly cuneate, margin revolute, apex obtuse, rarely emarginate or ± acute. Inflorescences 1–3-flowered. Flowers 8–10 mm in diam. Pedicel 2–3 mm, sparsely pubescent. Hypanthium campanulate, abaxially pubescent at least initially. Sepals ovate-triangular, 1–1.5 mm and nearly as broad, apex obtuse. Petals spreading, white, suborbicular, ca. 4 mm and ca. as broad, base shortly clawed, apex obtuse. Stamens 15–20, shorter than petals. Ovary pubescent apicily; styles 2, free, somewhat not exceeding stamens. Fruit scarlet-red, globose, 5–6(–10) mm in diam.; pyreces 2. Fl. May–Jun, fr. Aug.–Sep. 2n = 34, 51, 68*, 102.

Rocks, slopes, high mountain areas, thickets, roadsides; 2000–4200 m. Sichuan, Xizang, Yunnan [Bhutan, India, Kashmir, Myanmar, Nepal, Sikkim].

Zhou & Wu (Acta Bot. Yunnan. 21: 160–166. 1999) treated the following varieties as synonyms of the species.

1a. Leaves pubescent on both surfaces.

2a. Leaves obovate to oblong-obovate, 4–7 mm in diam.; petals white ................................. 41a. var. microphyllus

2b. Leaves narrowly oblong or oblong-obovate to linear-lanceolate, 1.5–5(–7) mm in diam.; petals pinkish white ............................ 41b. var. thymifolius

1b. Leaves glabrous on both surfaces or only pubescent abaxially.

3a. Leaves glabrous on both surfaces, rarely abaxially subglabrous, glabrescent, petioles 1–2 mm; petals pinkish; hypanthium and sepals abaxially initially sparsely pubescent, glabrescent ......................... 41c. var. glacialis

3b. Leaves adaxially glabrous, abaxially grayish white pubescent; petioles 2–4 mm; petals white; hypanthium and sepals abaxially densely persistently long gray pubescent .............................. 41d. var. cochleatus

### 41a. Cotoneaster microphyllus var. microphyllus

### 小叶栒子(原变种) xiao ye xun zi (yuan bian zhong)

*Cotoneaster buxifolius* Lindley f. melanotrichus Franchet; *C. cochleatus* (Franchet) G. Klotz f. melanotrichus (Franchet) G. Klotz; *C. elatus* G. Klotz; *C. melanotrichus* (Franchet) G. Klotz; *C. microphyllus* f. melanotrichus (Franchet) Handel-Mazzetti; *C. microphyllus* var. melanotrichus (Franchet) Rehder & E. H. Wilson.

Leaves obovate to oblong-obovate, 4–10 × 4–7 mm, both surfaces pubescent. Petals white.

Rocky mountain slopes, thickets, roadsides; 2500–4200 m. Sichuan, Xizang, Yunnan [Bhutan, India, Kashmir, Myanmar, Nepal, Sikkim].


### 细叶小叶栒子 xi ye xiao ye xun zi

*Cotoneaster thymifolius* Baker in Saunders, Refug. Bot. 1: t. 1. 1869; *C. integrifolius* (Roxburgh) G. Klotz; *C. linearifolius* (G. Klotz) G. Klotz; *C. microphyllus* f. linearifolius G. Klotz; *Crataegus integrifolia* Roxburgh.

Leaves narrowly oblong or oblong-obovate to linear-lanceolate, 1.5–7 × 5(–7) mm, both surfaces pubescent. Petals pinkish white. 2n = 51, 68.

High mountain areas; 3000–4000 m. SE Xizang, NW Yunnan [India, Kashmir, Nepal, Sikkim].

### 41c. Cotoneaster microphyllus var. glacialis J. D. Hooker ex Wenzig, Linnaea 38: 195. 1874.

### 无毛小叶栒子 wu mao xiao ye xun zi

*Cotoneaster congestus* Baker; *C. glacialis* (J. D. Hooker ex Wenzig) G. Panigraphi & A. Kumar; *C. microphyllus* var. nivalis G. Klotz.

Petiole 1–2 mm; leaf blade usually elliptic, 6–12 × 4–7 mm, both sides glabrous or abaxially subglabrous, glabrescent. Hypanthium and sepals abaxially initially sparsely pubescent, glabrescent. Petals pinkish.

High mountain areas, rocks; 3900–4200 m. SE Xizang, NW Yunnan [Bhutan, India, Kashmir, Myanmar, Nepal, Sikkim].


### 白毛小叶栒子 bai mao xiao ye xun zi

*Cotoneaster buxifolius* Lindley f. cochleatus Franchet, Pl. Delavay. 224. 1890; *C. cochleatus* (Franchet) G. Klotz; *C. thymifolius* var. cochleatus (Franchet) Franchet.

Petiole 2–4 mm; leaf blade elliptic or ovate-elliptic, 5–11 × 3–8 mm, abaxially grayish white pubescent, adaxially...
glabrous, margin revolute. Hypanthium and sepal abaxially densely persistently long gray pubescent. Petals white. 2n = 68.

Rocks, slopes; 2000–3000 m. Sichuan, Yunnan [Bhutan, Nepal].


大果栒子 da guo xun zi

_Cotoneaster microphyllus_ var. _conspicuus_ Messel; _C. conspicuus_ var. _decorus_ Russel; _C. conspicuus_ var. _nanus_ G. Klotz; _C. nanus_ (G. Klotz) G. Klotz; _C. permutatus_ Klotz; _C. pluriflorus_ G. Klotz.

Shrubs, evergreen, suberect, to 1.2 m tall or more, densely branched. Branchlets ascending, straight or subarcuate, to 45 cm, spreading, initially strigose-villous, gradually glabrescent. Petiole 1.5–2.5 mm; stipules subulate, villous, nearly as long as petioles; leaf blade elliptic to oblanceolate, rarely oblong, 6–16 cm, midvein raised abaxially, impressed adaxially, veins inconspicuous, abaxially appressed villous, adaxially glabrous or sparsely villous, base cuneate, margin revolute, apex obtuse or rounded and callous-mucronate. Inflorescences often solitary flowers, rarely few flowered. Pedicel 1.5–2 mm, sparsely villous. Flowers 8–10 mm in diam. Hypanthium campanulate, abaxially sparsely villous. Sepals broadly triangular, ca. 1.5 mm and nearly as broad. Petals spreading, white, tipped with pink in bud, suborbicular, 3–4 × 4–5 mm. Filaments yellow, subequal; anthers purple, subglobose. Ovary glabrous; styles 2, 3 mm. Fruit bright scarlet, globose or obovoid, 8–10 mm in diam.; pyrenes 2 or 3. Fl. Jun–Jul, fr. Sep–Oct. (2n = 68).

River valleys, forests, slopes; 2700–4100 m. W Sichuan, SE Xizang [Bhutan].

Zhou & Wu (Acta Bot. Yunnan. 21: 160–166. 1999) treated this species as a synonym of _Cotoneaster conspicuus_.

44. **Cotoneaster rotundifolius** Wallich ex Lindley, Bot. Reg. 15: sub t. 1229. 1829.

圆叶栒子 yuan ye xun zi


Shrubs evergreen, to 4 m tall. Branchlets spreading, grayish brown to blackish brown, initially appressed villous, glabrous when old. Petiole 1–3 mm, pilose; stipules persistent or caducous, lanceolate, puberulous; leaf blade suborbicular or broadly ovate, 0.8–2 cm × 6–10 mm, abaxially pilose, adaxially glabrous, rarely puberulous, base broadly cuneate to rounded, apex obtuse or emarginate, sometimes acute and mucronate. Inflorescences 1–3-flowered; bracts caducous, linear-lanceolate. Pedicel 2–4 mm, pubescent. Flowers ca. 1 cm in diam. Hypanthium campanulate, abaxially pilose. Sepals triangular, apex acute. Petals spreading, white or tinged reddish, broadly ovate or obovate, 4–5 mm and nearly as broad, base very shortly clawed, apex obtuse or emarginate. Stamens 20, ca. as long as or somewhat shorter than petals. Ovary pilose apically; styles 2 or 3, free, nearly equaling or lower than stamens. Fruit red, obovoid, 7–9 mm in diam.; pyrenes 2 or 3. Fl. May–Jun, fr. Aug–Sep. (2n = 68).

Grassy slopes, rocks, mountain summits; 1200–4000 m. W Sichuan, SE Xizang, NW Yunnan [Bhutan, India, Nepal].

Further study is necessary to determine the identity of _Cotoneaster subalpinus_ G. Klotz, which might be synonymous with this taxon.


红花栒子 hong hua xun zi

Shrubs deciduous to semievergreen, erect or prostrate, 0.5–2 m tall, usually irregularly branched. Branchlets grayish black, terete, robust, initially strigose, glabrous when old. Petiole short, 1–2 mm, stout, pubescent; stipules caducous; leaf blade suborbicular or broadly elliptic, (0.8–)1–2.3 × (0.6–)1–1.8 cm, veins raised abaxially and impressed adaxially, abaxially densely yellow tomentose, adaxially glabrous, base rounded, apex obtuse or mucronate, rarely acute. Inflorescences usually 1-flowered. Flowers 8–9 mm in diam., shortly pedicellate. Hypanthium campanulate, abaxially pilose. Sepals triangular, 1–2 × 1.5–2.5 mm, apex ± obtuse. Petals erect, dark red, orbicular to broadly obovate, 4–5 mm in diam., apex obtuse. Stamens 20, shorter than petals. Ovary pilose apically; styles 2 or 3, free, somewhat not exceeding stamens. Fruit red, obovoid, 8–9 mm in diam.; pyrenes 2 or 3. Fl. Jun–Jul, fr. Sep–Oct.

Dense forests on slopes, forest margins, grasslands, rocky places;
Leaf blade 10–23 × 8–18 mm, apex obtuse or mucronate; sometimes acute; fruit usually with 2 or 3 pyrenes. Fruit usually with 2 or 3 pyrenes. 

45a. Cotoneaster rubens var. rubens

红花栒子 (原变种) hong hua xun zi (yuan bian zhong)

Cotoneaster rubens var. rubens

Leaf blade 1–2.3 × 0.8–1.8 cm, apex obtuse or mucronate; sometimes acute. Fruit usually with 2 or 3 pyrenes. Dense forests on slopes, forest margins, grasslands; 3000–4100 m. SE Xizang, NW Yunnan [Bhutan, N Myanmar].

45b. Cotoneaster rubens var. minimus

红花栒子 (新变种) hong hua xun zi (xin bian zhong)

Cotoneaster rubens var. minimus

Leaf blade 15–20, shorter than petals. Ovary pubescent apically; styles 2 and ca. as broad, base shortly clawed, apex obtuse. Stamens ± obtuse or acute. Petals erect, pink, suborbicular, 3–5 × 2–3 mm, margin entire and undulate, apex obtuse or ± acute. Inflorescences 1- or 2-flowered. Flowers subsessile, 7–8 mm in diam. Hypanthium campanulate, abaxially sparsely pubescent. Sepals ovate-triangular, apex acute, shorter than petals. Petals erect, pink, obovate, 4–5 mm and nearly as broad, apex emarginate or obtuse. Stamens ca. 15–15, shorter than petals. Ovary pubescent apically; styles 2, free, not exceeding stamens. Fruit bright red, subglobose, 7–9 mm in diam., glabrous; pyrenes 2, rarely 3. Fl. May–Jun, fr. Aug–Sep. 2n = 68.

Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

48. Cotoneaster subadpressus

Cotoneaster subadpressus


Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

49. Cotoneaster horizontalis

Cotoneaster horizontalis

Shrubs deciduous, prostrate, irregularly branched. Branchlets reddish brown or grayish brown to grayish black, terete, slender, initially strigose, glabrous when old. Petiole 1–2 mm, glabrous or pilose; stipules caducous, subulate, nearly as long as petioles; leaf blade broadly ovate or obovate, rarely elliptic, 5–15 × 4–10 mm, thinly papery, midvein raised abaxially and impressed adaxially, abaxially sparsely pubescent or glabrous, adaxially glabrous, base cuneate, margin entire and undulate, apex obtuse or ± acute. Inflorescences 1- or 2-flowered. Flowers subsessile, 7–8 mm in diam. Hypanthium campanulate, abaxially sparsely pubescent. Sepals ovate-triangular, apex acute, shorter than petals. Petals erect, pink, obovate, 4–5 mm and nearly as broad, apex emarginate or obtuse. Stamens ca. 10–15, shorter than petals. Ovary pubescent apically; styles 2, free, not exceeding stamens. Fruit bright red, subglobose, 7–9 mm in diam., glabrous; pyrenes 2, rarely 3. Fl. May–Jun, fr. Aug–Sep. 2n = 68.

Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

45a. var. rubens


Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

46. Cotoneaster uniflorus

Cotoneaster uniflorus


Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

47. Cotoneaster adpressus

Cotoneaster adpressus


Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

48. Cotoneaster subadpressus

Cotoneaster subadpressus


Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

49. Cotoneaster horizontalis

Cotoneaster horizontalis

Shrubs deciduous, prostrate, irregularly branched. Branchlets reddish brown or grayish brown to grayish black, terete, slender, initially strigose, glabrous when old. Petiole 1–2 mm, glabrous or pilose; stipules caducous, subulate, nearly as long as petioles; leaf blade broadly ovate or obovate, rarely elliptic, 5–15 × 4–10 mm, thinly papery, midvein raised abaxially and impressed adaxially, abaxially sparsely pubescent or glabrous, adaxially glabrous, base cuneate, margin entire and undulate, apex obtuse or ± acute. Inflorescences 1- or 2-flowered. Flowers subsessile, 7–8 mm in diam. Hypanthium campanulate, abaxially sparsely pubescent. Sepals ovate-triangular, apex acute, shorter than petals. Petals erect, pink, obovate, 4–5 mm and nearly as broad, apex emarginate or obtuse. Stamens ca. 10–15, shorter than petals. Ovary pubescent apically; styles 2, free, not exceeding stamens. Fruit bright red, subglobose, 7–9 mm in diam., glabrous; pyrenes 2, rarely 3. Fl. May–Jun, fr. Aug–Sep. 2n = 68.

Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

45a. var. rubens


Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

46. Cotoneaster uniflorus

Cotoneaster uniflorus


Mixed forests on slopes, rocky places; 1900–4000 m. Gansu, Guizhou, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [India, Myanmar, Nepal].

47. Cotoneaster adpressus

Cotoneaster adpressus

Cotoneaster horizontalis var. horizontalis

Leaf blade 6–14 mm, not variegated with white. Fruit subglobose, 5–7 mm in diam.; pyrenes 3, rarely 2.

Cotoneaster horizontalis var. perpusillus

Leaf blade 6–8 mm, not variegated with white. Fruit ellipsoid, 5–6 × 3–4 mm; pyrenes usually 2. 2n = 68*.

Cotoneaster distichus

Leaf blade 6–8 mm, not variegated with white. Fruit ellipsoid, 5–6 × 3–4 mm; pyrenes usually 2. 2n = 68*.

Cotoneaster ganghobaensis

Leaf blade 6–8 mm, not variegated with white. Fruit ellipsoid, 5–6 × 3–4 mm; pyrenes usually 2. 2n = 68*.

Cotoneaster strigosus

Leaf blade 6–8 mm, not variegated with white. Fruit ellipsoid, 5–6 × 3–4 mm; pyrenes usually 2. 2n = 68*.

Further study is necessary to determine the identity of Cotoneaster ganghobaensis J. Fryer & B. Hylmö, which might be synonymous with this taxon.

Further study is necessary to determine the identity of Cotoneaster ganghobaensis J. Fryer & B. Hylmö, which might be synonymous with this taxon.
longer than pedioles, membranous, puberulous; leaf blade ovate or broadly elliptic to suborbicular, (0.8–1)–2 × 0.7–1.5 cm, both surfaces appressed pilose, more densely so adaxially, base broadly cuneate to subrounded, apex acute, sometimes mucronate. Inflorescences 2- or 3-flowered; bracts linear or lanceolate, nearly as long as or slightly longer than pedicels. Flowers 6–7 mm in diam. Pedicel 3–4 mm, pilose. Hypanthium campanulate, abaxially puberulous. Sepals triangular, 1–1.5 × 1.5–2 mm, apex acute. Petals erect, pinkish, ovate or obovate, 3–4 × 2–3 mm, base shortly clawed, apex obtuse. Stamens 15–20, shorter than petals. Ovary pilose apically; styles 4 or 5, free, somewhat not exceeding stamens. Fruit usually nodding, red, ellipsoid, 8–9 × 5–7 mm, shortly puberulous, glabrous when old; pyrenes usually 3. Fl. May–Jun, fr. Sep–Oct.


光洋栒子 guang ze xun zi

Shrubs deciduous, 2–4 m tall, much branched. Branchlets grayish brown to grayish black, terete, initially strigose, glabrous when old. Petiole 2–3 mm, villous, sometimes subglabrous; stipules partly persistent, linear, pubescent; leaf blade ovate or elliptic, 1–2 × 0.7–1.5 cm, abaxially initially villous, subglabrous when old, adaxially lustrous, glabrous, base rounded or broadly cuneate, apex obtuse, rarely acute, sometimes mucronate or emarginate. Inflorescences 1-flowered. Pedicel 2–4 mm. Flowers 7–8 mm in diam. Hypanthium sparsely villous abaxially. Sepals triangular, 1–2 × 1.5–2.5 mm, shorter than petals, apex acute or ± obtuse. Petals pinkish, suborbicular or broadly obovate, 4–4.5 × 3–4 mm, apex obtuse. Stamens 10–12, shorter than petals. Ovary pubescent apically; styles often 2, rarely 3, free, not exceeding stamens. Fruit purplish black, ellipsoid, 6–8 mm in diam., shiny, glabrous; pyrenes 1 or 2. Fl. May–Jun, fr. Sep–Oct. 2n = 68*.

- Rocky places, alongside ditches; 2300–3400 m. W Yunnan.


丹巴栒子 dan ba xun zi

Shrubs deciduous, 1–2 m tall. Branchlets sometimes nodding, reddish brown when old, terete, initially grayish yellow strigose-villous, glabrous when old. Petiole 2–3 mm, strigose-villous; stipules subulate, 2–5 mm, pilose; leaf blade elliptic to ovate-elliptic, (0.7–)1.5–2 cm × 4–11 mm, lateral veins 3 or 4 pairs, slightly raised abaxially, both surfaces appressed strigose-villous, more densely so abaxially, glabrescent, base cuneate or somewhat rounded, apex acute to acuminate. Inflorescences 2 or 3-flowered; rachis and pedicels villous; bracts subulate, sparsely villous. Pedicel 1–3 mm. Flowers 4–5 mm in diam. Hypanthium campanulate, abaxially villous. Sepals triangular, apex acute. Petals erect, pink or brownish red with white margin, suborbicular, 2–3 × 1.5–2 mm, base cuneate, apex incurved. Stamens (10–)12(–14), 1.5–2 mm; filaments equal in length; anthers yellowish white or pink. Styles 2 or 3, free, 1–2 mm. Fruit brownish black or black, ovoid or subglobose, 6–7 × 4–5 mm; pyrenes 2 or 3. Fl. Apr–May, fr. Aug–Sep.

- Slopes, thickets; 2300–2900 m. W Sichuan, SE Xizang.


两列栒子 liang lie xun zi

Shrubs deciduous or semi-evergreen, erect, to 2.5 m tall. Branchlets ± dichotomously arranged, grayish brown when old, terete, initially densely yellow strigose, gradually glabrescent. Petiole 1–3 mm, villous; stipules persistent, lanceolate, 2–4 mm, pilose; leaf blade broadly ovate or broadly obovate, (0.4–)0.8–1.5(–2.5) × (0.5–)0.7–1.3(–1.8) cm, midvein raised abaxially and impressed adaxially, both surfaces appressed villous, more densely so adaxially, base rounded or broadly cuneate, apex acute and mucronate, rarely obtuse. Inflorescences 1-flowered. Pedicel 1–2 mm. Flower 5–7 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals broadly triangular, 1–2 × 2–3 mm, apex ± acute or obtuse. Petals erect, white or stained reddish, ovate or suborbicular, 3–4 mm in diam., apex obtuse. Stamens 20, shorter than petals. Ovary pubescent apically; styles (2 or)3(–4), free, somewhat not exceeding stamens. Fruit nodding, red, broadly obovoid, 7–8 mm in diam., shortly puberulous; pyrenes (2 or)3(–4). Fl. Jun–Jul, fr. Sep–Oct.

Thickets, forests, grassy slopes, mountain regions and valleys; 1600–4000 m. Sichuan, Xizang, Yunnan [Bhutan, NE India, N Myanmar, Nepal, Sikkim].

1a. Leaf blade 4–7 × 5–6 mm, apex obtuse or emarginate ................................. 55c. var. parvifolius

1b. Leaf blade 8–15(–25) × 7–13(–18) mm, apex acute.

2a. Leaf blade 8–15(–20) × 7–13(–15) mm, apex acute and abruptly mucronate, rarely obtuse ............................ 55a. var. nitidus

2b. Leaf blade 12–25 × 12–18 mm, apex acute and slightly mucronate ...... 55b. var. duthieanus

55a. **Cotoneaster nitidus** var. nitidus

两列栒子(原变种) liang lie xun zi (yuan bian zhong)

**Cotoneaster distichus** Lange; *C. rupestris* Charlton.

- Leaf blade 0.8–1.5(–2) × 0.7–1.3(–1.5) cm, apex acute and abruptly mucronate, rarely obtuse.

Thickets, forests, grassy slopes, mountain valleys; 1600–4000 m. Sichuan, Xizang, Yunnan [Bhutan, NE India, N Myanmar, Nepal, Sikkim].


大叶两列栒子 da ye liang lie xun zi

**Cotoneaster distichus** Lange var. duthieanus C. K. Schneider, Ill. Handb. Laubbholzk. 1: 745. 1906; *C. duthieanus* (C. K. Schneider) G. Klotz; *C. forrestii* G. Klotz.

- Leaf blade 1.2–2.5 × 1.2–1.8 cm, apex acute and shortly mucronate.

- Mountain regions; 2500–4000 m. NW Yunnan [N Myanmar].
Further study is necessary to determine the identities of *Cotoneaster cuspidatus* Marquand ex J. Fryer & B. Hylmö and *C. marquandii* G. Klotz, which might be synonymous with this taxon.


*小叶两列栒子* xiao ye liang lie xun zi


Leaf blade 4–7 × 5–6 mm, apex obtuse or emarginate.

High mountain regions; 2700–3200 m. NW Yunnan [N Myanmar].

Further study is necessary to determine the identity of *Cotoneaster salwinensis* G. Klotz, which might be synonymous with this taxon.


*藏南栒子* zang nan xun zi


Shrubs or small trees, deciduous, 2–3 m tall. Branchlets grayish brown when old, terete, initially densely brownish yellow strigose, glabrous when old. Petiole 2–3 mm, brownish yellow pilose; stipules lanceolate, 1–2 mm, membranous, brownish yellow pilose; leaf blade suborbicular or broadly ovate, 1–1.2 cm × 9–10 mm, adaxially shiny, veins inconspicuously raised abaxially and slightly impressed adaxially, both surfaces initially hirtellous, glabrous when old, base rounded, rarely broadly cuneate, apex obtuse or acute. Inflorescences 2- or 3-flowered; bracts lanceolate, 1–2 mm, membranous. Pedicel 3–5 mm, hirsute. Hypanthium campanulate, abaxially usually glabrous. Sepals broadly triangular, puberulous only along margin, apex obtuse. Petals erect, dark red with white margin, suborbicular, 3–3.5 mm in diam., base shortly clawed, apex obtuse. Stamens ca. 10, shorter than petals, glabrous. Ovary with dense, white hairs at apex; styles 2, free, not exceeding stamens. Fruit red, globose, 7–8 mm in diam.; pyrenes often 2. Fl. May–Jun, fr. Sep–Oct.

● Stream sides, gully forests, thickets, river valleys; 3300–4200 m. E Xizang.


*疣枝栒子* you zhi xun zi

*Cotoneaster distichus* Lange var. *verruculosus* (Diels) T. T. Yu; *C. improvisus* G. Klotz.

Shrubs deciduous or semievergreen, erect, 0.6–2 m tall. Branchlets initially dark reddish brown to grayish brown, dark gray when old, terete, initially densely yellow strigose, glabrate, conspicuously verruculose when old. Petiole 2–5 mm, pubescent; stipules persistent, lanceolate, 2–6 mm, pubescent; leaf blade suborbicular or broadly ovate to broadly obovate, 0.7–1.4 cm × 6–12 mm, both surfaces appressed pilose, glabrescent, abaxially subglabrous, base broadly cuneate or rounded, apex emarginate or partly mucronulate. Inflorescences usually 1-flowered. Flowers 7–8 mm in diam., nearly sessile. Hypanthium glabrous abaxially. Sepals ovate-triangular, 1.5–2.5 mm and ca. as broad, apex ± obtuse. Petals erect, pink, suborbicular, 4–4.5 mm in diam. Stamens 20, shorter than petals. Ovary pubescent apically; styles 2, free, not exceeding stamens. Fruit red, globose, 7–8 mm in diam.; pyrenes often 2. Fl. May–Jun, fr. Sep–Oct.

Mixed forests on dry slopes, grasslands, fields, roadsides; 2800–3600 m. Sichuan, Xizang, Yunnan [Bhutan, N India, Myanmar, Nepal, Sikkim].
 minLength:481 maxLength:657

细尖梅子 xi jian xun zi

Shrubs deciduous, erect, 1.5–2 m tall, irregularly branched. Branchlets dark grayish brown to grayish black when old, terete, initially yellowish brown, glabrous, abaxially glabrescent. Petiole 1–3 mm, initially pubescent, later glabrous; stipules caducous or partly persistent, linear-lanceolate, 2–3 mm, membranous; leaf blade suborbicular or orbicular-ovate, rarely broadly obovate, 6–15 × 5–13 mm, midvein and 2 pairs of lateral veins somewhat raised abaxially and slightly impressed adaxially, abaxially initially appressed stigrose-pilose along veins, glabrate, adaxially lustrous, glabrous, base broadly cuneate or rounded, apex apiculate, rarely emarginate. Inflorescences 1-flowered. Pedicel short. Hypanthium glabrous or subglabrous abaxially. Sepals triangular, 1.5–2.5 × 2–3 mm, apex acute or obtuse. Inflorescences 1-flowered. Pedicel short. Hypanthium glabrous or subglabrous abaxially. Sepals triangular, 1.5–2.5 × 2–3 mm and ca. as broad, apex shortly acuminate. Petals erect, pinkish, suborbicular, base shortly clawed, apex obtuse. Fruit solitary, erect, red, subglobose, 7–8 mm in diam.; pyrenes (2 or)3. Fl. May–Jun, fr. Sep–Oct. 2n = 68*.

- Roadsides on slopes, forests, upland thickets, forest margins, open places, ditch sides, rocky cliffs; 1500–3300 m. Gansu, Hubei, Shaanxi, Sichuan, Yunnan.

Further study is necessary to determine the identity of **Cotoneaster sichuanensis** G. Klotz, which might be synonymous with this taxon.

 minLength:568 maxLength:744

血色梅子 xue se xun zi

Shrubs deciduous, 2–3 m tall, much branched. Branchlets grayish brown or grayish black when old, terete, initially yellowish brown, glabrous, abaxially glabrescent. Petiole 3–6 mm, pilose; stipules lanceolate, 2–4 mm, membranous, puberulous; leaf blade ovate or elliptic-ovate, 1–2 cm × 7–12 mm, lateral veins 4 or 5 pairs, somewhat raised abaxially and slightly impressed adaxially, abaxially pilose, adaxially shiny, yellowish pilose, glabrous when old, base broadly cuneate or rounded, apex acute, rarely obtuse. Inflorescences usually 1-flowered; bracts lanceolate, somewhat longer than pedicels. Flower subsessile, to 1 cm in diam. Hypanthium red, campanulate, abaxially glabrous. Sepals triangular, 1.5–2.5 × 2–3 mm, apex acute or obtuse. Petals erect or spreading, red, broadly ovate, 4–5 mm and ca. as broad, glabrous, base shortly broadly clawed, apex obtuse. Stamens 10, somewhat shorter than petals. Ovary yellow, pubescent apically; styles 2, free, not exceeding stamens. Fruit red, subglobose; pyrenes 2. Fl. Jun–Jul.

Slopes, gullies, thickets, rocks, forests; 3200–4100 m. SE Xizang, NW Yunnan [Bhutan, NE India, Nepal].


火棘属 huo ji shu

**Sportella** Hance.

Shrubs or small trees, evergreen, usually with thorny branches; buds small, pubescent. Leaves simple, alternate or fascicled, shortly petiolate or sessile, venation camptodromous, margin crenulate, serrulate, or entire; stipules caducous, minute. Inflorescences compound corymbs; hypanthium short. Sepals 5. Petals 5, spreading, white, usually suborbicular, base shortly clawed. Stamens 15–20; anthers yellow. Carpels 5, basally ca. 1/2 adnate to hypanthium, apically free; ovary 5-loculed, semi-inferior, with 2 ovules per locule; styles 5, free. Pome red or orange, globose, with persistent incurved sepals at apex; pyrenes (nutlets) 5.

About ten species: E Asia to SE Europe; seven species (five endemic) in China.

Further study is necessary to determine the placement of the recently described species, *P. heterophylla* T. B. Chao & Zhi X. Chen (Bull. Bot. Res., Harbin 17: 302. 1997) and *P. stoloniformis* T. B. Chao & Zhi X. Chen (loc. cit.: 301).

1a. Corymbs dense; pedicel 1–2 mm; hypanthium abaxially densely tomentose.

2a. Leaf apically acute, blade obleng to oblong-obovate; petiole 4–6(–9) mm; branches usually unarmed ............... 6. *P. inermis*

2b. Leaf apically obtuse or truncate, blade obovate to obovate-elliptic; petiole to 2 mm; branches with short thorns .......................................................................................................................... 7. *P. densiflora*

1b. Corymbs loose; pedicel 4–10 mm; hypanthium glabrous or abaxially slightly pubescent.

3a. Leaves abaxially densely tomentose ................................................................. 5. *P. angustifolia*

3b. Leaves abaxially glabrous or pubescent.

4a. Leaf margin crenulate, apex acute, apiculate, or obtuse, blade oblong or obovate-elliptic, rarely ovate-lanceolate .................................................................................. 4. *P. crenulata*

4b. Leaf margin crenate-serrate, serrulate, or entire, apex obtuse, emarginate, or slightly apiculate, blade usually obovate to obovate-oblong.

5a. Leaf blade crenate-serrate at margin, broadest in apical part ........................................ 1. *P. fortuneana*

5b. Leaf blade usually entire at margin, sometimes serrulate, broadest at near middle.

6a. Leaf apically usually slightly apiculate or obtuse, abaxially glaucous, blade usually elliptic or oblong. ............................................................................. 2. *P. atalanticoides*
ROSACEAE

6b. Leaf apically emarginate or truncate, abaxially pubescent, blade usually narrowly elliptic to narrowly obovate ................................................................. 3. P. koidzumii


火棘 huo ji


Shrubs to 3 m tall. Lateral branches short, thornlike; young branchlets rusty pubescent, dark brown and glabrescent when old. Petiole glabrous or initially slightly pubescent; stipules not seen; leaf blade obovate or obovate-oblong, 1.5–6 × 0.5–2 cm, both surfaces glabrous, base cuneate, margin serrate with teeth incurved, apex obtuse or emarginate, sometimes shortly apiculate. Compound corymb rather loose, 3–4 cm in diam.; peduncle subglabrous; bracts caducous, lanceolate. Pedicel ca. 1 cm, subglabrous. Flowers ca. 1 cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular, 1–1.5 mm, glabrous, margin entire, apex obtuse. Petals suborbicular, 4.4 × 3 mm, apex rounded or obtuse. Stamens 20; filaments 3–4 mm. Ovary densely white pubescent apically; styles ca. as long as stamens. Pome orangish red, subglobose, 5–10 mm; sepals persistent, erect. Fl. Mar–May, fr. Aug–Nov.

● Thickets, stream sides, roadsides; 500–2800 m. Fujian, Guangxi, Guizhou, Hunan, Jiangsu, Shaanxi, Sichuan, Yunnan, Zhejiang.


全缘火棘 quan yuan huo ji

Sportella atalantioides Hance, J. Bot. 15: 207. 1877; Crataeagus pyracantha Hemsley; Mespilus loureiroi Kosteletzky; Pyracantha discolor Rehder; P. gibbii A. B. Jackson; P. loureiroi (Kosteletzky) Merrill.

Shrubs or small trees, to 6 m tall, with thorny branches, rarely unarmed. Branchlets initially yellowish brown or gray pubescent, glabrous when old. Petiole ca. 2.5 mm, usually glabrous, sometimes pubescent; leaf blade oblanceolate or elliptoblong, rarely oblanceolate-obovate, 1.5–4 × 1–1.6 cm, both surfaces initially yellowish brown pubescent, glabrous, abaxially becoming slightly glaucous, lateral veins dense, base broadly cuneate or rounded, margin usually entire, sometimes inconspicuously serrulate, apex acute or obtuse, sometimes slightly aristate. Compound corymb loose, 3–4 in diam., many flowers; peduncle glabrous; bracts caducous, lanceolate. Pedicel 5–10 mm, yellowish brown pubescent. Flowers 8–10 mm in diam. Hypanthium campanulate; sepals triangular or broadly elliptic, 1–1.5 mm, abaxially sparsely pubescent, apex obtuse. Petals ovate, 4.5–3–4 mm, apex slightly apiculate. Stamens 20; filaments 3 mm. Ovary densely white pubescent apically; styles nearly as long as stamens. Pome bright red, depressed-globose, 4–5 mm in diam.; fruiting pedicel 5–10 mm, glabrous; sepals persistent, erect. Fl. Apr–May, fr. Sep–Nov.

● Slopes, valleys, among shrubs, open forests; 500–1700 m. Guangdong, Guangxi, Guizhou, Hunan, Shaanxi, Sichuan.


台灣火棘 tai wan huo ji


Shrubs caespitose. Branchlets dark gray, often thornlike, initially pubescent, glabrous when old. Leaves usually 3–5-fascicled; petioles ca. 3 mm, puberulous; leaf blade narrowly elliptic to narrowly obovate, 3.45 × 0.7–1.2 cm, abaxially glaucous, densely pubescent when young, glabrescent, adaxially glabrous, base cuneate, margin entire, apex slightly emarginate or truncate. Corymb 3–4 cm in diam., many flowers; peduncle sparsely pubescent; bracts caducous, lanceolate. Pedicel 5–11 mm, sparsely pubescent. Flowers 8–10 mm in diam. Hypanthium campanulate, abaxially densely pubescent. Sepals triangular, 1–1.2 mm, abaxially densely pubescent when young, apex acute. Petals suborbicular or broadly elliptic, 3.5–4 × 3–4 mm, apex slightly emarginate. Stamens 20; filaments 2–3 mm. Ovary pubescent; styles nearly as long as stamens. Pome orangish red, depressed-globose, 4–5 mm. Fr. Aug–Nov.

● Rocky valley areas, seashores, thickets, among shrubs. Taiwan.


细圆齿火棘 xi yuan chi huo ji

Slopes, roadsides, stream sides, among shrubs, grassy places, valleys; 700–2500 m. Gansu, Guangdong, Guangxi, Guizhou, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, India, Kashmir, Myanmar, Nepal].
1a. Plant to 5 m tall, with few thorny branches; leaf blade 2–7 × 0.8–1.8 cm; pome orangish yellow or orangish red ........................................ 4a. var. crenulata

1b. Plant to 2 m tall, with several thorny branches; leaf blade 1–2.5 × 0.4–0.8 cm; pome red ........................................  4b. var. kansuensis

4a. Pyracantha crenulata var. crenulata

细圆齿火棘 (原变种)  xi yuan chi huo ji (yuan bian zhong)

*Mespilus crenulata* D. Don, Prodr. Fl. Nepal. 238. 1825; *Cotoneaster crenulatus* (D. Don) K. Koch; *Crataegus crenulata* (D. Don) Roxburgh; *Crataegus pyracantha* var. crenulata (D. Don) Loudon; *Pyracantha chinensis* M. Roemer.

Shrubs or small trees, to 5 m tall, with few thorny branches. Leaf blade oblong or oblanceolate, rarely ovate-lanceolate, 2–7 × 0.8–1.8 cm. Pome orangish yellow or orangish red, sub-globose, 3–8 mm in diam.

Slopes, roadsides, stream sides, among shrubs, grassy places; 700–2400 m. Guangdong, Guangxi, Guizhou, Hubei, Jiangxi, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, India, Kashmir, Myanmar, Nepal].

4b. Pyracantha crenulata var. kansuensis Rehder, J. Arnold Arbor. 4: 114. 1923.

细叶细圆齿火棘  xi ye xi yuan chi huo ji

Shrubs to 2 m tall, with several thorny branches. Leaf blade oblong to obovate-lanceolate, 1–2.5 cm × 4–8 mm. Pome red, globose, ca. 5 mm in diam.

● Valleys, roadides, stream sides; 1500–2500 m. Gansu, Guizhou, S Shaanxi (Qin Ling), Sichuan, Yunnan.


窄叶火棘  zhai ye huo ji

*Cotoneaster angustifolius* Franchet, Pl. Delavay. 221. 1890.

Shrubs or small trees, to 4 m tall, often with thorny branches. Branchlets purplish brown when old, densely grayish yellow tomentose when young, glabrous when old. Petiole 1–2.5 mm or leaves sessile; leaf blade narrowly oblong to oblanceolate-oblong, 1.5–5 cm × 4–8 mm, abaxially densely gray tomentose, adaxially initially gray tomentose, soon glabrescent, base cuneate, margin entire, apex obtuse, apiculate, or emarginate. Compound corymb 2–4 cm diam., several flowered; peduncle densely gray tomentose; bracts caducous, lanceolate. Pedicel 1–2 mm, densely gray tomentose. Flowers ca. 2.5 mm in diam. Hypanthium campanulate, densely gray tomentose. Sepals triangular, 1–1.1 mm, abaxially densely gray tomentose, apex acute. Petals suborbicular, ca. 4 mm, apex rounded or emarginate. Stamens 20; filaments 1.5–2 mm. Ovary white tomentose; styles nearly as long as stamens. Pome purplish brown, subglobose, ca. 5 mm in diam.; fruiting pedicels densely shortly tomentose. Fl. May-Jun. fr. Oct–Dec.

● Thickets on slopes, at roadsides; 1600–3000 m. Guizhou, Hubei, Sichuan, Xizang, Yunnan, Zhejiang.


澜沧火棘  lan cang huo ji

*Pyracantha mekongensis* T. T. Yu.

Shrubs to 1 m tall, usually unarmed, with dense, short branches. Branches grayish brown, rusty tomentose distally when young, soon glabrescent. Leaves fasciculate on short branches; petioles 4–9 mm, glabrous; leaf blade oblong to oblong-obovate, 3–4.5 × 1–1.3 cm, both surfaces glabrous, mid-vein prominent abaxially, impressed adaxially, base cuneate, margin crenate, teeth incurved apically, apex acute. Corymb dense, terminal on short shoots, 2–3 cm diam., many flowered; peduncle rusty tomentose; bracts caducous, lanceolate. Pedicel 1–3 mm, stout, rusty tomentose. Flowers 8–10 mm in diam. Hypanthium campanulate, abaxially densely rusty tomentose. Sepals triangular. 1–1.2 mm, abaxially densely rusty tomentose, apex acute to acuminate. Petals ovate, apex rounded or emarginate. Stamens 20; filaments 2–3 mm. Ovary densely white tomentose; styles nearly as long as stamens. Pome purplish brown, subglobose, ca. 5 mm in diam.; fruiting pedicels densely shortly tomentose. Fl. May.

Sandy river banks; ca. 800 m. Yunnan [Laos].


密花火棘  mi hua huo ji

Shrubs. Branches with short thorns 1–2 cm; branchlets
purplish brown when old, densely rusty tomentose when young, glabrous when old. Leaves dense, fasciculate on short branchlets; petiole short, not more than 2 mm, subglabrous; leaf blade ovate to obovate-elliptic, 1–1.8 cm × 6–9 mm, abaxially brown tomentose, glabrescent, adaxially lustrous, base cuneate, margin crenulate, apex obtuse or truncate. Inflorescences 1.5–2.5 cm; 6–10-flowered; peduncle absent; bracts caducous, lanceolate. Pedicel densely rusty tomentose. Flowers 0.8–1.2 cm in diam. Hypanthium campanulate, abaxially densely rusty tomentose. Sepals triangular, 1.5–2 mm, abaxially rusty tomentose, apex obtuse. Petals ovate, 4–6 × 3–4 mm, apex rounded or obtuse. Stamens 20; filaments shorter than petals, 1.5–2 mm. Ovary densely white tomentose; styles nearly as long as stamens. Pome not seen. Fl. Jun–Jul.


山楂属 shan zha shu

Gu Cuizhi (谷梓芝 Ku Tsue-chih); Stephen A. Spongberg

Shrubs, subshrubs, or small trees, deciduous, rarely evergreen, armed, rarely unarmed; buds ovoid or subglobose. Leaves simple, stipulate, venation craspedodromous, margin serrate and lobed or partite, rarely entire. Inflorescences corymbose, sometimes flowers solitary. Hypanthium campanulate. Sepals 5. Petals 5, white, rarely pinkish. Stamens 5–25; carpels 1–5, connate, but free apically. Ovary inferior or semi-inferior, with 2 ovules per locule, but one rudimentary. Fruit a pome, with persistent sepals at apex; carpels bony when mature, each locule with 1 seed; seed erect, cotyledons plano-convex.

At least 1000 species: N temperate regions, especially abundant in North America; 18 species (ten endemic) in China.

Crataegus biloba H. Léveillé, described from Guizhou, is Symplocos paniculata (Thunberg) Miquel in the Symplocaceae (see Fl. China 15: 252. 1996), under which it has been recognized as Symplocos paniculata (H. Léveillé) Rehder. Crataegus lyi H. Léveillé (Fl. Kouy-Tcheou, 347. 1915), also described from Guizhou, is the same species.

1a. Leaves deeply pinnatifid to more than 1/2 width of blade, some lateral veins extending to apices of lobes, some to sinus between lobes.

2a. Fruit yellow or red, pyrenes (nutlets) with concave scars on 2 inner sides.

3a. Fruit golden-yellow, 8–10 mm in diam., pyrenes 4 or 5; leaves glabrous or slightly pubescent .................. 15. C. altaica

3b. Fruit red, 4–8 mm in diam., pyrenes 3–5; leaves glabrous ........................................................................ 16. C. remotilobata

2b. Fruit red or black, pyrenes smooth on 2 inner sides.

4a. Leaves cuneate, rarely broadly cuneate, with 2 or 3 pairs of lobes, subglabrous on both surfaces; fruit black, pyrenes 2 or 3 .......................................................... 17. C. chlorosarca

4b. Leaves truncate or broadly cuneate, with 3–5 pairs of lobes, pubescent along midvein and lateral veins;

fruit red, pyrenes 3–5 ........................................................................................................................................................................... 1. C. pinnatifida

1b. Leaves lobed or not divided, lateral veins extending to apices of lobes or teeth only.

5a. Fruit black; inflorescence glabrous or nearly so.

6a. Pulp green; pyrenes 4 or 5, with concave scars on 2 inner sides; leaf blade triangular-ovate to broadly ovate, base broadly cuneate to subrounded, with 3–5 pairs of lobes, pubescent on both surfaces .... 17. C. chlorosarca

6b. Pulp yellow; pyrenes 2 or 3, smooth on 2 inner sides; leaf blade rhomboidal to broadly ovate, base cuneate, sometimes broadly cuneate, with 2 or 3 pairs of lobes, subglabrous on both surfaces ........ 18. C. songarica

5b. Fruit red, rarely yellow; inflorescence pubescent or glabrous.

7a. Branches usually unarmed; leaf margin crenate-serrate or obtusely serrate, often not lobed, rarely 3–5-lobed on sterile branches ...................................................................................... 2. C. scabrifolia

7b. Branches armed, leaf blade lobed.

8a. Leaf margin crenate-serrate, with 2–4 pairs of lobes in apical part.

9a. Hypanthium and sepals abaxially glabrous; sepals entire .............................................................. 3. C. hupehensis

9b. Hypanthium and sepals abaxially densely pubescent; sepals 2–4-crenulate-serrate .................. 4. C. shensiensis

8b. Leaf margin sharply serrate, often with 2–4 pairs of lobes in apical part, rarely only 3-lobed near apex.

10a. Pedicel and peduncle pubescent or tomentose.

11a. Leaf basally cuneate, margin apically incised or 3(–7)-lobed; pyrenes smooth on both inner sides.

12a. Simple corymb 2–2.5 cm in diam., 5–7-flowered; petiole 4–5 mm ............................................ 5. C. cuneata

12b. Compound corymb ca. 8 cm in diam.; 7–18-flowered; petiole 1.5–4 cm .................. 6. C. shandongensis

11b. Leaf basally broadly cuneate to rounded, margin with 3–7 pairs of lobes; pyrenes with concave scars on both inner sides.

13a. Leaves adaxially subglabrous, abaxially sparsely pubescent.

14a. Thorns 6–10 mm; leaf petiole pilose or subglabrous, blade margin sharply serrate; fruit ellipsoid, glabrous ........................................................ 7. C. wilsonii

14b. Thorns 10–25 mm; leaf petiole glabrescent, blade margin doubly serrate; fruit

**山楂** shan zha

Trees deciduous, to 6 m tall, with thorns 1–2 cm or sometimes unarmed. Branchlets purplish brown when young, grayish brown when old, terete, subglabrous or glabrous when young; buds purplish red, triangular-ovoid, glabrous. Stipules falcate, ca. 8 mm, herbaceous, margin serrate, apex acuminate; petiole 2–6 cm, glabrous; leaf blade dark green adaxially, broadly ovate or triangular-ovate, rarely rhomboidal-ovate, 5–10 × 4–7.5 cm, lateral veins 6–10 pairs, usually extending to apices of lobes and to sinuses between lobes, abaxially sparsely pubescent along veins, adaxially lustrous, base truncate or broadly cuneate, with 3–5 pairs of lobes, margin sharply irregularly doubly serrate, apex acutely acuminate. Corymb 4–6 cm in diam., many flowered; peduncle initially pubescent, glabrate, bracts caducous, linear-lanceolate, membranous, apex acuminate. Pedicel 4–7 mm, initially pubescent, glabrescent. Flowers ca. 1.5 cm in diam., hypanthium campanulate, abaxially grayish white pubescent. Sepals triangular-ovate to lanceolate, 4–5 mm, both surfaces glabrous, apex shortly acuminate. Petals white, obovate or suborbicular, 7–8 × 5–6 mm. Stamens 20. Ovary 5-loculed, with 2 ovules per locule; styles 3–5, pubescent basally. Pome dark red, subglobose or pyriform, 1–2.5 cm in diam., glabrous; sepals persistent; pyrenes 3–5. Fl. May–Jun, fr. Aug–Sep. 2n = 34*, 102*.

Among shrubs, slopes, also cultivated; 100–2000 m. Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jinlin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Xingjiang, Zhejiang [Korea].

1a. Pedicel and peduncle glabrous .......... 1c. var. psilosa

1b. Pedicel and peduncle pubescent.

2a. Fruit small, 1–1.5 cm in diam. ..... 1a. var. pinnatifida

2b. Fruit larger, ca. 2.5 cm in diam. .......... 1b. var. major


**山里红** shan li hong

**Crataegus oxyacantha** Linnaeus var. pinnatifida Regel; ?C. pinnatifida f. geholensis (C. K. Schneider) M. Kitagawa; C. pinnatifida var. geholensis C. K. Schneider; C. pinnatifida var. songarica Dippel; Mespilus pinnatifida K. Koch; M. pinnatifida var. songarica (Dippel) Ascherson & Graebner.

Pedicel and peduncle pubescent. Fruit small, 1–1.5 cm.

Among shrubs, slopes; 100–1500 m. Hebei, Heilongjiang, Henan, Jiangsu, Jinlin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Zhejiang [Korea].


**山里红** shan li hong

**Crataegus oxyacantha** Linnaeus var. pinnatifida Regel; ?C. pinnatifida f. geholensis (C. K. Schneider) M. Kitagawa; C. pinnatifida var. geholensis C. K. Schneider; C. pinnatifida var. songarica Dippel; Mespilus pinnatifida K. Koch; M. pinnatifida var. songarica (Dippel) Ascherson & Graebner.

Pedicel and peduncle pubescent. Fruit small, 1–1.5 cm.

Among shrubs, slopes; 100–1500 m. Hebei, Heilongjiang, Henan, Jiangsu, Jinlin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Zhejiang [Korea].

2. Crataegus scabrifolia (Franchet) Rehder, J. Arnold Arbor.


**ROSACEAE**


5a. Crataegus cuneata var. cuneata

野山楂（原变种）ye shan zha (yuan bian zhong)

*Crataegus argyi* H. Léveillé & Vaniot; *C. cantha* H. Léveillé; *C. cuneata* f. *pleniflora* S. X. Qian; *C. cuneata* var. *shanhangnensis* L. Mao & T. C. Cui; *C. kulingensis* Sargent; *C. stephanostyla* H. Léveillé & Vaniot.

Leaf blade broadly obovate to obovate-oblong, 2–6 × 1–1.4 cm, abaxially sparsely pubescent, densely so along veins, base cuneate, margin irregularly doubly serrate, 3-lobed, rarely 5-lobed in apical part.

Valleys, thickets; 200–2000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi (Qin Ling), Yunnan, Zhejiang [Japan].


小叶野山楂 xiao ye ye shan zha


Leaf blade obovate-elliptic, 2–3(-4) × 1–1.5(-2) cm, both surfaces glabrous, base attenuate, margin serrate in apical part, not lobed.

- Thickets; 200–1500 m. Fujian (Changluo, Fuqing Xian, Fuzhou Shi).


山东山楂 shan dong shan zha

 Shrubs deciduous, to 5 m tall, usually thorny; thorns 0.5–10 cm. Branchlets reddish brown when young, grayish brown when old, terete, initially sparsely pubescent, glabrous when old, with sparse lenticels; buds not seen. Stipules caducous, falcate, herbaceous to membranous, glandular serrate at margin, apex acute to acuminate; petiole 1.8–2.8 cm, initially pubescent, soon glabrescent, base cuneate, margin irregularly serrate, usually 3–5-lobed, sometimes not divided in apical part, apex acuminate. Compound corymb ca. 8 cm in diam., 7- or 8(-18)-flowered; peduncle white pubescent; bracts caducous, linear-lanceolate, membranous. Pedicel 1–1.5 cm, white pubescent. Flowers ca. 2 cm in diam. Hymanthium campanulate, abaxially white pubescent. Sepals triangular, 4–6 mm, adaxially white pubescent. Petals white, suborbicular or obovate-orbicular, ca. 5 × 4 mm. Ovary 5-loculed, with 2 ovules per locule; styles 5, white pubescent basally. Pome red, globose, 1–1.5 cm in diam., glabrous; sepals persistent; pyrenes 5, smooth on both inner sides. Fl. May–Jun, fr. Sep–Nov.


少毛山楂 shao mao shan zha

 Shrubs deciduous, to 7 m tall; usually thorny; thorns 1–2.5 cm, stout. Branchlets dark yellowish brown when young, grayish brown or dark brown when old, terete, initially white pubescent, glabrous or subglabrous when old; buds purplish brown, triangular-ovoid, glabrous. Stipules falcate or oblong, 8–10 mm, herbaceous, subpetiole; petiole 2–2.5 cm, sparsely pilose or subglabrous; leaf blade ovate or obvate, rarely triangular-ovate, 4–6.5 × 3.5–5.5 cm, abaxially slightly pubescent along midvein and veins, adaxially sparsely pubescent when young, base cuneate, rounded, or cordate, margin sharply serrate (teeth aristate toward apex) and usually with (2 or)3–5 pairs of shallow lobes in apical part, apex acute or obtuse. Corymb 3–4 cm in diam., many flowered; peduncle white tomentose; bracts caducous, lanceolate, herbaceous to membranous. Pedicel 4–7 mm, white tomentose. Flowers 3–4 cm in diam. Hymanthium campanulate, abaxially white tomentose or glabrous. Sepals ovate or triangular-ovate, 3–4 mm, abaxially pubescent. Petals white, suborbicular, 6–7 × 5–6. Stamens 20. Ovary 2- or 3-loculed, with 2 ovules per locule; styles 2 or 3, white tomentose basally. Pome red or purplish red, ellipsoid, 6–7 mm in diam., glabrous; sepals persistent, reflexed; pyrenes 1–3, with deep concave scars on both inner sides. Fl. May, fr. Aug–Sep. 2n = 34*.

- Shaded dense forests on slopes, thickets; 1000–2500 m. Gansu, Henan, Hubei, Shaanxi, Sichuan, Yunnan, Zhejiang.


滇西山楂 dian xi shan zha

 Shrubs ca. 6 m tall, thorny; thorns 6–10 mm. Branchlets grayish brown, terete, white tomentose when young, soon glabrescent; buds purplish brown, ovate-triangular, glabrous. Stipules caducous, ovate-lanceolate or falcate, 6–10 mm, membranous, subglabrous, margin glandular serrate, apex acute-acuminate; petiole 1.8–2.8 cm, initially pubescent, soon glabrescent; leaf blade broadly ovate, 4.5–6 × 3.5–5.5 cm, abaxially sparsely pubescent, densely so along veins, adaxially sparsely pubescent, base cuneate or broadly cuneate, margin remotely doubly serrate and with (2 or)3–5 pairs of lobes, apex obtuse or acute. Corymb 3.6–6 cm in diam., many flowered; peduncle white tomentose; bracts caducous, linear-lanceolate, membranous. Pedicel 4–12 mm, white villous. Flowers ca. 1 cm in diam. Hymanthium campanulate, abaxially white villous. Sepals triangular-ovate, slightly shorter than hymanthium, 2–3 mm, both surfaces white pubescent. Petals white, suborbicular, ca. 8 × 6 mm. Stamens 20. Styles 2, rarely 3, pubescent basally. Pome reddish yellow, subglobose, ca. 6 mm in diam., white pubescent, rarely subglabrous; sepals persistent, reflexed; pyrenes 2 or 3, with concave scars on both inner sides. Fl. May, fr. Aug–Sep.

- On shrub-covered slopes; 2500–3300 m. NW Yunnan.

9. Crataegus maximowiczii C. K. Schneider, Ill. Handb. Laub-

Mingyuanzha ming yuan zha

Crataegus aurantia (Loudon) Lange var. villosa (Ruprecht)

Lange; C. bejigaensis S. L. Tung & X. J. Tian; C. maximoviczii var. ninganensis S. Q. Nie & B. J. Jen; C. sanguinea Pallas var. villosa Ruprecht.

Shrubs or small trees, to 7 m tall, unarmed or armed; thorns 1.5–3.5 cm. Branchlets purplish brown, terete, initially densely white pubescent, glabrescent; buds purplish brown, ovoid, glabrous. Stipules caducous, falcate, 5–8 mm, membranous, subglabrous, margin glandular serrate, apex acute or acuminate; petiole 1.5–2.5 cm, sparsely villous; leaf blade broadly ovate or rhombic-ovate, 4–6 × 3.5 cm, abaxially densely whitish villous, adaxially sparsely pubescent, base cuneate or broadly cuneate, occasionally truncate, margin remotely doubly serrate and with 3–5 pairs of lobes, apex acute. Compound corymb 4–5 cm in diam., many flowered; peduncle whitish villous; bracts caducous, linear-lanceolate, membranous. Pedicel 3–8 mm, whitish villous. Flowers ca. 1.2 cm in diam. Hypanthium campanulate, abaxially white pubescent. Sepals triangular-ovate or triangular-lanceolate, 3–4 mm, abaxially white pubescent. Petals white, suborbicular, ca. 5 mm. Stamens white, suborbicular, ca. 5 mm. Stamens 20. Styles (2 or)3–5, pubescent basally. Pome orangish red or orangish yellow, 5–6 × 3.5–4.5 cm, abaxially sparsely pubescent along veins, adaxially pubescent, base cuneate, margin doubly serrate, with (2 or)3–5 pairs of shallow lobes, apex acute. Corolla 2–3 cm in diam., many flowered; peduncle glabrous, subglabrous; bracts caducous, linear, membranous. Pedicel 5–6 mm, glabrous or subglabrous. Flowers ca. 8 mm in diam. Hypanthium campanulate, glabrous. Sepals triangular-ovate, ca. 4 mm, abaxially sparsely pubescent. Petals white, oblong, 5–6 mm. Stamens 20. Ovary pubescent apically, 3–5-loculed, with 2 ovules per locule; styles (3–5). Pome red, subglobose, ca. 1 cm in diam., glabrous; sepals persistent, reflexed; pyrenes 3, rarely 5, with concave scars on both inner sides. Fl. May–Jun, fr. Jul–Aug. 2n = 51*, 68*.

Near or in mixed forests, roadsides, river sides; 200–1000 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Russia (E Siberia)].


Shrubs or rarely small trees, deciduous, 2–4 m tall, usually thorny, thorns ca. 1 cm, sometimes absent. Branchlets purplish brown when young, grayish brown when old, terete, sparsely pubescent when young, soon glabrous; buds purplish brown, triangular-ovoid, glabrous. Stipules falcate or irregularly coriaceous, 5–7 mm, herbaceous, glabrous, margin serrate, apex acute; petiole 1.5–2 cm, subglabrous; leaf blade broadly ovate or rhombic-ovate, 5–6 × 3.5–4.5 cm, abaxially sparsely pubescent along veins, adaxially pubescent, base cuneate, margin doubly serrate, with (2 or)3–5 pairs of shallow lobes, apex acute. Corolla 2–3 cm in diam., many flowered; peduncle glabrous, subglabrous; bracts caducous, linear, membranous. Pedicel 5–6 mm, glabrous or subglabrous. Flowers ca. 8 mm in diam. Hypanthium campanulate, glabrous. Sepals triangular-ovate, ca. 4 mm, abaxially sparsely pubescent. Petals white, oblong, 5–6 mm. Stamens 20. Ovary pubescent apically, 3–5-loculed, with 2 ovules per locule; styles (3–5). Pome red, subglobose, ca. 1 cm in diam., glabrous; sepals persistent, reflexed; pyrenes 3, rarely 5, with concave scars on both inner sides. Fl. May–Jun, fr. Jul–Aug. 2n = 51*, 68*.

Slopes, mixed river side forests; 900–3000 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol [N Mongolia, Russia (Siberia)].


红山楂 hong shan zha

Shrubs or small trees, deciduous, 2–6 m tall; thorns 1–2.5 cm, slender, sometimes absent. Branchlets purplish brown when young, dark brown when old, wilty, glabrous, with sparse, oblone lenticels; buds purple, suborbicular or triangular, glabrous. Stipules lanceolate or ovate-lanceolate, 6–8 mm, herbaceous, glabrous, margin serrate, apex acuminate; petiole 7–10 mm, glabrous; leaf blade rhombic-ovate, rarely elliptic-ovate or obovate, 3–5 × 2.5–4 cm, both surfaces glabrous, base cuneate or broadly cuneate, margin sharply doubly serrate, entire near base, with (2 or)3–5 pairs of lobes at apical 2/3 of margin; lobes ovate, apex acuminate. Compound corymb 3–5 cm in diam., many flowered; peduncle pubescent, abaxially glabrous. Stipules linear-lanceolate, membranous. Pedicel 8–10 mm, glabrous. Flowers ca. 1 cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals linear-lanceolate, ca. 3 mm, margin entire or with 1 or 2 pairs of teeth, both surfaces glabrous. Petals white, suborbicular or obovate, 4–5 × 3–4 mm. Stamens 20. Styles 2–4, glabrous. Pome orangish red or orangish yellow, subglobose or oblong, 6–8 mm in diam., glabrous; sepals persistent, reflexed; pyrenes 2–4, with concave scars on both inner sides. Fl. May, fr. Aug. 2n = 34*.

Grassy places on river banks in forests, sandy slopes, thickets; 500–1500 m. N Hebei, Heilongjiang, Nei Mongol [N Mongolia, Russia (E Siberia)].
1a. Petiole and leaf blade abaxially glabrous

1b. Petiole and leaf blade abaxially pubescent

12a. Crataegus dahurica var. dahurica

光叶山楂 (变种) guang ye shan zha (yuan bian zhong)

Crataegus chitaensis Sargent; *C. purpurea* J. A. Bosc ex Candolle; *C. sanguinea* Pallas var. *glabra* Maximowicz.

Petiole and leaf blade abaxially glabrous.

Grassy places on river banks in forests, sandy slopes; 500–1000 m. Heilongjiang, Nei Mongol [N Mongolia, Russia (E Siberia)].

12b. Crataegus dahurica var. laevicalyx

甘中甸山 zhong dian shan

Crataegus incisa Regel; *C. purpurea* var. *incisa* Regel; *C. sanguinea* var. *inermis* Karelin & Kirilov; *C. wattiana* Hemsley & Lace var. *incisa* (Regel) C. K. Schneider.

Trees medium-sized, 3–6 m tall, unarmed, rarely with few 2–4 cm thorns. Branchlets purplish brown or reddish brown when young, grayish brown when old, terete, stout, glabrous; buds purplish brown, suborbicular, glabrous, apex acute. Bracts caducous, linear-lanceolate, membranous. Petals white, suborbicular, 5–6 × 3–4 mm. Stamens 15–20. Ovary tomentose apically, 2- or 3-loculed, with 2 ovules per locule; styles 2 or 3. Pome yellow, subglobose, 8–10 mm in diam., glabrous; sepals persistent; pyrenes 2 or 3, with concave scars on both inner lateral sides. Fl. May, fr. Jul–Sep. 2n = 34*.

- Mixed forests, shaded slopes, stream sides; 1000–3000 m. Gansu, Guizhou, Hebei, Shaanxi, Shanxi, Sichuan.


阿尔泰山楂 a er tai shan zha


Trees medium-sized, 3–6 m tall, unarmed, rarely with few 2–4 cm thorns. Branchlets purplish brown or reddish brown when young, grayish brown when old, terete, stout, glabrous; buds purplish brown, suborbicular, glabrous, apex acute. Bracts caducous, linear-lanceolate, membranous. Petals white, suborbicular, 5–6 × 3–4 mm. Stamens 15–20. Ovary tomentose apically, 2- or 3-loculed, with 2 ovules per locule; styles 2 or 3. Pome yellow, subglobose, 8–10 mm in diam., glabrous; sepals persistent; pyrenes 2 or 3, with concave scars on both inner lateral sides. Fl. May–Jun, fr. Aug–Sep. 2n = 68*.

- Mixed forests, shaded slopes, stream sides; 400–1900 m. C and N Xinjiang [Russia (SE European part, Siberia)].


裂叶山楂 lie ye shan zha

Trees small, 5–6 m tall, usually thorny; thorns 0.6–2.5 cm, slender. Branchlets purplish brown when young, dark purple
when old, terete, stout, glabrous or slightly glaucous; buds purplish brown, suborbicular, glabrous. Stipules caducous, falcate or cordate, ca. 8 mm, herbaceous, glabrous, margin thickened serrate, apex acute-acuminate; petiole 1.5–2.5 cm, glabrous; leaf blade broadly ovate, 4–6 × 3–4.5 cm, both surfaces glabrous or only abaxially pubescent in vein axes, base cuneate or broadly cuneate, margin remotely and sharply serrate, and with 2–4 pairs of lobes near base, often nearly divided to midvein; lobes ovate or ovate-lanceolate, apex acute or shortly acuminate. Corymb 6–7 cm in diam., many flowered; peduncle glabrous, slightly glaucous; bracts caducous, linear, membranous. Pedicel 5–6 mm, glabrous, glaucous. Flowers ca. 1.2 cm in diam. Hypanthium campanulate, abaxially glabrous, glaucous. Sepals triangular, 2–3 mm, both surfaces glabrous. Petals white, broadly obovate, ca. 5–6 × 3–4 mm. Stamens 20. Ovary densely pubescent apically, 4- or 5-loculed, with 2 ovules per locule; styles 4 or 5. Pome red, globose, 4–8 mm in diam., glabrous; sepals persistent, reflexed; pyrenes 3–5, with deep concave scars on both inner sides. Fl. May–Jun, fr. Jul–Aug.

- Slopes, stream sides, roadsides. C and W Xinjiang.


绿肉山楂 lu rou shan zha

Trees small, to 6 m tall; usually with few 1–1.5 cm thorns. Branchlets purplish brown when young, yellowish brown when old, terete, glabrous; buds purplish brown, triangular-ovoid, glabrous. Stipules falcate, 5–8 mm, membranous, glabrous, margin glandular serrate, apex acute; petiole 1.5–2 cm, pubescent; leaf blade triangular-ovate to broadly ovate, 5–9 × 3–5 cm, both surfaces sparsely pubescent, sometimes abaxially barbate in vein axes, base broadly cuneate or subrounded, margin sharply serrate, usually with 3–5 pairs of irregular lobes, apex acute or shortly acuminate. Corymb 2–3.5 cm in diam., several flowered; peduncle glabrous; bracts caducous, lanceolate, membranous. Pedicel 2–6 mm, glabrous. Flowers 1–1.2 cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular-lanceolate, 2–3 mm, both surfaces glabrous. Petals white, suborbicular, 5–7 × 4–5 mm. Stamens 20. Ovary pubescent apically; styles 5. Pome red when immature, black when mature with green pulp, subglobose, glabrous; sepals persistent; pyrenes 4 or 5, with concave scars on both inner sides. Fl. Jun-Jul, fr. Aug-Sep.

Cultivated. Liaoning [native to Japan and Russia (Kamchatka, Sakhalin)].


准噶尔山楂 zhun ge er shan zha

Crataegus fischeri C. K. Schneider.

Shrubs or small trees, 4–5 m tall, armed or unarmed; thorns 0.8–1.5 cm, stout. Branchlets purplish brown when young, grayish brown when old, initially sparsely pubescent, soon glabrate, terete; buds reddish brown, ovoid, glabrous. Stipules falcate or lanceolate, ca. 8 mm, herbaceous, glabrous, margin serrate, apex acuminate; petiole 2–2.5 cm, glabrous or subglabrous; leaf blade rhomboidal-ovate to broadly ovate, 3.5–6.5 × 2.5–5.5 cm, both surfaces pubescent when young, glabrescent, base cuneate, rarely broadly cuneate, margin remotely serrate and with 2 or 3 pairs of deep lobes, or apically shallowly lobed; lobes oblong, apex acute. Corymb 3–5 cm in diam., many flowered; peduncle glabrous or slightly pubescent when young; bracts caducous, linear, membranous. Pedicel 0.5–1.5 cm, slightly pubescent when young. Hypanthium campanulate, initially pubescent, soon glabrous. Sepals triangular-ovate or broadly lanceolate, ca. 3 mm, abaxially initially pubescent, glabrescent. Petals not seen. Stamens 15–20. Ovary pubescent apically, 2- or 3-loculed, with 2 ovules per locule; styles 2 or 3. Pome reddish black with yellow pulp, sparsely punctate, globose, rarely ellipsoid, 1.2–1.6 cm in diam., glabrous; sepals persistent, reflexed; pyrenes 2 or 3, smooth on both inner sides. Fl. May, fr. Jul. 2n = 68*.

Valleys, thickets; 500–2000 m. Xinjiang (Huocheng Xian, Shi Xian) [Afghanistan, Kazakhstan; SW Asia (Iran)].

Crataegus dsungarica Zabel ex Lange (Rev. Spec. Gen. Crataegi, 43. 1897), described from Shandong, may be a hybrid between C. altaica and C. songarica, but no specimens were seen by the present authors.


小石积属 xiao shi ji shu

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Stephen A. Spongberg

Shrubs deciduous or evergreen; buds small, with several narrow scales. Leaves imparipinnate; stipules linear to lanceolate; rachis narrowly winged; leaflets opposite, sessile or shortly petiolulate, small, margin entire. Corymb terminal, numerous flowered; bracts caducous. Hypanthium campanulate. Sepals 5. Petals 5, white. Stamens 20. Ovary inferior; 5-loculed, with 1 ovule per locule; styles 5, free. Fruit a small pome, with persistent erect sepals; seeds erect; cotyledons plano-convex.

About five species: E Asia; three species (one endemic) in China.

1a. Styles basally glabrous; leaflet blade suborbicular, rarely obovate-oblong .................................................. 3. O. subrotunda

1b. Styles basally pubescent; leaf blade obovate to elliptic.

2a. Leaflet blade obovate or obovate-oblong, 10–15 × 3–5 mm; hypanthium and sepals densely pubescent ................................................................. 1. O. anthyllidifolia

2b. Leaflet blade elliptic, elliptic-oblong or obovate-oblong, 5–10 × 2–4 mm; hypanthium and sepals

小石积 xiao shi ji

Pyrus anthyllidifolia Smith in Rees, Cycl. 29: Pyrus no. 29. 1819.

Shrubs 1–3 m tall. Branchlets reddish brown or purplish brown, terete, slender, initially pubescent, glabrescent; buds not seen. Leaves with 7–15 pairs of leaflets; stipules caducous, lanceolate, membranous; petiole 1–1.5 cm, pubescent; petiolule very short or absent; leaflet blade obovate or obovate-oblong, 1–1.5 cm × 3–5 mm, both surfaces pubescent, abaxially densely so, base broadly cuneate to subrounded, margin entire, apex obtuse, emarginate or mucronulate. Corymb 2–3 cm in diam., numerous flowered; peduncle pubescent; bracts caducous, lanceolate, membranous, pubescent. Pedicel 5–8 mm, pubescent. Flowers ca. 1 cm in diam. Hypanthium campanulate, abaxially pubescent. Sepals triangular-lanceolate, abaxially densely pubescent, adaxially sparsely pubescent, margin entire, apex acuminate. Petals spatulate, 5–7 × 3–4 mm. Stamens 20. Styles nearly as long as stamens, villous basally. Pome blackish brown, ellipsoid or oblong, ca. 1 cm; fruiting pedicel ca. 8 mm, nearly as long as stamens, villous basally. Pome bluish black, ovoid or subglobose, 6–8 mm in diam.; fruiting pedicel 5–8 mm, slightly pubescent; bracts caducous, linear-lanceolate, membranous, pubescent. Pedicel 5–8 mm, pubescent; bracts caducous, linear-lanceolate, membranous, pubescent. Pedicel 5–8 mm, pubescent.


圆叶小石积 yuan ye xiao shi ji

Shrubs or semishrubs, deciduous or evergreen, dense, spreading, 1–4 m tall. Branchlets reddish brown or purple, terete, slender, initially densely grayish white pubescent, glabrescent; buds depressed-triangular-ovoid, small, subglabrous. Leaves with 7–15 pairs of leaflets; stipules caducous, lanceolate, membranous; petiole 3–5 mm, pubescent to subglabrous, petiolule very short or nearly absent; leaflet blade elliptic or elliptic-oblong, rarely obovate-oblong, (3–)4–6 × 1–2.5 mm, both surfaces sparsely pubescent, abaxially densely so, base broadly cuneate or subrounded, margin entire, apex acute or mucronulate. Corymb 2–3.5 cm in diam., 3–5-flowered; peduncle villous; bracts caducous, linear-lanceolate, membranous, pubescent. Pedicel 3–5 mm, villous. Flowers ca. 1 cm in diam. Hypanthium campanulate, abaxially pubescent. Sepals triangular-lanceolate, abaxially pubescent, adaxially subglabrous, margin entire, apex acute. Petals oblong, 5–8 × 3–5 mm. Stamens 20. Styles glabrous, nearly as long as stamens. Pome bluish black, subglobose, 6–12 mm in diam.; fruiting pedicel 5–8 mm, slightly pubescent; sepals persistent. Fl. Apr–Jun, fr. Jul–Sep.

Mixed forests, scrub on mountain summits, roadsides; 200–500 m. N Guangdong (Renhua Xian) [Japan (Ryukyu Islands)].
**Rosaceae**


Leaf blade and petiole hairy; leaflets 4–6 × 2–3 mm, apex obtuse or mucronulate.

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**Stranvaesia** Lindley, Edwards's Bot. Reg. 23: t. 1956. 1837

红果树属 hong guo shu shu

Lu Lingdi (陆玲娣 Lu Ling-ti); Stephen A. Spongberg

Trees or shrubs, evergreen. Winter buds ovoid, small; scales few, exposed. Leaves petiolate, stipulate, simple, leathery, venation camptodromous, margin entire, undulate or serrate. Corymbs or subumbels, terminal or axillary, few to numerous flowered; bracts clawed. Stamens 20; filaments filiform. Ovary semi-inferior, pubescent, 4- or 5-loculed, free to middle from hypanthium in fruit; styles 4 or 5, connate high above middle; stigmas capitate; ovules 2 per locule, basal, collateral, ascending. Fruit a pome, ovoid to globular or ovoid-globose, 1b. Bracts subulate or linear to lanceolate; lenticels on branchlets inconspicuous; with large warts above each leaf scar and above some bract scars of inflorescence; fruit subglobose .................................................................................................... 1. *S. davidiana* 1a. Bracts ovate-lanceolate; lenticels on branchlets inconspicuous; with large warts above each leaf scar and above some bract scars of inflorescence; fruit subglobose ........................................................................................................... 1. *S. davidiana* 1b. Bracts subulate or linear to lanceolate; lenticels on branchlets conspicuous; fruit globose or ovoid-globose. 2a. Petiole more than 1 cm, slender; leaf blade obovate-oblong; fruit globose. 3a. Rachis, pedicels, and hypanthium pilose; petiole ca. 1 cm, pilose .......................................................................................................................... 2. *S. nussia* 3b. Rachis, pedicels, and hypanthium glabrous; petiole 1.5–4 cm, glabrous .......................................................................................................................... 3. *S. oblanceolata* 2b. Petiole shorter, not over 1 cm, broader; leaf blade elliptic or oblong to oblong-obovate; fruit ovoid or ovoid-globose.

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红果树 hong guo shu

Shrubs or small trees, 1–10 m tall, densely branched. Branchlets grayish brown when old, terete, initially densely villous, gradually glabrescent, with sparse, inconspicuous lenticels; buds reddish brown, narrowly ovoid, apex shortly acuminate; scales subglabrous or pubescent at margin. Petiole 1.2–2 cm, pilose, gradually glabrescent; stipules caducous, subulate, 5–6 mm, membranous, slightly pilose; leaf blade oblong, oblong-lanceolate, or oblanceolate, (3–)5–12 × 2–4.5 cm, midvein raised abaxially and impressed adaxially, lateral veins 8–16 pairs and inconspicuous, both surfaces grayish brown villous along midvein, base cuneate to broadly cuneate, margin entire or undulate, apex acute or abruptly pointed. Compound corymbs terminal, 5–8 × (1.5–)5–10 cm, few or numerous flowered; rachis and pedicels villos; bracts caducous, ovate-

Slopes, mountain summits, roadsides, thickets, river valleys, damp gullies; 900–3000 m. Fujian, Gansu, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Malaysia, N. Vietnam].

One of us (Spongberg) notes that, because of variability, further study is necessary to determine whether these taxa are really distinct.

1a. Leaf margin entire; inflorescence 5–10 cm in diam., densely flowered; rachis and pedicels densely villous .................. 1a. var. davidiana

1b. Leaf margin undulate; inflorescence 1.5–5 cm in diam., few flowered; rachis and pedicels ± villous .......................... 1b. var. undulata

1a. Stranvaesia davidiana var. davidiana

红果树 (原变种) hong guo shu (yuan bian zhong)

Photinia davidiana (Decaisne) Cardot; P. niitakayamensis Hayata; P. undulata (Decaisne) Cardot var. formosana Cardot; Pyrus cavanerii H. Léveillé; P. davidiana var. formosana (Cardot) H. Ohashi & Iketani; Stranvaesia davidiana var. salicifolia (Hutchinson) Rehder; S. henryi Diels; S. niitakayamensis (Hayata) S. salicifolia Hutchison.

Leaf blade 5–12 cm. Inflorescences 5–10 cm in diam., densely flowered; rachis and pedicels densely villous. Slopes, mountain summits, roadsides, thickets; 1000–3000 m. Gansu, Guangxi, Guizhou, Hubei, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan [Malaysia, N. Vietnam].


波叶红果树 bo ye hong guo shu


Leaf blade 3–8(–10) cm, margin undulate. Inflorescences 1.5–5 cm in diam., few flowered; rachis and pedicels ± villous.

Slopes, river valleys, damp gullies, thickets; 900–3000 m. Fujian, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.


印缅红果树 yin mian hong guo shu

Pyrus nussia Buchanan-Hamilton ex D. Don, Prodr. Fl. Nepal. 237. 1825; Celaugs glauca Wallch ex G. Don; Eriobotrya amboigua Merrill; Stranvaesia glaucaensis Lindley.

Trees to 5–9 m tall. Branchlets purplish brown when old, terete, densely pilose when young, gradually glabrescent, sub-glabrous when old. Petiole ca. 1 cm, pilose; stipules caducous, lanceolate, membranous; leaf blade oblong or obovate-lanceolate, 6–8 × 2–3.5 cm, veins 10–12 pairs, abaxially pilose along veins, adaxially initially pilose, glabrescent, base cuneate, margin irregularly obtusely dentate, apex acute. Compound corymbs terminal, 6–9 × 8–12 cm, many flowered; rachis and pedicels densely pilose; bracts 4–6 mm, pubescent. Pedicel 5–10 mm. Flowers ca. 1 cm in diam. Hypanthium campanulate, abaxially pilose. Sepals triangular-lanceolate, 2.5–4 × 2.5–3 mm, margin entire, apex acute. Petals oblong or elliptic, 4–6 × 3–5 mm, base shorty clawed and barbate, apex emarginate. Stamens 20; filaments unequal in length, slightly shorter than sepals. Ovary semi-inferior, (4–)5-loculed; styles (4 or)5, connate for ca. 1/2 length, base densely pubescent. Fruit orangish red, compressed-globose, ca. 8 mm in diam., pubescent when young, glabrate; sepals incurved; seeds 1 or 2 per locule.

Mixed forests; 500–2800 m. SE Xizang, Yunnan [NE India, N Laos, N Myanmar, Nepal, Philippines, N Thailand].


滇南红果树 di’an nan hong guo shu


Shrubs 5–9 m tall. Branchlets purplish brown when old, terete, glabrous, with scattered orbicular lenticels; buds purplish brown, narrowly ovoid, glabrous. Petiole 1.5–4 cm, glabrous; leaf blade oblong or obovate-oblong, 8–13 × 3.5–5 cm, luid, midvein prominently raised abaxially and slightly impressed adaxially, both surfaces glabrous, base cuneate, rarely subrounded, margin obscurely obutously dentate, apex acute. Compound corymbs terminal, 7–9(–11) × 5–10(–14) cm, compact, many flowered; rachis and pedicels glabrous; bracts linear, 2–3 mm. Pedicel 3–5 mm. Flowers ca. 1 cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular-ovate, 2–3 mm, much shorter than hypanthium, margin entire, apex acute. Petals suborbicular or broadly ovate, 5–6 × 3–5 mm. Stamens 20, shorter than petals. Ovary pubescent; styles 5, not exceeding stamens, connate for more than 1/2 length; stigma capitate. Fruit ovoid, 6–8 mm in diam.; sepals erect. Fl. Apr–May, fr. Jun–Jul.

Mixed evergreen forests of mountain valleys, slopes; 1400–2000 m. S Yunnan [N Laos, N Myanmar, Thailand].


毛萼红果树 mao e hong guo shu

Shrubs or small trees, 2–4 m tall. Branchlets purplish brown when young, blackish brown when old, angulate, yellowish brown tomentose-villous when young, glabrous when old, with sparse, brownish lenticels; buds reddish brown, ovoid, apex acute, scale villous at margin. Petiole 2–4 mm, villous; stipules caducous, small; leaf blade dark green adaxially, elliptic, oblong, or oblong-ovobate, 4–10 × 2–4 mm, midvein and 6–
8 pairs of lateral veins distinctly raised abaxially and impressed adaxially, abaxially brownish yellow, tomentose-villous along midvein, adaxially glabrous or subglabrous, base cuneate or broadly cuneate, rarely subrounded, margin minutely sharply aristate-serrate, apex acuminate or ciliate. Inflorescences terminal, corymbose or subumbellate, 3–4 × 2.5–5 cm, several to more than 10-flowered; rachis and pedicels densely brownish yellow tomentose-villous or glabrous; bracts caducous, brown, subulate, 4–6 mm, membranous. Pedicel 4–10 mm. Flowers 8–9 mm in diam. Hypanthium campanulate, abaxially densely yellow tomentose-villous. Sepals triangular-ovate, 2–3 × 2–2.5 mm, nearly 1/2 as long as hypanthium, margin entire, apex acute. Petals suborbicular, 5–7 mm in diam., glabrous, base shortly clawed, apex obtuse or somewhat emarginate. Stamens 20, shorter than petals; anthers yellowish brown. Styles yellowish yellow, ovoid, 1–1.4 cm in diam., initially slightly tomentose-villous, glabrate, with small pale lenticels; sepals erect or incurved, abaxially tomentose-villous. Fl. May–Jun, fr. Sep–Oct.

1a. Inflorescence corymbose; pedicel, hypanthium, and fruit tomentose-villous ..................  4a. var. amphidoxa
1b. Inflorescence subumbellate; pedicel, hypanthium, and fruit glabrous ..................  4b. var. amphileia

4a. Stranvaesia amphidoxa var. amphidoxa

毛萼红果树 (原变种) mao e hong guo shu (yuan bian zhong)

Photinia amphidoxa (C. K. Schneider) Rehder & E. H. Wilson var. amphidoxa

Trees or shrubs, deciduous or evergreen. Winter buds small; scales imbricate, few. Leaves alternate, simple, papyry or leathery, venation camptodromous, margin serrate, rarely entire, shortly petiolate; stipules present, usually subulate. Inflorescences terminal, umbellate or corymbose, rarely shortly paniculate, many flowered, sometimes flowers 2- or 3-clustered or solitary. Hypanthium cupular or campanulate to cylindric, adnate to ovary or free near apex. Sepals 5, persistent, short. Petals 5, contorted or imbricate in bud, base clawed. Stamens usually ca. 20. Carpels 2–5, rarely 1; ovary semi-inferior, (1 or)2–5-loculed, in fruit free apically or to 1/3 length; styles (1 or)2–5, free or ± connate, short, dilated apically; stigmas truncate; ovules 2 per locule, erect. Fruit a pome, globose, ovoid, or ellipsoid, somewhat fleshy, (1- or)2–5-loculed, free from calyx only near apex or to 1/3 length, with persistent, incurved sepal; carpel crustaceous or membranous, each locule 1- or 2-seeded; seeds erect, testa leathery; cotyledons plano-convex.

About 60 species: E, S, and SE Asia, also in Mexico; 43 species (32 endemic) in China.

14Extensive contributions were received from Kenneth R. Robertson (ILLS), Herbarium, Illinois Natural History Survey, 607 East Peabody Drive, 172 Natural Resources Building, Champaign, Illinois 61820-6970, U.S.A.
Wu Zhengyi (editor’s note) believes that *Pourthiaea* is morphologically distinct from *Photinia* and should be treated as a separate genus.

Many species of *Photinia* are ornamental trees and shrubs with large lustrous leaves and attractive white flowers in the spring followed by red fruits in the autumn. The wood is hard and heavy, suitable for making furniture and other small articles.

1a. Plant evergreen; inflorescence compound-corymbose; rachis and pedicels without lenticels in fruit.

2a. Leaves entire, rarely with few inconspicuous teeth.

3a. Inflorescences glabrous, rarely slightly pilose; leaves leathery, not revolute, both surfaces glabrous ............. 1. *P. integrifolia*

3b. Inflorescences densely tomentose; leaves thickly leathery, slightly revolute, adaxially glabrous, abaxially densely tomentose.

4a. Petiole 20–30 mm; lateral veins 20–25 pairs ................................................................. 4. *P. megaphylla*

4b. Petiole 1.5–5 mm; lateral veins 13–17 pairs.

5a. Hypanthium campanulate, abaxially glabrous .......................................................... 2. *P. crassifolia*

5b. Hypanthium cylindric, abaxially tomentose ................................................................. 3. *P. tushanensis*

2b. Leaves wholly or partly serrate.

6a. Leaf blade abaxially with black glands.

7a. Inflorescence branches and hypanthium abaxially villous; petiole 10–25(–30) mm, glandular and toothed .............. 21. *P. prunifolia*

7b. Inflorescence branches and hypanthium abaxially gray tomentose; petiole 8–15 mm, without glands and teeth ....................................................... 22. *P. raupingensis*

6b. Leaf blade abaxially without black glands.

8a. Inflorescences pilose .................................................................................................. 9. *P. bodinieri*

9a. Inflorescences glabrous.

10a. Petiole usually 2–4 cm ........................................................................................... 5. *P. serratifolia*

10b. Petiole usually 0.4–1.5 cm.

11a. Petiole 10–15 mm; leaf blade elliptic, oblong, or oblong-obovate, apex acuminate ......................... 6. *P. glabra*

11b. Petiole 4–10 mm; leaf blade oblong-lanceolate, lorate-lanceolate, or oblanceolate, apex acute or obtuse.

12a. Leaf blade oblong-lanceolate or lorate-lanceolate, margin crenate, veins 18–20 pairs ...................... 7. *P. stenophylla*

12b. Leaf blade oblanceolate, margin sharply serrate, veins 9–13 pairs ............................................. 8. *P. lochenganensis*

8b. Inflorescence branches usually tomentose.

13a. Leaf margin spiny-serrate.

14a. Branchlets, petioles, and inflorescences tomentose; leaf blade 4.5–7 × 4–5 cm ......................... 19. *P. prionophylla*

14b. Branchlets, petioles, and inflorescences villous; leaf blade 2–5 × 1–2 cm ..................................... 20. *P. berberidifolia*

13b. Leaf margin sharply serrate or obtusely serrate.

15a. Leaf blade abaxially glabrous.

16a. Leaf blade oblong, elliptic, or oblong-obovate, apex acute, veins 12–14 pairs ............................. 10. *P. beckii*

16b. Leaf blade obovate or oblanceolate, apex obtuse, veins 9–11 pairs ........................................... 11. *P. lasiogyna*

15b. Leaf blade abaxially pubescent or tomentose.

17a. Leaf blade abaxially pilose.

18a. Inflorescences gray lanuginose; leaf veins 18–20 pairs; petiole 2.5–4 cm ............................ 14. *P. lanuginosa*

18b. Inflorescences villous; leaf veins 12–15 or 20 pairs; petiole 0.6–2(–2.5) cm.

19a. Leaf margin serrate at least in part, leaf blade oblong-elliptic to obovate-oblong, veins ca. 20 pairs, petiole 0.6–1.2 cm .............................................................. 12. *P. chinjiana*

19b. Leaf margin wholly serrate, leaf blade oblong-ovate, oblong-obovate, or oblong-lanceolate, veins 12–15 pairs, petiole 1–2(–2.5) cm ................................................................. 13. *P. kwangsiensis*

17b. Leaf blade abaxially tomentose.

20a. Petiole 2–4 cm; hypanthium abaxially tomentose .......................................................... 15. *P. glomerata*

20b. Petiole usually less than 2 cm; hypanthium abaxially glabrous or tomentose.

21a. Hypanthium glabrous abaxially; leaf veins 30–40 pairs ................................................. 16. *P. anlungensis*

21b. Hypanthium tomentose abaxially; leaf veins 10–20 pairs.

22a. Leaf blade oblong-lanceolate or oblanceolate, abaxially gray tomentose when young, glabrescent, apex acute or shortly acuminate, margin sparsely minutely sharply serrate, veins 12–15 pairs ......................................................... 17. *P. chihsiniana*

22b. Leaf blade lorate-oblong or narrowly lanceolate, abaxially densely and persistently yellow tomentose, apex obtuse or acute, margin with sparse, sharp or spiny teeth, veins 10–20 pairs ......................................................... 18. *P. loriformis*

1b. Plant deciduous, very rarely evergreen; inflorescence umbellate, corymbose, or compound-corymbose; rachis and pedicels with prominent lenticels in fruit.
23a. Inflorescence an umbel or corymb, 2–9-flowered, sometimes flowers solitary, rarely more than 9.
24a. Deciduous shrub; flowers 3–8 in umbels or corymbs; pedicel 3–10 mm; leaf apically acuminate to caudate ................................................................. 42. P. hirsuta
24b. Evergreen shrub; flowers 1 or 2, or 3–6 in umbels or corymbs; pedicel 10–20 mm; leaf apically acute to shortly acuminate ................................................................. 43. P. zhejiangensis
24b. Branchlet, petiole, pedicel, and hypanthium abaxially pubescent.
26a. Flowers several to more than 10 in umbels or corymbs; pedicel 1–2.5(–3.2) cm; petals villous adaxially ............................................................................................................. 39. P. parvifolia
26b. Flowers solitary or 2– or 3(–5)-fascicled; pedicel 2–5 cm; petals glabrous.
27a. Shrub 2(–5) m tall, erect; pedicel often 3–5 cm, glabrous; sepals not toothed; petals white or stained yellow ........................................................................................................................................ 40. P. komarovii
27b. Shrub smaller, decumbent; pedicel 0.5–1.8 cm, sparsely villous when young, glabrous when old; sepals irregularly minutely toothed; petals white ............................................................................. 41. P. chingshuiensis
23b. Inflorescence a corymb or compound corymb, usually more than 10-flowered.
28a. Inflorescence pubescent or tomentose.
29a. Peduncle and pedicels verticillate ............................................................................................................. 32. P. benthamiana
29b. Peduncle and pedicels alternate.
30a. Leaf blade glabrous or pilose abaxially.
31a. Leaf blade abaxially glabrous, apex acuminate, margin sharply serrate, veins 9 or 10 pairs ........ 33. P. pilosicalyx
31b. Leaf blade abaxially pilose, apex caudate or acute to shortly acuminate, margin sharply or shallowly serrate, veins 5–10(–12) pairs.
32a. Leaf apically caudate, margin densely sharply serrate apically, veins 5–7 pairs ................................ 34. P. villosa
32b. Leaf apically acute to shortly acuminate, margin sparsely or shallowly serrate, veins 8–10(–12) pairs ........................................................................................................................................ 35. P. calleryana
30b. Leaf blade abaxially tomentose.
33a. Leaf margin sparsely serrate or subentire, leaf blade lanceolate or lorate-lanceolate, abaxially densely gray tomentose when young, subglabrous when old .......................................................... 38. P. podocarpifolia
33b. Leaf margin sharply serrate along entire length, leaf blade oblong to oblong-lanceolate or lanceolate, abaxially yellowish gray or long gray tomentose at least initially.
34a. Leaf blade oblong or oblong-elliptic to oblong-lanceolate, abaxially persistently yellowish gray tomentose, lateral veins 10–15 pairs; rachis, pedicels, and hypanthium abaxially sparsely villous, usually glabrate ............................................................................................................... 36. P. schneideriana
34b. Leaf blade lanceolate, abaxially initially long gray tomentose, glabrescent, lateral veins 8–10 pairs; rachis, pedicels, and hypanthium abaxially densely long gray tomentose ......................................................... 37. P. arguta
28b. Inflorescence glabrous.
35a. Leaf blade abaxially tomentose.
36a. Leaf blade 4–8.5 × 1–2 cm, abaxially floccose-tomentose, margin densely minutely serrate, apex acuminate, veins conspicuous, 8–11 pairs ........................................................................................................ 30. P. tsaii
36b. Leaf blade 3–4 × 0.8–1 cm, abaxially densely yellow tomentose, margin entire or inconspicuously crenulate, apex obtuse or ± acute, veins inconspicuous ......................................................................................... 31. P. blinii
35b. Leaf blade abaxially glabrous, rarely puberulous only along veins.
37a. Leaf veins adaxially deeply impressed ........................................................................................................ 29. P. impressivena
37b. Leaf veins adaxially slightly impressed.
38a. Leaf apically acute, rarely shortly acuminate.
39a. Leaf basally symmetrical, leaf blade broadly lanceolate, both surfaces glabrous, veins not oblique, petiole 5–7 mm; fruit obovoid, 6–7 mm in diam. ................................................................. 27. P. bergerae
39b. Leaf basally asymmetric, leaf blade oblong or oblanceolate, abaxially villous along midvein, veins very oblique, petiole 7–10 mm; fruit ovoid to ellipsoid, 3–4 mm in diam. ........................................................................ 28. P. obliqua
38b. Leaf apically acuminate to caudate.
40a. Leaf margin densely minutely sharply serrate, veins 7–9 pairs ........................................................................................................ 26. P. fokienensis
40b. Leaf margin sparsely serrate, veins 6–16 pairs.
41a. Leaf blade lanceolate or oblong-lanceolate, margin revolute, shallowly sharply serrate, sometimes subentire, lateral veins 12–16 pairs; fruiting pedicel 5–9 mm ........................................ 25. P. callosa
41b. Leaf blade elliptic, oblong, obovate-oblong, ovate-lanceolate, or obovate-lanceolate, margin not revolute, sharply serrate, lateral veins 6–14 pairs; fruiting pedicel 1–2.5 cm.
42a. Leaf blade abaxially glabrous, sparsely pilose along veins abaxially, veins 9–14 pairs; fruit ovoid or subglobose; fruiting pedicel 1–2 cm ........................................................................................................ 23. P. beauverdiana

Trees evergreen, 5–7 m tall. Branchlets brown, terete, glabrous, blackish gray when old, with scattered suborbicular or oblong lenticels. Petiole (1–)2–4 cm, glabrous; leaf blade oblong, lanceolate, or oblanceolate, 6–12 × 3–5 cm, leathery, veins 12–17 pairs, both surfaces glabrous, base cuneate, rarely rounded, margin entire, apex acute or shortly acuminate. Compound corymbs terminal, much branched, 7–12 × 8–15 cm, many flowered; rachis and pedicels glabrous, rarely puberulous. Pedicel 3–5 mm. Flowers 4–5(–8) mm in diam. Hypanthium cupular, 1–1.5 mm, abaxially glabrous. Sepals broadly triangular, 1–1.5 mm, apex obtuse. Petals white or yellowish, orbicular, 1–2 mm in diam., glabrous, base shortly clawed. Stamens 20, nearly as long as or slightly longer than petals. Ovary pilose apically; styles 2, shorter than or nearly as long as stamens. Fruit purplish red, subglobose, 5–6 mm in diam., glabrous. Fl. May–Jun, fr. Sep–Oct. 2n = 34.

- Evergreen forests; 1200–2700 m. W Guangxi, Guizhou, SE Xizang, W Yunnan [Bhutan, India, Laos, Myanmar, Nepal, Sikkim, Thailand, Vietnam].
- Flowers 4–5 mm in diam., white .......... 1a. var. integrifolia
- Flowers 7–8 mm in diam., yellowish ............ 1b. var. flavidiflora

1a. **Photinia integrifolia** var. integrifolia

**Eriobotrya integrifolia** (Lindley) Kurz; **Photinia integrifolia** var. notoniana (Wight & Arnott) Vidal; **P. integrifolia** var. yunnanensis T. T. Yu; **P. notoniana** Wight & Arnott; **P. sambuciflora** W. W. Smith; **P. scandens** Stapf; **Stranvaesia scandens** (Stapf) Handel-Mazzetti.

Flowers 4–5 mm in diam. Petals white.

- Evergreen forests; 1500–2500 m. W Guangxi, Guizhou, SE Xizang, W Yunnan [Bhutan, India, Laos, Myanmar, Nepal, Sikkim, Thailand, Vietnam].


Flowers 7–8 mm in diam. Petals yellowish.

- Evergreen forests on slopes; 1200–2700 m. W Yunnan [Myanmar].


**Photinia crassifolia** var. denticulata Cardot.

Shrubs evergreen, 4–5 m tall. Branchlets brown cinereous, rusty tomentose when young, glabrous when old, with inconspicuous lenticels. Petiole 1.5–4 mm, tomentose; leaf blade oblong, 6–15 × 1.5–4.5 cm, thickly leathery, veins 15–17 pairs, reticulate veins prominent, abaxially somewhat purple when dry, tomentose along veins, adaxially shiny, glabrous, base rounded, margin slightly revolute, entire or inconspicuously dentate, apex acute or obtuse and shortly pointed. Compound corymbs terminal, 9–14 cm in diam., numerous flowered; rachis and pedicles densely tomentose. Pedicel 2–3 mm. Flowers 5–6 mm in diam. Hypanthium campanulate, ca. 1 mm, abaxially glabrous. Sepals triangular, 0.5–1 mm, apex acute. Petals white, obovate, 2–3 mm, glabrous, base shortly clawed, apex obtuse. Stamens 20, slightly longer than or nearly as long as petals. Ovary white tomentose apically; styles 2, free, not exceeding stamens. Fruit brownish red, ovoid, 6–7 × 5–6 mm. Fl. May–Jun, fr. Sep–Nov.

- Sunny slopes, slope thickets; 500–1700 m. Guangxi, Guizhou, Yunnan.


**Photinia tushanensis**

Shrubs evergreen, to 5 m tall. Branchlets grayish brown or grayish black when old, densely gray tomentose when young, gradually glabrescent. Petiole nearly absent or short, 3–5 mm, thick, initially densely tomentose, glabrate; leaf blade oblong-elliptic, 11–17 × 3–5 cm, thickly leathery, veins 13–15 pairs, robust midvein prominently raised abaxially and deeply impressed adaxially, abaxially densely yellowish brown tomentose, glabrate, adaxially initially tomentose, gradually glabrescent or subglabrous, base rounded, margin slightly revolute, entire, undulate, or inconspicuously shallowly serrate, apex acute or obtuse and shortly pointed. Compound corymbs terminal, compact, 9–10 cm in diam., numerous flowered; rachis and pedicles densely gray tomentose. Pedicel 2–3 mm or nearly absent. Flowers 5–6 mm in diam. Hypanthium cylindric, 3–5 mm, abaxially tomentose. Sepals ovate, ca. 1 mm, apex obtuse. Petals obovate or broadly elliptic, 2–2.5 mm, glabrous, base shortly clawed. Stamens 20, shorter than petals. Ovary tomentose; styles 2, free. Fruit not seen. Fl. Jun–Jul.

- Thickets at mountain summits; 800–900 m. S Guizhou (Dushan Xian).


**Photinia megaphylla**

- Shrubs evergreen, ca. 3 m tall. Branchlets angulate, densely brownish yellow tomentose. Petiole 2–3 mm, densely brownish yellow tomentose; stipules caducous; leaf blade elliptic or elliptic-ovate, 16–27 × 10–12 cm, veins 20–25 pairs, raised abaxially and impressed adaxially, abaxially densely brownish yellow tomentose, adaxially glabrous, base broadly cuneate or subrounded, margin obscurely crenate, apex acuminate to caudate. Compound corymbs terminal, many flowered; rachis and petals white or yellowish, orbicular, 1–2 mm in diam., glabrous, base shortly clawed. Stamens 20, not exceeding stamens. Fruit brownish red, ovoid, 6–7 × 5–6 mm. Fl. May–Jun, fr. Sep–Nov.

- Broad-leaved forests on slopes; ca. 1800 m. SE Xizang.


石楠 shi nan

 Shrubs or trees, evergreen, 4–6(–12) m tall. Branchlets brown or reddish brown when young, brownish gray when old, glabrous; buds ovoid, 4–7 mm, apex acute to shortly acuminate; scales several, brown. Petiole 2–4 cm, pubescent when young, glabrescent; leaf blade narrowly elliptic, narrowly obovate, or obovate-elliptic, (6–)9–22 × 3–6.5 cm, leathery, veins 20–30 pairs, midvein raised abaxially and impressed adaxially, abaxially long pubescent along veins when young, both surfaces glabrous when mature, adaxially lustrous, base rounded or broadly cuneate, margin sparsely or inconspicuously toothed or entire, apex acuminate. Compound corymbs terminal, 8–12 × 10–16 cm; rachis and pedicels glabrous, villous, or tomentose. Pedicel 3–5 mm. Flowers 6–8 mm in diam. Hypanthium cupular, 1–1.5 mm, usually glabrous, sometimes abaxially tomentose or basally villous. Sepals broadly triangular, 1–1.5 mm, apex acute or obtuse. Petals white, suborbicular, 3–4 mm in diam., glabrous; buds ovoid, 4–7 mm, apex acute to shortly acuminate; sepals triangular-ovate, shorter than tube, apex acute. Ovary pilose apically; styles 2, sometimes 3, connate at base, or villous. Stamens 20, outer ones longer than inner ones.

- Low mountain areas; ca. 900 m. C Taiwan.


毛瓣石楠 mao ban shi nan


 Leaf blade obovate-lanceolate, 8–15 cm, margin distinctly serrate, entire only near base. Rachis, pedicels, hypanthium, and petals basally villous.

- Low mountain areas; ca. 900 m. C Taiwan.


宽叶石楠 kuan ye shi nan

 Photinia daphniphyloides Hayata, Icon. Pl. Formosan. 7: 30. 1918; P. serrulata Lindley f. daphniphyloides (Hayata) H. L. Li; P. serrulata var. daphniphyloides (Hayata) K. C. Kuan.

 Leaves elliptic or obovate-elliptic, 8–16 cm, margin entire or very inconspicuously minutely dentate. Rachis and pedicels tomentose; hypanthium and petals glabrous.

- Sea shores; sea level. E Taiwan.


紫金牛叶石楠 zi jin niu ye shi nan

 Photinia ardisiifolia Hayata, Icon. Pl. Formosan. 5: 65. 1915; P. serrulata Lindley f. ardisiifolia (Hayata) H. L. Li; P. serrulata var. ardisiifolia (Hayata) K. C. Kuan.

 Leaves obovate-lanceolate or spatulate-lanceolate, 6–11 cm, margin entire or inconspicuously shallowly minutely dentate. Rachis, pedicels, and hypanthium abaxially tomentose; petals glabrous.

- Mountain areas; medium elevations. E Taiwan.


光叶石楠 guang ye shi nan

Trees evergreen, 3–5 m tall, rarely to 7 m tall. Branchlets brown to grayish brown when young, grayish black when old, glabrous, with scattered brownish black orbicular lenticels; buds narrowly ovate, 3–5 mm, apex acuminate, rarely acute; scales dark brown, glabrous. Petiole 1–1.5 cm, glabrous; leaf blade initially reddish, elliptic, oblong, or oblong-obovate, 5–9 × 2–4 cm, thickly leathery, veins 10–18 pairs, both surfaces glabrous, base cuneate, margin with sparse, shallowly crenulate teeth, apex acuminate. Compound corymbs terminal, 6–11 × 7–12 cm, numerous flowered; rachis and pedicels glabrous. Pedicel 5–8 mm. Flowers 7–8 mm in diam. Hypanthium cupular, abaxially glabrous. Sepals triangular, 1–1.5 mm, apex acute. Petals white, obovate, 2–3 mm, adaxially white tomentose near base, base shortly clawed, margin revolute, apex obtuse. Stamens 20, nearly as long as or slightly shorter than petals. Ovary pilose apically; styles 2, rarely 3, basally free or connate; stigma capitate. Fruit red, obovate or ovoid, ca. 5 mm, glabrous. Fl. Apr–May, fr. Sep–Oct.

Slopes, mixed forests; 500–800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang [Japan, Myanmar, Thailand].


窄叶石楠 zhai ye shi nan

Shrubs evergreen, 1–2 m tall. Branchlets brownish to reddish brown when young, grayish brown when old, initially slightly pilose, glabrate, with sparse, orbicular lenticels; buds small; scales ± subulate, glabrous. Petiole 4–10 mm, broad, grooved, initially pilose, glabrescent; stipules caducous, brownish, subulate or linear-subulate, 4–7 mm, glabrous; leaf blade oblong-lanceolate or oblanceolate, 3.5–9 × 1–3 cm, leathery, veins 18–20 pairs, midvein raised abaxially, both surfaces glabrous, basally gradually attenuate, margin slightly revolute, crenate, apex acute or obtuse and mucronate. Compound corymbs terminal, 3–4 cm in diam., 15–25-flowered; rachis and pedicels glabrous. Pedicel 5–10 mm. Hypanthium cupular, 1.5–2 mm, abaxially glabrous. Sepals triangular, 1–2 mm, apex acute. Petals white, 2–3 mm, adaxially white pilose, apex emarginate. Stamens 20, ca. as long as petals. Ovary pilose apically; styles 2 or 3, connate from base to middle, white villosely emarginate. Fruit yellowish red, globose or ovoid, 7–10 mm in diam., glabrous; seeds 2–4, brown, ovoid, 4–5 mm. Fl. Apr–May, fr. Sep–Oct.

Near water courses in mountain valleys, thickets alongside rivers; 200–400 m. Guangxi, Guizhou [Thailand].


罗城石楠 luo cheng shi nan

Trees or shrubs, evergreen. Branchlets purple brown or blackish brown, sparsely pubescent when young; buds ovoid, small, glabrous, apex acute. Petiole 5–8 mm, initially pubescent, glabrescent; leaf blade yellowish brown abaxially when dried, dark green adaxially, oblong-lanceolate, 3.5–5 × 1–2 cm, leathery, veins 9–13 slender pairs, somewhat raised abaxially, both surfaces glabrous except slightly pubescent along midvein when young, base cuneate, margin slightly revolute and some-what undulate, with minute sharp incurved teeth, apex acute, usually shortly pointed. Compound corymbs terminal, 5–7 cm in diam.; rachis and pedicels glabrous. Flowers 3–4 mm in diam. Hypanthium campanulate, ca. 1.5 mm × 1.5 mm, abaxially glabrous. Sepals erect, broadly triangular, ca. 1 cm. Petals white, obovate, ca. 2 mm, base shortly clawed, apex obtuse. Stamens 20, shorter than petals. Ovary white pilose apically; styles 2, rarely 3, free. Fruit subglobose to ovoid-globose, ca. 3 mm in diam., glabrous; sepals incurved.

● Rocks, stream sides; 100–300 m. NC Guangxi (Luocheng Xian), Zhejiang.


贵州石楠 gui zhou shi nan

Trees evergreen, 6–15 m tall. Branchlets yellowish brown when young, gray when old, sparsely appressed pubescent when young, glabrous when old. Petiole (0.8–)1–1.5 cm, glabrous; leaf blade oblong, elliptic or obovate to oblanceolate or narrowly lanceolate, 5–10(–15) × (1.5–)2–5 cm, veins 10–16(–20) pairs, both surfaces glabrous or initially slightly pubescent along veins, glabrescent, base cuneate, margin serrate, apex acute to acuminate. Compound corymbs terminal, compact, 5–8 × 5–10 cm, many flowered; rachis and pedicels appressed pubescent; bracts caducous, lanceolate or linear, 2–4 mm, pubescent. Pedicel 5–7 mm. Flowers 1–1.2 cm in diam. Hypanthium cupular, abaxially sparsely appressed pubescent. Sepals broadly triangular, 1–2 mm, apex acute or obtuse. Petals white, suborbicular, 3–4 mm in diam., glabrous, shortly clawed, apex obtuse or emarginate. Stamens 20, shorter than petals. Styles 2 or 3, connate from base to middle, white villous basally. Fruit yellowish red, globose or ovoid, 7–10 mm in diam., glabrous; seeds 2–4, brown, ovoid, 4–5 mm. Fl. Apr–May, fr. Sep–Oct.

Forest margins, thickets, valleys, slopes, roadsides, forests; 300–1300 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Shaanxi, Sichuan, Yunnan, Zhejiang [Indonesia, N Vietnam].

9a. Photinia bodinieri var. bodinieri

贵州石楠(原变种) gui zhou shi nan (yuan bian zhong)

Hiptage esquirolii H. Léveillé; Photinia davidsoniae Rehder & E. H. Wilson.

Leaf blade oblong, elliptic, or obovate to oblanceolate, 2–5 cm wide, margin sharply serrate


长叶贵州石楠 chang ye gui zhou shi nan
Leaf blade narrowly lanceolate, 6.5–13 × 1.5–3 cm, margin obtusely serrate.
- Roadside, slopes, forest; 600–1300 m. Guizhou.


倒卵叶石楠 tuo yuan ye shi nan

Trees evergreen, 4–5 m tall. Branchlets grayish brown when old, gray pubescent when young, gradually glabrescent, glabrous when old; buds ovoid, 3–5 mm, apex acute; scales tomentose. Petiole 0.8–1.5 cm, pubescent when young, glabrescent; stipules lanceolate, 3–5 mm, tomentose; leaf blade oblong, elliptic, or oblong-ovate, 5–8 × 2–3.5 cm, leathery, shiny adaxially, veins 12–14 slender inconspicuous pairs, both surfaces glabrous or abaxially puberulous only along midvein when young, glabrous when old, base rounded or broadly cuneate, margin slightly revolute, shallowly obtusely dentate, entire near base, apex acute and abruptly pointed. Compound coryms terminal, 6–8 × 7–9 cm, compact, numerous flowers; rachis and pedicels densely yellow tomentose; bracts dark brown, lanate. Pedicel 2–5 mm. Hypanthium cupular, 1–1.5 mm, tomentose. Pedicellus 1–2 mm. Flowers 5–7 mm. Hypanthium glabrous abaxially. Sepals triangular-ovate, 1–2 mm, glabrous, margin minutely glandular serrate, base shortly clawed. Stamina 20, shorter than or nearly as long as petals. Ovary pilose apically; styles 2, connate basally. Fruit ellipsoid, 6–7 × 4–5 mm. Fl. Apr–May, fr. Sep–Oct.
- Thickets, forest margins, stream sides; 1500–1800 m. Sichuan, Yunnan.


倒卵叶石楠 dao luan ye shi nan

Shrubs or small trees, evergreen, 1–2 m tall. Branchlets purplish brown when old, pilose when young, glabrous when old, with yellowish brown lenticels. Petiole 1.5–1.8 cm, initially slightly puberulous, glabrous when old; leaf blade obovate or oblongate, 5–10 × 2.5–3.5 cm, leathery, veins 9–11 pairs and inconspicuous, both surfaces glabrous or abaxially tomentose-pilose along veins when young, glabrescent, adaxially lustrous, base cuneate or gradually attenuate, margin obscurely dentate, apex obtuse or abruptly shortly pointed. Compound coryms terminal, 3–5 cm in diam.; rachis and pedicels tomentose, sometimes glandular; bracts subulate, 1–2 cm. Pedicel 3–4 mm. Flowers 6–12 mm in diam. Hypanthium cupular, abaxially tomentose or glabrous. Sepals broadly triangular. Petals white, obovate, 4–6 × 3–4 mm, glabrous, base shortly clawed. Stamina 20, shorter than petals. Ovary pubescent apically; styles 2–4, connate basally. Fruit red, obovate, 4–5 mm in diam., with prominent lenticels. Fl. May–Jun, fr. Sep–Nov.
- Thickets, forests, grassy and calcareous slopes, fields, foothills; 200–2600 m. Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang.

11a. Photinia lasiogyna var. lasiogyna

Shrubs or small trees, evergreen, to 5 m tall. Branchlets gray when old, tomentose-villosus when young, subglabrous when old, with inconspicuous lenticels. Petiole robust, 6–12 mm, villous; leaf blade oblong-elliptic to obovate-oblong or elliptic-lanceolate, 10–15 × 3–6 cm, leathery, veins ca. 20 pairs, raised abaxially and impressed adaxially, abaxially tomentose-villosus, glabrescent, or densely floccosely tomentose, adaxially glabrous, base rounded, margin revolute, serrate at least in part, apex acuminate to long caudate. Compound coryms terminal, 5–9 × 6–10 cm; peduncles and pedicels densely tomentose-villosus. Pedicel 2–5 mm. Hypanthium cupular, 1–1.5 mm, abaxially densely gray villous. Sepals triangular, 1–1.5 mm, apex acute. Young fruit green, obovate, 5–6 mm, densely villous, apex with erect triangular sepals and 2 styles. Fr. Aug–Sep.
- Forests, valley thickets, river banks; below 1200 m. Guangxi, Guizhou.

11b. var. glabrescens

Leaf blade narrowly lanceolate, 6.5–13 × 1.5–3 cm, margin obtusely serrate.

11b. Photinia lasiogyna var. glabrescens

Leaf blade elliptic-lanceolate, abaxially sparsely tomentose-pilose when young, soon glabrescent, glabrous when old; hypanthium glabrous abaxially .........

12a. Photinia chingiana var. chingiana

宜山石楠 yu shan shi nan (yuan bian zhong)

Shrubs or small trees, evergreen, 1–2 m tall. Branchlets purplish brown when old, pilose when young, glabrous when old, with yellowish brown lenticels. Petiole 1.5–1.8 cm, initially slightly puberulous, glabrous when old; leaf blade obovate or oblongate, 5–10 × 2.5–3.5 cm, leathery, veins 9–11 pairs and inconspicuous, both surfaces glabrous or abaxially tomentose-pilose along veins when young, glabrescent, adaxially lustrous, base cuneate or gradually attenuate, margin obscurely dentate, apex obtuse or abruptly shortly pointed. Compound coryms terminal, 3–5 cm in diam.; rachis and pedicels tomentose, sometimes glandular; bracts subulate, 1–2 cm. Pedicel 3–4 mm. Flowers 6–12 mm in diam. Hypanthium cupular, abaxially tomentose or glabrous. Sepals broadly triangular. Petals white, obovate, 4–6 × 3–4 mm, glabrous, base shortly clawed. Stamina 20, shorter than petals. Ovary pubescent apically; styles 2–4, connate basally. Fruit red, obovate, 4–5 mm in diam., with prominent lenticels. Fl. May–Jun, fr. Sep–Nov.
- Thickets, forest margins, stream sides; 1500–1800 m. Sichuan, Yunnan.

12a. var. chingiana

Leaf blade oblong-elliptic to obovate-oblong, abaxially
tomentose-villous, margin sparsely minutely incurved-serrate apically, subentire with few inconspicuous teeth basally.

- Evergreen broad-leaved forests, open forests, valley thickets, river banks; below 1200 m. Guangxi, Guizhou.


Leaf blade elliptic-lanceolate, abaxially densely floccosely tomentose, margin prominently sharply serrate.

- Forests; ca. 400 m. SE Guizhou (Liping Xian).


广西石楠 guang xi shi nan

Trees evergreen, to 15 m tall. Branchlets dark brown or grayish brown when young, grayish black when old, terete, initially densely appressed brownish villous, subglabrous when old, with inconspicuous lenticels. Petiole 1–2(–2.5) cm, densely villous; leaf blade oblong-ovate, ovate-obovate, or oblong-lanceolate, 7–12 × 3–4.5 cm, thinly leathery, veins 12–15 pairs, reticulate veins prominent, abaxially densely brownish villous, adaxially glabrous except villous along midvein, base subrounded or broadly cuneate, margin slightly revolute, unevenly serrate to doubly serrate, apex acuminate or caudate. Compound corymbs terminal, 8–9 × 12–13 cm, many flowered; rachis and pedicels densely brownish villous. Pedicel 3–5 mm. Hypanthium cupular, 1–2 mm, abaxially brownish villous. Sepals triangular, 1–1.5 mm, apex acute. Petals slightly longer than sepals. Stamens ca. 20. Fruit orange, subglobose, 5–6 mm in diam., villous or subglabrous; sepal incurved. Fl. Sep–Oct.

- Mixed forests, river banks; below 3000 m. E Guangxi.


绵毛石楠 mian mao shi nan

Trees or shrubs, evergreen. Branchlets dark brown or grayish brown when old, terete, gray lanuginose when young, gradually glabrescent, subglabrous when old; buds ovoid, 3–4 mm, apex acute; scales blackish brown, glabrous. Petiole 2.5–4 cm, initially densely gray lanuginose, glabrate; leaf blade dark green adaxially, narrowly elliptic, rarely elongated and elliptic-ovate, 8–15 × 4–5 cm, leathery, lateral veins 18–20 pairs, abaxially pale, villous only along midvein, adaxially lustrous, glabrous, base broadly cuneate or subrounded, margin sharply serrate, entire near base, apex sharply acuminated. Compound corymbs terminal, 7–8 × 9–12 cm, compact, many flowered; rachis and pedicels densely gray lanuginose, glabrescent. Pedicel 2–5 cm. Flowers 5–6 mm in diam. Hypanthium cupular, 1–1.5 mm, glabrous or slightly villous. Sepals ovate, 1–1.5 mm, apex obtuse. Petals white, suborbicular, ca. 2 mm in diam., glabrous, base shortly clawed. Stamens 20, shorter than petals. Ovary 2-loculed, apex densely villous; styles 2, nearly free. Fruit not seen. Fl. Apr.

- Mountain areas. Hunan (Xuefeng Shan), Zhejiang.


球花石楠 qiu hua shi nan

Eriobotrya griffithii (Decaisne) Franchet; Photinia franchnetiana Diels; P. glomerata Rehder & E. H. Wilson var. cuneata T. T. Yu; P. glomerata var. microphylla T. T. Yu; P. griffithii Decaisne; P. serrulata Lindley var. congestiflora Cardot.

Shrubs or small trees, evergreen, 6–10 m tall. Branchlets purplish brown or grayish brown when old, terete, densely yellow tomentose when young, glabrous when old, with many scattered lenticels; buds ovoid, 3–4 mm, pubescent, apex obtuse; scales dark brown. Petiole 2–4 cm, initially densely tomentose, later subglabrous; leaf blade oblong or lanceolate to oblanceolate, leathery, 5–6 × 2.5–6 cm, lateral veins 12–20 pairs, abaxially densely yellow tomentose, later partly or wholly glabrescent, adaxially initially tomentose along midvein, glabrate, base obliquely cuneate to rounded, margin somewhat revolute, saccate, apex shortly acuminate. Compound corymbs terminal, densely glomerate, 5–10 × 6–12 cm, many flowered; rachis and pedicels densely yellow tomentose. Pedicle nearly absent or very short. Flowers fragrant, 4–5 mm in diam. Hypanthium cupular, 1–1.5 mm, abaxially densely yellow tomentose. Sepals erect, ovate, 1–1.5 mm, apex acute. Petals white, suborbicular, 2–2.5 mm in diam., adaxially pilose near base, base shortly clawed, apex obtuse. Stamens ca. 15, nearly as long as petals. Styles 2, connate nearly to middle, not exceeding stamens. Fruit red, ovoid, 5–7 × 2.5–4 mm, glabrous. Fl. May–Jun, fr. Aug–Sep.

- Mixed forests, thickets, roadsides, slopes; 1500–2600 m. Hubei, Sichuan, Yunnan.


安龙石楠 an long shi nan

Shrubs evergreen, to 2 m tall. Branchlets dark brown when old, initially densely gray tomentose, glabrous when old, with many scattered lenticels; buds oblong, 6–8 mm; scales brown, glabrous. Petiole 0.8–1.5 cm, initially densely tomentose, subglabrous when old; leaf blade oblong, oblong-lanceolate, or oblong-oblancoate, 10–15 × 3–4.5 cm, leathery, midvein robust, lateral veins ca. 30–34 pairs, raised, slender, abaxially sparingly gray tomentose along veins, adaxially initially pilose, glabrescent, base broadly cuneate to subrounded, margin sharply serrate, apex acute or slightly acuminate. Compound corymbs terminal, ca. 15 cm in diam., many flowered; rachis and branches densely tomentose. Pedicel 2–3 mm, glabrous. Hypanthium cupular, abaxially glabrous. Sepals ovate-triangular, shorter. Ovary 2-loculed, apex villous; styles 2. Immature fruit obovoid, 3–4 mm, glabrous. Fl. May–Jun, fr. Aug–Oct.

- Slopes, forest margins; ca. 1300 m. SW Guizhou (Anlong Xian).

临桂石楠 lin gui shi nan

Trees evergreen, small, to 4 m tall. Branchlets grayish black when old, densely gray tomentose when young, subglabrous when old, with few lenticels; buds brownish, ovoid, 2–3 mm, gray tomentose, apex acute. Petiole 0.5–2 cm, initially gray tomentose, glabrate; stipules caducous, subulate, 3–4 mm, gray tomentose; leaf blade greenish abaxially, dark green adaxially, oblong-lanceolate or obovate-lanceolate, 5–11 × 1.5–3 cm, leathery, lateral veins 12–15 pairs, both surfaces initially gray tomentose, glabrate, adaxially shiny, base gradually attenuate, margin somewhat revolute, sparsely minutely sharply serrate, apex acute or shortly acuminate. Compound corymbs terminal, 6–7 cm in diam.; rachis and pedicels densely gray tomentose. Pedicel 3–7 mm. Flowers ca. 5 mm in diam. Hypanthium cupular, 1–1.5 mm, abaxially gray tomentose. Sepals ovate-triangular, 1–1.5 mm, apex obtuse. Petals suborbicular, 3–4 mm in diam., glabrous. Stamens 20, nearly as long as or slightly longer than petals. Ovary densely long tomentose; styles 2, free, long tomentose basally. Fruit red, ovoid, 4–6 × 3–5 mm in diam., glabrous. Stamens 20, much shorter than petals; styles 2, connate toward base, somewhat not exceeding stamens. Fruit red, ovoid or obovoid, 6–8 mm in diam., initially tomentose, glabrescent. Fl. May, fr. Sep–Nov.

1a. Sunny rocky slopes, near water courses, thickets, roadsides, mixed forests; 1800–3000 m. Yunnan.
1b. Plant glabrous when mature ............... 19b. var. nudifolia

19a. Photinia prionophylla var. nudifolia

刺叶石楠(ci ye shi nan (yuan bian zhong))

Eriobotrya prionophylla Franchet, Pl. Delavay. 225. 1890.

Plants tomentose throughout.

1b. Mixed forests, roadsides; ca. 1800 m. Yunnan.


小檗石楠 xiao bo ye shi nan

Shrubs evergreen, to 60 cm tall. Branchlets purplish brown when old, densely appressed villous when young, glabrous when old. Petiole 2.5–6 mm, initially villous, glabrate; stipules linear-lanceolate, nearly as long as petiole, with 2–4 teeth per side; leaf blade obovate or oblong-obovate, 2.5–6 × 1–2 cm, leathery, midvein prominent, raised abaxially and impressed adaxially, veins 6–10 pairs, abaxially appressed villous, later subglabrous, adaxially lucid, glabrous, base cuneate, margin somewhat incurved, spiny-serrate, apex obtuse or acute to acuminate. Compound corymbs terminal, 2.5–3 cm; rachis angular, villous; bracts persistent, linear-lanceolate, subglabrous, with few teeth. Pedicel 2–5 mm, villous. Flowers 9–10 mm in diam. Hypanthium cupular, ca. 3 mm in diam., abaxially sparsely villous. Sepals broadly ovate, apex obtuse. Petals white, suborbicular,

- Mountain valleys; 2200–2400 m. W Sichuan.


桃叶石楠 tao ye shi nan

Trees evergreen, 10–20 m tall. Branchlets dark purplish brown to grayish black, glabrous, with yellowish brown suborbicular lenticels; buds ovoid, 2.5–4 mm, apex shortly acuminate or acute; scales several, dark brown, puberulous when young, glabrous when old. Petiole 1–2.5(–3) cm, glabrous, with many glands, sometimes with teeth; leaf blade oblong or oblong-lanceolate, 7–13 × 3–5 cm, leathery, veins 13–15 pairs, both surfaces glabrous, rarely slightly pilose when young, soon glabrescent, abaxially with black glands, adaxially lustrous, base rounded to cuneate, margin densely minutely sharply serrate or doubly serrate, apex acuminate or acute. Compound corymbs terminal, 8–11 × 12–16 cm, compact, many flowered; rachis and pedicels slightly villous; bracts caducous, lanceolate or linear, 2–4 mm, somewhat villous, later glabrous. Pedicel 4–8 mm. Flowers 7–8 mm in diam. Hypanthium cupular, 1–2.5 mm, abaxially glabrous or initially villous, glabrescent. Sepals triangular, 1–2 mm, apex acuminate or acute. Petals white, obovate, 3–4.5 mm, base tomentose, abaxially densely gray tomentose. Stamens 20, slightly shorter than or nearly as long as petals. Ovary pubescent apically; styles 2(2 or 3), connate basally, somewhat not exceeding stamens. Fruit red, ellipsoid, 7–11 × 4–7 mm, glabrous, with 2(2 or 3) seeds. Fl. Mar–Apr, fr. Oct–Nov.

Hills, slopes, stream sides, forests, bamboo forests by roadsides; 200–1700 m. Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Yunnan, Zhejiang [Indonesia, Japan, Malaysia, Vietnam].

1a. Leaf margin minutely sharply serrate, apex acuminate, blade oblong or oblong-lanceolate, base broadly cuneate to rounded; hypanthium villous ........................ 21a. var. prunifolia

1b. Leaf margin prominently doubly serrate, apex acute, blade oblong-lanceolate, base cuneate; hypanthium glabrous ........................ 21b. var. denticulata

21a. Photinia prunifolia var. prunifolia

桃叶石楠(原变种) tao ye shi nan (yuan bian zhong)


Leaf blade oblong or oblong-lanceolate, base broadly cuneate to rounded, margin minutely sharply serrate, apex acuminate. Hypanthium villous.

Hills, grassy slopes, stream sides, forests; 200–1700 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Yunnan, Zhejiang [Indonesia, Japan, Malaysia, Vietnam].


重齿桃叶石楠 chong chi tao ye shi nan

Leaf blade oblong-lanceolate, base cuneate, margin prominently doubly serrate, apex acute. Hypanthium glabrous.

- Slopes, bamboo forests by roadsides. Fujian, Guangxi, Zhejiang.


饶平石楠 rao ping shi nan

Trees evergreen, 4–5 m tall. Branchlets densely villous, gradually glabrescent, purplish black and glabrous when old, lenticels smaller. Petiole 0.8–1.5 cm, usually glabrous, without glands and teeth; leaf blade oblong, obovate, or oblong-elliptic, 4–8 × 2–3 cm, leathery, midvein initially sparsely villous, later glabrous, prominently raised abaxially, impressed adaxially, lateral veins 12–17 pairs, abaxially with black glands, adaxially glabrous, base cuneate, margin minutely serrate, entire near base, apex acute or obtuse. Compound corymbs terminal, 3–7 cm in diam., dense, numerous flowered; rachis and pedicels densely gray tomentose; bracts subulate or linear, 3–4 mm, gray tomentose. Flowers 7–8 mm in diam. Hypanthium cupular, 1–2 mm, abaxially densely gray tomentose. Sepals triangular, 1–1.5 mm, apex acute. Petals white, obovate, 2–3 mm, basally tomentose, apex obtuse. Stamens 20, shorter than petals. Ovary 2-loculed, apex pilose; styles 2, connate basally. Fruit red, ovoid, 5–6 × 3–4 mm; seeds brownish, ovoid, ca. 2 mm. Fl. May–Jun, fr. Oct–Nov.

- Mixed forests on slopes, mountain valleys, rocky areas; 500–1000 m. Guangdong, Guangxi.


中华石楠 zhong hua shi nan

Shrubs or small trees, deciduous, 3–10 m tall. Branchlets purplish brown to blackish brown, terete, usually glabrous, with scattered gray lenticels; buds ovoid, puberulous, apex acute; scales several, dark brown. Petiole 5–10 mm, puberulous; leaf blade oblong, ovate, or elliptic to obovate, (3–)5–13 × 2–5 cm, papery, veins (6–)9–14 pairs, abaxially pilose along veins, adaxially lustrous, glabrous, base cuneate to rounded, margin serrate, apex acute or shortly acuminate to caudate. Compound corymbs terminal, 4–7 × 5–10 cm, many flowered; rachis and pedicels glabrous, with numerous oblong lenticels; bracts brown, linear, 3–5 mm, glabrous. Pedicel 0.7–1.5 cm, to 2 cm in fruit. Flowers 5–7 mm in diam. Hypanthium cupular, 1–1.5 mm, abaxially usually glabrous. Sepals broadly triangular or triangular-ovate, 1–2 mm, apex acute or ± obtuse. Petals white, ovate or obovate, 2–4 × 2.5–3.5 mm, glabrous, apex obtuse. Stamens 20, slightly shorter than or nearly as long as petals. Styles (2 or)3, somewhat not exceeding stamens, basally connate. Fruit purplish red, ovoid or subglobose, 7–8 × 5–6 mm, glabrous, slightly lenticellate. Fl. Apr–May, fr. Jul–Aug.

Slopes, rocks, mountain sides, valleys, river sides, thicket forests; 200–3000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, He-nan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, N Vietnam].
1a. Leaf blade 5–13 cm, apex acute to shortly acuminate, lateral veins 9–14 pairs ................................. 23a. var. beauverdiana

1b. Leaf blade 3–6 cm, apex shortly acuminate to caduate, lateral veins 6–8 pairs .................................. 23b. var. brevifolia

23a. Photinia beauverdiana var. beauverdiana


Leaf blade oblong, elliptic, oblong-elliptic, or obovate-oblong, 5–13 cm, lateral veins 9–14 pairs, apex acute to shortly acuminate.

Slopes, mountain sides, valleys, thickets, forests; 200–3000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, N Vietnam].

23b. Photinia beauverdiana var. brevifolia


Leaf blade ovate or elliptic to obovate, 3–6 cm, lateral veins 6–8 pairs, apex shortly acuminate to caduate.

- Slopes, rocks in valleys, river sides, forests; 400–1400 m. Guizhou, Hubei, Hunan, Jiangsu, Shaanxi, Sichuan, Zhejiang.

24. Photinia lucida


Trees deciduous, small, 4–5(–6) m tall. Branchlets reddish brown when young, grayish brown or purplish brown when old, terete, gray pubescent when young, glabrous when old, with oblong lenticels; buds ovoid, 2–4 mm, puberulous, apex acute or ± obtuse; scales several, dark brown. Petiole 3–7 mm, glabrous; leaf blade obovate-oblong or obovate-lanceolate, 5–9 × 2–3 cm, papery, veins 6–8 pairs, both surfaces glabrous, base gradually attenuate, margin sparsely minutely serrate, entire toward base, apex caduate. Compound corymbs terminal, 3–6 × 4–6 cm, many flowered; rachis and pedicels glabrous or slightly pubescent when young, glabrate. Pedicel 5–10 mm, to 2.5 cm in fruit, with a pair of subulate bracts 2–3 mm at base. Flowers 7–10 mm. Hypanthium cupular, 2–2.5 mm, abaxially glabrous. Sepals triangular, 1–1.5 mm, apex acute. Petals white, orbicular or broadly obovate, 3–3.5 mm in diam., base shortly clawed and pilose, apex obtuse, sometimes emarginate. Stamens 15–20, unequal in length. Styles 2 or 3, connate, only free apically, pilose basally, not exceeding stamens. Fruit dark red, obovoid or obovoid-ellipsoid, 5–8 × 3–6 mm, glabrous, with dense, suborbicular lenticels. Fl. Apr.–May, fr. Aug.–Sep.

- Broad-leaved forests, thickets; 300–400 m. Taiwan.

25. Photinia callosa


Shrubs or trees, deciduous, to 12 m tall. Branchlets grayish brown to blackish brown, glabrous, with few yellow lenticels; buds ovoid, 2–3 mm; scales brown, glabrous. Petiole 0.5–1.5 cm, glabrous; leaf blade lanceolate or oblong-lanceolate, 5.5–13 × 1.5–3.5 cm, papery, veins 12–16 pairs, midvein prominently raised abaxially and impressed adaxially, both surfaces glabrous, base cuneate, margin slightly revolute, shallowly sharply serrate, sometimes subentire, apex caduate or acutate. Compound corymbs terminal, 4–6 cm in diam., many flowered; rachis and pedicels glabrous, lenticellate. Pedicel 3–7 mm. Flowers 6–9 mm in diam. Hypanthium campanulate, 1–2 mm, abaxially glabrous. Sepals oval, ca. 1/2 as long as hypanthium, apex obtuse. Petals white, obovate-oblong, 2–3 mm, glabrous, base shortly clawed, apex obtuse. Stamens 20, slightly shorter than petals. Styles 2 or 3, mostly connate, glabrous. Fruit ovoid-globose, 4–6 × 3–4 mm, glabrous; fruiting pedicels 5–9 mm, with distinct lenticels; seeds black, ovoid, ca. 4 mm. Fl. Apr.–May, fr. Aug.–Sep.

- Sparse forests in mountain valleys, slopes; 400–800 m. Guangdong, Guangxi.

26. Photinia fokienensis


Shrubs or small trees, deciduous, 3–5 m tall. Branchlets brownish to brownish black, slender, with scattered lenticels; buds ovoid, 3–5 mm, glabrous. Petiole 5–10 mm, glabrous; leaf blade lanceolate or oblong-lanceolate, 7–11 × 1.5–4 cm, thinly papery, veins 7–9 pairs, midvein raised abaxially and impressed adaxially, both surfaces glabrous or puberulous along midvein abaxially, base cuneate, margin densely minutely sharply serrate, apex long acuminate. Compound corymbs terminal, 3–7 × 3–5 cm, loose, few flowered; rachis and pedicels glabrous, lenticellate. Pedicel 0.8–1.2 cm, slender. Flowers 1–1.2 cm in diam. Hypanthium cupular, 2–3 mm, abaxially glabrous. Sepals triangular-ovate, 1–2 mm and nearly as broad, apex acute. Petals white, broadly obovate or suborbicular, 4–6 mm in diam., base clawed, apex emarginate. Stamens ca. 20, shorter than petals. Ovary pilose apically; styles 3, connate nearly to apex, equaling or lower than stamens. Fruit reddish brown, obovoid or subglobose, 6–8 mm in diam., glabrous. Fl. Apr.–May, fr. July–Sep.

Pourthiaea bergerae (C. K. Schneider) Iketani & H. Ohashi.

Shrubs deciduous, to 1.5 m tall. Branchlets reddish brown or purplish brown, lucid, glabrous, with sparse lenticels; buds ovoid; scales several, brown, glabrous. Petiole 5–7 mm, glabrous; leaf blade broadly lanceolate, 4–6 × 1–2 cm, papery, lateral veins 4–7 pairs, both surfaces glabrous, adaxially lustrous, base cuneate, margin sharply serrate, apex acute. Compound corymbs terminal, 3–4 × 4–6 cm; rachis and pedicels glabrous. Peticel 6–8–(10) mm. Flowers ca. 1 cm in diam. Hypanthium campanulate, 3–4 mm in diam., glabrous. Sepals broadly ovate, slightly shorter than hypanthium, ciliate, apex obtuse. Petals broadly elliptic, adaxially slightly pilose, base shortly clawed. Stamens 20–25, slightly longer than petals. Ovary villous apically; styles 3, mostly connate, only free apically. Fruit purplish red, obovoid, 7–8 × 6–7 mm. Fl. Apr–May, fr. Sep–Oct.

- Slopes; ca. 1000 m. W Hubei.


Pourthiaea obliqua (Stapf) Iketani & H. Ohashi.

Shrubs deciduous. Branchlets blackish purple, glabrous, sparsely lenticellate; buds narrowly ovoid, 3–5 mm; scales several, blackish purple. Petiole 7–10 mm, slightly pubescent or glabrous; leaf blade oblong or oblan laceolate, 5–9 × 2.5–3 cm, veins very oblique, 5–7 pairs, prominent abaxially, glabrous except abaxially villous along midvein, base very obliquely cuneate, margin minutely sharply serrate, apex acute or slightly acuminate. Inflorescences and flowers not seen. Infructescences compound corymbs, 6–8 × 8–10 cm; rachis, pedicels, and hypanthium abaxially glabrous; pedicel 4–10 mm.

- E Fujian (Fuzhou Shi).


Pourthiaea impressivena (Hayata) Iketani & H. Ohashi; *Stranvaesia impressivena* (Hayata) Masamune.

Petiole 1–2 mm. Compound corymbs 3–4 mm in diam., few flowered; rachis, pedicels, and hypanthium abaxially glabrous. Pedicel 4–10 mm.

- Mixed forests, mountain valleys, stream sides; 400–3000 m. Fujian, Guangdong, Guangxi, Hainan.


Petiole 5–8 mm. Compound corymbs 5–10 cm in diam., many flowered; rachis, pedicels, and hypanthium abaxially white tomentose. Pedicel 2–3 mm.

- Forests, thickets; ca. 500 m. Guangxi [Vietnam].


Pourthiaea tsaii (Rehder) Iketani & H. Ohashi.

Shrubs deciduous, 0.5–1.5 m tall, or trees to 7 m tall. Branchlets purplish brown when old, initially densely gray floccose-tomentose, subgla brous when old, lenticellate. Petiole 3–10 mm, gray floccose-tomentose when young, gradually glabrous; leaf blade lanceolate or oblong, 4–8.5 × 1–2 cm, papery, veins 8–11 pairs, midvein raised abaxially and impressed adaxially, abaxially initially floccose-tomentose, glabrescent, adaxially slightly rugulose, glabrous, base gradually attenuate, margin densely minutely serrate, apex acuminate. Inflorescences and flowers not seen. Infructescences terminal, 4–5 cm in diam.; rachis and pedicels glabrous, with dense, prominent
lentricels; fruiting pedicels 2–5 mm. Fruit red, ovoid, 8–10 × 6–8 mm, glabrous; sepals persistent, erect, triangular, slightly pilose; ovary 2- or 3-loculed; seeds 2–6, yellowish brown, 4–4.5 mm. Fr. Sep.–Oct.

- Slopes, forest margins; 1500–2000 m. NW Yunnan.


短叶石楠 duan ye shi nan


Shrubs deciduous. Branchlets purplish red when young, purplish brown when old, densely tomentose when young, glabrous when old, with scattered small lenticels. Petiole very short or nearly absent, densely yellow tomentose; leaf blade lanceolate, 3–4 × 0.8–1 cm, veins inconspicuous, midvein somewhat raised abaxially and slightly impressed adaxially, abaxially densely yellow tomentose, adaxially initially tomentose, gradually glabrescent, base cuneate and gradually attenuate, margin entire or rarely inconstincuously crenulate, apex ± obtuse or ± acute. Inflorescences and flowers not seen. Infructescences terminal, corymbose, 1.8–2 cm, compact; rachis and pedicels purplish brown, short, glabrous, with distinct lenticells. Stamens ca. 20. Styles 3. Fruit ovoid-globose, 6–7 mm, ovary 3-loculed; sepals incurved, triangular, 1–1.5 mm. Fl. Aug–Sep, fr. Oct.

- River beds; ca. 600 m. Guizhou.


闽粤石楠 min yue shi nan

Shrubs or small trees, deciduous, 3–10 m tall. Branchlets dark reddish brown or purplish brown when young, grayish black when old, initially densely gray villous, glabrous when old, with elliptic lenticells; buds narrowly ovoid, 3–5 × 2–3 mm, apex acute; scales several, brown, villous. Petiole 3–10 mm, gray villous; leaf blade obovate-oblong or oblong-lanceolate to narrowly lanceolate, 5–11 × 2–5 cm, papery, veins 5–8 pairs, both surfaces sparsely gray villous when young, later glabrous or only with few long hairs along veins abaxially, base attenuate or broadly cuneate, margin sparsely serrate, apex acute or obtuse. Compound corymbs terminal, 4–6(–7) × 5–7 cm, numerous flowered; peduncles and pedicels gray villous; bracts subulate, 2–4 mm, villous. Pedicel 3–5 mm. Flowers 7–8 mm in diam. Hypanthium cupular, 3–4 mm, abaxially villous. Sepals triangular, 1–1.5 mm. Petals white, obovate or orbicular, 3–4 mm, adaxially glabrous or puberulous, apex obtuse or emarginate. Stamens 20, nearly as long as or slightly shorter than petals. Styles 2 or 3, somewhat not exceeding stamens, glabrous, connate basally. Fruit ovoid or subglobose, 4–6 × 3–5 mm, sparsely yellow pubescent. Fl. Mar–May, fr. Jul.–Aug.

Slopes, mountain valleys, forests, thickets, roadsides, river banks; 200–2500 m. Fujian, Guangdong, Guangxi, Hainan, Hubei, Hunan, Yunnan, Zhejiang [Laos, Thailand, Vietnam].

1a. Leaf blade obovate-oblong or oblong-lanceolate, base attenuate .............. 32a. var. benthamiana

1b. Leaf blade oblong-obovate or narrowly lanceolate to ovate-lanceolate, base broadly cuneate or attenuate.

2a. Leaf blade oblong-obovate, 3–4 cm wide, base broadly cuneate .... 32b. var. obovata

2b. Leaf blade narrowly lanceolate to ovate-lanceolate, 1–2.5 cm wide, base attenuate ........................................... 32c. var. salicifolia

32a. Photinia benthamiana var. benthamiana

闽粤石楠(原变种) min yue shi nan (yuan bian zhong)

_Pourthiaea benthamiana_ (Hance) Nakai; _Stranvaesia benthamiana_ (Hance) Merrill.

Leaf blade obovate-oblong or oblong-lanceolate, 2–5 cm wide, base attenuate.

- Slopes, mountain valleys, forests, thickets, roadsides; 200–2500 m. Fujian, Guangdong, Hubei, Hunan, Yunnan, Zhejiang [Vietnam].


倒卵叶闽粤石楠 dao luan ye min yue shi nan

_Pourthiaea benthamiana var. obovata_ (H. L. Li) Iketani & H. Ohashi.

Leaf blade obovate-obovate, 3–4 cm wide, base broadly cuneate.

- Dense forests on slopes; ca. 1000 m. Hainan.


柳叶闽粤石楠 liu ye min yue shi nan

_Pourthiaea benthamiana var. salicifolia_ (Cardot) Iketani & H. Ohashi.

Leaf blade narrowly lanceolate to ovate-lanceolate, 1–2.5 cm wide, base attenuate.

- Mountain forests, thickets, river banks; 900–1700 m. Guangxi, Hainan, Yunnan [Laos, Thailand, Vietnam].


毛果石楠 mao guo shi nan


Shrubs deciduous, ca. 4 m tall. Branchlets purplish brown, glabrous, lenticellate; buds dark brown, ovoid, sparsely pilose, apex acute. Petiole 5–7 mm, glabrous; leaf blade yellowish brown abaxially, dark green adaxially, lanceolate or oblong-lanceolate, 5–11 × 1.5–4.5 cm, membranous, midvein prominent abaxially and impressed adaxially, veins 9 or 10 pairs, adaxially somewhat lustrous, both surfaces glabrous, base cuneate, margin sharply serrate, apex acuminate. Compound corymbs terminal, 4–8 cm in diam., many flowered; rachis and pedicels yellowish pilose; hypanthium yellow pilose abaxially. Flowers not seen. Young fruit ovoid, 5–6 × 3–4 mm, pilose, with suberect incurved sepals, and 2 free styles.
34. **Photinia villosa** (Thunberg) Candolle, Prodr. 2: 631. 1825.

**Photinia cardotii** F. P. Metcalf; **P. parvifolia** (E. Pritzel) C. K. Schneider var. **kankaokensis** (Hatusima) T. T. Yu & K. C. Kuan; **P. subumbellata** Rehder & E. H. Wilson var. **villosa** Cardot; **Pourthiaea kankaokensis** Hatusima; **P. villosa** var. **sinica** (Rehder & E. H. Wilson) Migo.

Petioles, leaf blade, and pedicels sparsely white villous. Leaf blade elliptic or oblong-elliptic, rarely oblong-ovate. Inflorescences usually simple corymbose, 5–8–flowered. Hypanthium sparsely villous. Fruit 0.8–1.6 × 0.9–1.1 cm.

34a. Photinia villosa var. **villosa**


庐山石楠 lu shan shi nan

**Photinia cardotii** F. P. Metcalf, **P. parvifolia** (E. Pritzel) C. K. Schneider var. **kankaokensis** (Hatusima) T. T. Yu & K. C. Kuan; **P. subumbellata** Rehder & E. H. Wilson var. **villosa** Cardot, **Pourthiaea kankaokensis** Hatusima; **P. villosa** var. **sinica** (Rehder & E. H. Wilson) Migo.

Petioles, leaf blade, and pedicels sparsely white villous. Leaf blade elliptic or oblong-elliptic, rarely oblong-ovate. Inflorescences usually simple corymbose, 5–8–flowered or slightly more. Hypanthium glabrous abaxially. Fruit 0.8–1.4 cm × 9–10 mm.


光萼石楠 guang e shi nan

Petioles, leaf blade, and pedicels sparsely white villous. Leaf blade elliptic or oblong-elliptic, rarely oblong-ovate. Inflorescences usually simple corymbose or umbellate, 5–8–flowered or slightly more. Hypanthium glabrous abaxially. Fruit 0.8–1.4 cm × 9–10 mm.


城口石楠 cheng kou shi nan

**Pourthiaea calleryana** Decaisne, Nouv. Arch. Mus. Hist. Nat. 10: 147. 1874; **Cotoneaster esquirioli** H. Léveillé; **Photinia brevipetioluta** Cardot; **P. esquirioli** (H. Léveillé) Rehder, **Stranvaesia calleryana** (Decaisne) Decaisne.

Shrubs or small trees, deciduous. Branchlets brown, pubescent when young, glabrous when old, lenticellate. Petiole 3–10 mm, initially pubescent, glabrescent; leaf blade oblong or oblong-elliptic, 7–10 × 3–5 cm, veins 8–10(–12) pairs, both surfaces flocculose-pubescent when young, glabrescent or only with few soft hairs along veins abaxially, base broadly cuneate, margin sparsely shallowly serrate, apex acute to shortly acuminate. Inflorescences terminal, corymbose, few-flowered; rachis and pedicels villous; bracts lanceolate or linear, 3–5 mm, villous. Flowers 0.8–1.2 cm in diam. Hypanthium cupular or campanulate, abaxially villous. Sepals triangular, 1–1.5 mm, apex acute. Petals suborbicular, 4–5 × 3–4 mm, abaxially slightly pilose when young, glabrate, base clawed, apex emarginate. Stamens 20, somewhat shorter than petals; filaments glabrous, base dilated. Ovary densely villous apically; styles 3, connate to above middle. Fruit ovoid, 5–7 × 3–5 mm, glabrous; fruiting pedicels prominently minutely lenticellate. Fl. May–Jun, fr. Jul–Aug.

- Mountain regions; ca. 2000 m. Chongqing, Guizhou, ?E Sichuan, Yunnan.

绒毛石楠 rong mao shi nan

Shrubs or small trees, deciduous, to 7 m tall. Branchlets purplish brown when young, grayish brown when old, initially sparsely villous, subglabrous when old, with prominent brownish fusiiform lenticels; buds broadly ovoid, 2–4 mm, apex acute; scales dark brown, glabrous or margin puberulous. Petiole 6–10 mm, initially villous, glabrescent; leaf blade oblong or oblong-elliptic to oblong-lanceolate, 6–11 × 2–5.5 cm, veins 10–15 pairs, slightly raised abaxially, abaxially yellowish gray tomentose, adaxially initially sparsely villous, glabrescent, base broadly cuneate, margin sharply serrate, apex acuminate. Compound corymb terminal, (3–)5–8 × 5–11 cm, many flowered; rachis and pedicels glabrous or sparsely villous, glabrescent, with brownish lenticels in fruit; bracts linear or lanceolate, 2–4 mm, puberulous. Pedicel 3–8 mm. Hypanthium cupular, 3–4 mm, abaxially sparsely villous, later subglabrous or glabrous. Sepals spreading, suborbicular, 1–1.5 mm, apex abruptly pointed. Petals white, suborbicular, 4–5 mm in diam., glabrous or adaxially villous at base, base shortly clawed, apex obtuse. Stamens 20, nearly as long as petals. Ovary pilose apically; styles 2 or 3, not exceeding stamens, basally connate. Fruit reddish, obovoid or obovoid-ellipsoid, 7–10 × 6–8 mm, glabrous, minutely lenticellate; seeds blackish brown, ovoid, 5–6 mm, apex acute. Fl. Apr–May, fr. Sep–Oct.

Rachis, pedicels, and hypanthium abaxially glabrous; petals adaxially

villous near base .................................. 36a. var. schneideriana

Rachis, pedicels, and hypanthium abaxially sparsely villous, glabrescent; petals glabrous .......... 36a. var. schneideriana

1a. Rachis, pedicels, and hypanthium
abaxially sparsely villous, glabrescent; petals glabrous ........ 36a. var. schneideriana

1b. Rachis, pedicels, and hypanthium
abaxially glabrous; petals adaxially

villous near base ........................................ 36b. var. parviflora

36a. Photinia schneideriana var. schneideriana

绒毛石楠(原变种) rong mao shi nan (yuan bian zhong)


Rachis, pedicels, and hypanthium abaxially sparsely villous, puberulous.

Forest, river valleys, near water courses; 400–1600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Sichuan, Taiwan, Zhejiang.

1a. Compound corymb 5–8 cm, more numerous flowered; fruit pubescent ....... 36a. var. hookeri

1b. Compound corymb 2–5 cm, relatively

less flowered, fruit glabrous ........... 36b. var. salicifolia


锐齿石楠 rui chi shi nan

Shrubs or small trees. Branchlets purplish brown when young, grayish brown when old, initially tomentose, glabrous when old; buds narrowly ovoid or oblong, 3–5 mm, apex acute; scales several, purplish brown. Petiole 4–6 mm, tomentose when young; leaf blade lanceolate, oblong-lanceolate, or oblong-oblancoellate, 4.5–8 × 2–3 cm, veins 8–10 pairs, both surfaces long gray tomentose when young, glabrate or with hairs only along veins when old, base cuneate, margin minutely sharply serrate, apex acuminate. Compound corymb terminal, 2–5(–8) × 1.5–3 cm, several to many flowered; rachis and pedicels long gray tomentose; bracts linear or linear-lanceolate, 3–4 mm, initially slightly long tomentose, glabrous. Pedicel 3–6 mm. Hypanthium cupular, 1.5–2 × 2–3 mm, abaxially densely long gray tomentose. Sepals triangular, 1–2.5 × ca. 2 mm, apex ± acute or obtuse. Petals obovate, 3–4 × 2–3 mm, adaxially usually tomentose near base, base shortly clawed, apex obtuse. Stamens 20. Ovary densely long tomentose; styles 3, connate basally. Fruit subglobose, 6–7 mm in diam., glabrous or pubescent.

Thickets, gullies, near water courses; 300–1300 m. Guangxi, Guizhou, S Yunnan [India, Laos, Myanmar, Thailand, Vietnam].

Two varieties occur in China; var. arguta occurs in India and has leaf blade lanceolate, compound corymb 2–5 cm, several flowered, and fruit glabrous.

1a. Compound corymb 5–8 cm, more Numerous flowered; fruit pubescent ....... 37a. var. hookeri

1b. Compound corymb 2–5 cm, relatively

less flowered, fruit glabrous ........... 37b. var. salicifolia


锐齿石楠 rui chi shi nan


Leaf blade lanceolate or oblong-lanceolate. Compound corymbs 5–8 cm, many flowered. Fruit pubescent.

Thickets along river sides; 300–900 m. S Yunnan (Xishuangbanna) [India, Thailand].


柳叶锐齿石楠 liu ye rui chi shi nan


Leaf blade narrowly lanceolate, oblong-lanceolate, or oblong-ob lanceolate. Compound corymb 2–5 cm. Fruit glabrous.

Mountain thickets, gullies, near water courses; 1100–1300 m. Guangxi, Guizhou, S Yunnan [India, Laos, Myanmar, Thailand, Vietnam].

**39. Photinia parvifolia**

- Plants deciduous, 1–3 m tall. Branchlets purplish brown when old, terete, gray tomentose when young, glabrous when old, with small orbicular lenticels. Petiole 2–5 mm, initially densely gray tomentose, glabrescent; leaf blade greenish abaxially, dark green adaxially, lanceolate or loricate-lanceolate, 4–6 × 0.8–1.5 cm, leathery, veins 7–10 pairs, abaxially densely gray tomentose when young, subglabrous when old, adaxially glabrous. Base attenuate into short petiole, margin sparsely serrate or subentire, apex acuminate, rarely acute. Compound corymb terminal, 4–6 × 3–5 cm, densely 10–20-flowered; rachis and pedicels densely gray tomentose, glabrescent in fruit, with brown lenticels; bracts caducous, linear, membranous. Pedicel 1–3 mm. Flowers 5–8 mm in diam. Hypanthium campanulate, 3.5–4.5 mm in diam., abaxially densely gray tomentose. Sepals ovate, 1–1.5 mm, acute. Petals white, obovate, 5–6 × 3–4 mm, glabrous, base very shortly clawed, apex obtuse or emarginate. Stamens 20, much shorter than petals. Ovary 3-loculed, apex densely pilose: styles 3, connate at base, 4–5 mm; stigma subcapitate. Fruit ovoid-globose or subglobose, 5–7 × 5–6 mm, glabrous, with puberulous sepals; seeds 4–5 mm. Fl. Apr.–May, fr. Jul.–Aug.

- Hills, mountain valleys, rocky slopes, fields, forests, thickets; 300–2500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Zhejiang.

- Pedicels and hypanthium abaxially glabrous

**39a. Photinia parvifolia var. parvifolia**

- Plants deciduous, 3 m tall. Branchlets reddish brown or dark brown, gray villous when young, glabrous when old; buds reddish brown, narrowly ovoid, glabrous. Petiole 1–2 mm, initially slightly villous, later glabrous; leaf blade elliptic or rhomboidal-ovate to ovate-lanceolate, 2–5 × 1–2.2 cm, veins 4–6 pairs, raised abaxially and impressed adaxially, both surfaces glabrous or slightly gray villous along veins when young, glabrescent, base broadly cuneate or ± rounded, margin sharply serrate, apex acuminate to caudate. Inflorescences 2–3-fascicled. Flowers 6–8 mm in diam. Hypanthium glabrous abaxially. Sepals tri-
angular-ovate, 1–1.5 mm. Petals white, suborbicular, 3–3.5 mm in diam., glabrous, apex obtuse. Stamens 15–20, shorter than or nearly as long as petals. Ovary densely gray villous apically; styles 2, connate from base nearly to middle or apex, glabrous. Fruit red, ellipsoid or oblong-ovate, 6–7 × 5–6 mm, glabrous; sepals incurved; fruiting pedicels 3–5 mm, lenticellate. Fl. Jun.

- Slopes, roadsides, sparse woods, forests; 400–1500 m. Fujian, Guizhou, Hubei, Jiangxi, Sichuan, Zhejiang.

清水石楠 qing shui shi nan


Shrubs deciduous, decumbent, much branched. Branches brown or purplish brown to grayish brown, sparsely lenticellate; buds ovoid, small, 2–3 mm, apex ± obtuse or ± acute; scales several, brown, glabrous. Petiole blackish purple, 1–2 mm, villous; leaves usually 3–5-fascicled on short shoots, alternate on flowering branches; leaf blade pale green abaxially, dark green adaxially, elliptic to obovate-lanceolate, 1–4 × 0.5–1.5 cm, papery, lateral veins 6–8 pairs, somewhat raised abaxially, both surfaces glabrous or abaxially slightly villous along midvein when young, base cuneate, margin minutely sharply serrate, apex acute to shortly acuminate. Umbels terminal, 3–5-flowered, without peduncle, sometimes flowers solitary; bracts caducous, subulate, 1–2 mm, glabrous, apex acute. Pedicel 0.5–1.8 cm, slender, glabrous or sparsely villous when young, lenticellate. Flowers 5–7 mm in diam. Hypanthium cupular, 2–3 × 3–4 mm, abaxially glabrous. Sepals triangular or ovate-triangular, 1.5–2 × 2–2.5 mm, margin irregularly minutely serrate, apex acute. Petals white, suborbicular, 5–6 × 6–7 mm, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20. Ovary densely villous apically; styles not exceeding stamens, connate basally, not exceeding stamens, base pubescent. Fruit red, ovoid-ellipsoid or urceolate, 6–7 × 9 mm, subglabrous, lenticellate; seeds blackish brown, ellipsoid, 2–3 mm, smooth. Fl. Apr–May, fr. Aug–Sep.

- Forests, river valleys, waste places; 100–800 m. Anhui, Fujian, ?Guangdong, Hubei, Hunan, Jiangxi, Zhejiang.

42a. Photinia hirsuta var. *hirsuta*

褐毛石楠lie ye he mao shi nan

*Pourthiaea hirsuta* (Handel-Mazzetti) Iketani & H. Ohashi.

- Leaf blade not divided apically.
- Mixed forests, W Fujian (Liancheng Xian).

42b. Photinia hirsuta var. *lobulata*

叶漏石楠lie ye mao shi nan

*Pourthiaea hirsuta* var. *lobulata* (T. T. Yu) Iketani & H. Ohashi.

- Leaf blade 3-lobed apically.
- Mixed forests, W Fujian (Liancheng Xian).

One of us (Spongberg) prefers to treat this variety as a synonym of the species because of the slight differences.


浙江石楠 zhe jiang shi nan

*Pourthiaea zhejiangensis* (P. L. Chiu) Iketani & H. Ohashi.

Shrubs evergreen, 1–1.5 m tall. Branchlets blackish brown to nearly black when old, initially densely brown pubescent, glabrous when old, with brown lenticels; buds conical, ± with soft yellowish brown hairs, apex acute. Petiole 1–2 mm, yellowish brown hairy; leaf blade green adaxially, elliptic to obovate-elliptic, 2–5 × 1.5–2.8 cm, leathery, veins 6–8 pairs, inconspicuous, abaxially pale initially, yellowish brown villous along midvein, glabrate, sometimes villous only basally when old, adaxially initially sparsely yellowish brown villous, glabrescent, base cuneate, margin sharply serrate, apex acute or abruptly shortly apiculate. Inflorescences 1- or 2-flowered, or in terminal 3–6-flowered corymb; bracts subulate, 1.5–2 mm. Pedicel 1–2 cm, sparsely yellowish brown villous. Hypanthium campanulate, abaxially sparsely yellowish brown villous. Sepals triangular, 1.5–2 mm. Stamens 20. Styles 2 or 3, connate basally. Fruit red, ovoid-ellipsoid or urceolate, glabrous, with sparse, small lenticels; fruiting pedicels 1–2 cm, slender, minutely lenticellate, sparsely villous or subglabrous; seeds persistent, erect, 8–10 mm. Fl. Apr–May, fr. Oct–Nov.

- Thickets; 100–700 m. Zhejiang.

**枇杷** pi ba shu

Gu Cuizhi (谷梓芝  Ku Tsue-chih); Stephen A. Spongberg

Trees or shrubs, evergreen. Leaves simple, stipulate, usually petiolate, venation craspedodromous or camptodromous, margin serrate or entire. Inflorescences terminal panicles, numerous flowered. Hypanthium cupular or obconical. Sepals 5, persistent. Petals 5, white or yellow, obovate or orbicular, base clawed. Stamens 20. Ovary inferior, 2–5-loculed, with 2 ovules per locule; styles 2–5, connate at base and often pubescent. Fruit a pome with persistent incurved sepals, fleshy or dry, endocarp (core) membranous, with 1 or 2 large seeds.

About 30 species: E Asia; 14 species (three endemic) in China.

1a. Leaves including petiole glabrous ................................................................................................................................. 14. **E. elliptica**
1b. Leaves pubescent, petiole pubescent or glabrous.

2a. Leaves abaxially sparsely pubescent or rusty or gray tomentose.

3a. Leaf margin remotely 4–10-serrate apically, entire basally.
   4a. Leaves abaxially initially rusty pubescent, glabresent; flowers large, stalked, petals 6–8 mm, entire at apex ................................................................. 4. **E. tengyuehensis**
   4b. Leaves abaxially yellow villous; flowers small, stalked or sessile, petals ca. 5 mm, truncate, slightly emarginate, or 2-lobed at apex ................................................................. 5. **E. salvinensis**

3b. Leaf margin remotely serrate or undulate, entire basally.
   5a. Leaf margin undulate, blade 7–15 cm; styles 2, rarely 3 ................................................................. 3. **E. prinoides**
   5b. Leaf margin remotely serrate, blade 12–40 cm; styles 3–5.
      6a. Leaf blade lanceolate, ob lanceolate, obovate, or elliptic-oblong, 12–30 × 3–9 cm, adaxially rugose, abaxially densely grayish brown tomentose; styles 5 ................................................................. 1. **E. japonica**
      6b. Leaf blade oblong to oblong-ovate, 30–40 × 10–15 cm, adaxially not rugose, abaxially densely rusty tomentose; styles 3–5 ................................................................. 2. **E. malipoensis**

2b. Leaves brown or brownish yellow tomentose when young, glabresent.

7a. Leaf margin remotely inconspicuously serrate apically, entire basally ................................................................. 6. **E. fragrans**
7b. Leaf margin serrate along entire length.

8a. Petiole ca. 1.5 cm or less.
   9a. Stamens 10; styles 2; leaf blade lanceolate or oblanceolate, very rarely ovate-oblong, apex acute, margin remotely sharply serrate ................................................................. 12. **E. henryi**
   9b. Stamens 15; styles 3 or 4; leaf blade oblong or obovate-oblong, apex obtuse or acute, margin incurved-serrate ................................................................. 13. **E. seguini**

8b. Petiole 1.5 cm or longer.

10a. Leaf blade obovate or oblanceolate.
   11a. Flowers sessile; styles 3 or 4; leaf blade 9–23 × 3.5–13 cm ................................................................. 7. **E. serrata**
   11b. Flowers pedicellate, pedicel 2–4 mm; styles 2 or 3; leaf blade 5–15 × 2–6 cm ................................................................. 8. **E. obovata**
   10b. Leaf blade oblong, elliptic, oblong-lanceolate, oblong-oblanceolate, or lanceolate.
      12a. Leaf margin incised-serrate; peduncle and pedicels tomentose ................................................................. 9. **E. bengalensis**
      12b. Margin serrate or crenate; peduncle and pedicels subglabrous or rusty tomentose.
         13a. Leaf margin shallowly but sharply serrate, not revolute; peduncle and pedicels sparsely pubescent or subglabrous ................................. 10. **E. cavaleriei**
         13b. Leaf margin coarsely obtusely serrate and revolute; peduncle and pedicels densely rusty tomentose ................................................................. 11. **E. deflexa**


**枇杷** pi ba


Trees small, to 10 m tall. Branchlets yellowish brown, densely rusty or grayish rusty tomentose. Stipule subulate, 1–1.5 cm, pubescent, apex acuminate; petiole nearly absent or short, 6–10 mm, grayish brown tomentose; leaf blade lanceolate, oblanceolate, obovate, or elliptic-oblong, 12–30 × 3–9 cm, leathery, lateral veins 11 or 12 pairs, abaxially densely gray tomentose, adaxially lustrous, rugose, base cuneate, margin entire basally, remotely serrate apically, apex acute or acuminate. Panicle 10–19 cm, many flowered; peduncle densely rusty tomentose; bracts subulate, 2–5 mm, densely rusty tomentose. Pedicel 2–8 mm, rusty tomentose. Flowers fragrant, 1.2–2 cm in diam. Hypanthium shallowly cupular, abaxially rusty tomentose. Sepals triangular-ovate, 2–3 mm, abaxially densely rusty tomentose, apex obtuse. Petals white, obovate or obovate, 5–9 × 4–6 mm, apex obtuse or emarginate. Stamens 20. Ovary rusty pubescent apically, 5-loculed, with 2 ovules per locule; styles 5, free. Pome yellow or orangish yellow, globose or obovate, 1–1.5 cm in diam., rusty tomentose, soon gla-

Native in Chongqing (Nanchuan Xian), Hubei (Yichang); cultivated in Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Taiwan, Yunnan, Zhejiang [cultivated throughout SE Asia].


麻栗坡枇杷 ma li po pi ba

Trees 10–15 m tall. Branchlets purplish brown, stout, rusty tomentose. Stipules caducous, lanceolate, 8–9 mm, pubescent, apex acuminate; petiole ca. 1 cm, densely rusty tomentose; leaf blade oblong or oblong-ovate, 30–40 × 10–15 cm, leathery, midvein stout, prominent on both surfaces, lateral veins 20–25 pairs, abaxially densely rusty tomentose, adaxially lustrous, glabrous, base attenuate, margin remotely obtuse serrate, apex acute. Flowers fragrant, ca. 1 cm in diam. Hypanthium cupular, adaxially brown tomentose. Styles 2 or 3, connate basally or throughout. Pome dark brown, ovoid to globose or subglobose, ca. 1.8 cm in diam., initially rusty tomentose, glabrescent, much branched. Stipules ovate, 2–3 mm, abaxially glabrous, adaxially lustrous, margin entire. Petals white, 5–6 × 4–5 mm. Stamens 20. Ovary densely pubescent apically, 2-loculed, with 2 ovules per locule; styles 2 or 3, connate basally or throughout. Pome brown, globose, ca. 7 mm in diam., densely brownish yellow tomentose; fruiting pedicel 2–3 mm, densely brownish pubescent. Fl. Apr–May, fr. Sep–Oct.

Mixed forests on slopes; 1700–2500 m. NW Yunnan [Myanmar].


柳叶枇杷 li ye pi ba

Trees small, 4–10 m tall. Branchlets purplish brown or grayish brown, stout, tomentose when young, glabrescent, with pale lenticels. Stipules ovate, herbaceous, apex acuminate to shortly acuminate; petiole 1.5–3 cm, brownish gray tomentose; leaf blade oblong or elliptic, rarely ovate, 7–15 × 3.5–7.5 cm, leathery, midvein stout, prominent abaxially, lateral veins 9–11 pairs, abaxially densely gray tomentose, adaxially lustrous, initially pubescent, glabrescent, base cuneate, margin remotely undulate or obtusely serrate, or nearly entire at base, apex acute, rarely obtuse. Flowers fragrant, 1–1.5 cm in diam. Hypanthium cupular, pubescent. Sepals ovate, 2–3 mm, abaxially pubescent, apex obtuse. Peduncle brownish gray tomentose; bracts and bracteoles ovate, 3–4 mm, pubescent. Pedicel 2–4 mm, brownish gray tomentose. Flowers fragrant, ca. 1 cm in diam. Hypanthium cupular, pubescent. Sepals ovate, 2–3 mm, abaxially pubescent, apex obtuse. Petals white, 4–5 × 3–4 mm. Stamens 20. Ovary pubescent apically, 2 (or 3)–loculed, with 2 ovules per locule; styles 2, rarely 3, free or connate basally. Pome dark brown, ovoid to ovoid-globose, 6–7 mm in diam., initially pubescent, glabrescent. Fl. Jun, fr. Jul–Aug.

River banks, dense moist forest understores; 800–1700 m. W Sichuan, SE Yunnan [Laos].


腾越枇杷 teng yue pi ba

Trees to 20 m tall. Branchlets dark gray, stout, densely rusty tomentose when young, glabrescent. Stipules caducous, not seen; petiole 2–3.5 cm, glabrous or nearly so; leaf blade oblong, elliptic, or subobovate, 10–17 × 4–7 cm, leathery, midvein prominent abaxially, lateral veins 9–18 pairs, reticulate veins conspicuous, abaxially initially rusty pubescent, glabrescent, adaxially lustrous, glabrous, base broadly cuneate or subrounded, margin entire basally, remotely serrate apically, apex acuminate. Panicle ca. 15 cm in diam., many flowered; peduncle brownish yellow tomentose; bracts caducous, not seen. Pedicel short or nearly absent. Flowers ca. 2 cm in diam. Hypanthium cupular, abaxially brown tomentose. Sepals ovate, ca. 2 mm, abaxially densely brownish yellow tomentose. Petals yellow, obovate, 6–8 × 5–6 mm. Stamens 20. Ovary densely pubescent apically, 2–3-loculed, with 2 ovules per locule; styles 2 or 3, connate basally or throughout. Pome dark brown, globose, ca. 7 mm in diam., densely brownish yellow tomentose; fruiting pedicel 2–3 mm, densely brownish pubescent. Fl. Apr–May, fr. Sep–Oct.

Native in Chongqing (Nanchuan Xian), Hubei (Yichang); cultivated throughout SE Asia.


怒江枇杷 nu jiang pi ba

Trees small. Branchlets blackish gray, short, stout, initially densely brown tomentose, glabrescent, much branched. Stipules caducous, not seen; petiole 2–3 mm, robust, tomentose; leaf blade obovate-lanceolate, rarely elliptic or narrowly elliptic, 10–20 × 2.5–6.5 cm, thickly leathery, lateral veins 14–20 pairs abaxially, reticulate veins conspicuous, abaxially yellow villous, adaxially lustrous, glabrous, base cuneate, sometimes subrounded, margin with 4–10 pairs of shallow teeth in apical 1/4, apex acuminate. Panicle pyramidal, ca. 15 cm in diam., many flowered; peduncle robust, densely rusty tomentose; bracteoles ovate, ca. 2 mm, pubescent. Pedicel short, 2–3 mm, robust, densely rusty tomentose. Hypanthium cupular, abaxially rusty tomentose. Sepals ovate, ca. 5 mm, abaxially rusty tomentose, apex obtuse. Petals pale yellow, obovate, ca. 5 mm. Stamens 20. Ovary brown villous, 2–3-loculed, with 2 ovules per locule; styles 2 or 3, connate basally or throughout. Pome brown, granular-punctate, globose, ca. 1.5 cm in diam., base and apex rusty pubescent. Fl. Apr–May, fr. Jun–Aug.

Broad-leaved forests; 1600–2400 m. NW Yunnan [India, Myanmar].


香花枇杷 xiang hua pi ba

Trees small, to 10 m tall. Branchlets gray, stout, densely brown tomentose, soon glabrate. Stipules caducous, not seen; petiole 1.5–3 cm, initially brown tomentose, glabrous when old; leaf blade oblong-elliptic, 7–15 × 2.5–5 cm, leathery, both surfaces densely tomentose when young, glabrescent when old, midvein prominent on both surfaces, lateral veins 9–11 pairs, base cuneate or attenuate, margin entire basally, remotely in-
conspicuously serrate apically, apex acute or shortly acuminate. Panicle 7–9 cm in diam., many flowered; peduncle densely brown tomentose; bracts not seen. Pedicel 2–3 mm, densely brown tomentose. Flowers ca. 1.5 cm in diam. Hypanthium cupular, abaxially brown tomentose. Sepals triangular-ovate, 3–4 mm, densely brown tomentose. Petals white, elliptic, ca. 5 × 3 mm. Stamens 20. Ovary pubescent, 4- or 5-loculed, with 2 ovules per locule; styles 4 or 5, white villous basally. Pome brown, globose, 1.5–2.5 cm in diam., tomentose and granular-punctate. Fl. Apr.–May, fr. Aug.–Sept.

Thickets on slopes; 800–900 m. Guangdong, Guangxi, Xizang [Vietnam].


叶齿叶枇杷 chi ye pi ba

Trees 10–20 m tall. Branchlets yellowish brown, stout, densely tomentose when young, glabrescent. Stipules caducous, not seen; petiole 1.5–3 cm, glabrous; leaf blade obovate or oblanceolate, 9–23 × 3.5–13 cm, leathery, adaxially lustrous, midvein prominent on both surfaces, lateral veins 10–16 pairs, glabrous or abaxially sparingly brown pubescent along veins, base attenuate, margin incurved-serrate, apex obtuse or acute. Panicle ca. 8 cm in diam., many flowered; peduncle densely yellow tomentose; bracts not seen. Pedicel 2–3 mm, densely yellow tomentose. Flowers 8–10 mm in diam. Hypanthium cupular, 3–4 mm, abaxially densely yellow tomentose. Sepals ovate, 2–2.5 cm, abaxially yellow tomentose, apex obtusely pubescent or acute. Petals white, obovate, 3–3.5 mm. Stamens 20. Ovary pubescent apically, (2 or)3- or 4(or 5)-loculed, with 2 ovules per locule; styles (2 or)3 or 4(or 5), base pubescent. Pome green, globose or pyriform, 1.5–1.8 cm in diam., subglabrous; sepals reflexed. Fl. Nov.–Feb.

● Thickets on slopes; 1100–1900 m. Guangxi, Yunnan [Laos].


倒卵叶枇杷 dao luan ye pi ba

Trees ca. 10 m tall. Branchlets dark gray, stout, initially rusty tomentose, glabrescent, much branched. Stipules caducous, not seen; petiole 1.5–3 cm, glabrous; leaf blade obovate or oblanceolate, 5–15 × 2–6 cm, leathery, midvein prominent on both surfaces, lateral veins 10–14 pairs, glabrous, base cuneate or broadly cuneate, margin sharply incurved-serrate, entire near base, apex rounded or shortly acuminate. Panicle spreading, 6–7 cm in diam., many flowered; peduncle densely brown tomentose; bracts caducous, not seen. Pedicel short, 2–4 mm, densely brown tomentose. Flowers 1–1.5 cm in diam. Hypanthium cupular, densely brown tomentose. Sepals triangular, 3–4 mm, abaxially densely brown tomentose, apex obtuse. Petals white, obovate, 5–7 mm, brown tomentose, apex rounded-obtuse. Stamens 20. Ovary densely pubescent, 2- or 3-loculed, with 2 ovules per locule; styles 2 or 3, white villous basally. Pome brown, subglobose, 7–9 mm in diam., subglaabrous; fruiting pedicel 3–5 mm, brown tomentose. Fl. May, fr. Jun.–Jul.


窄叶南亚枇杷 zhai ye nan ya pi ba

**Eriobotrya bengalensis f. angustifolia** (Cardot) J. E. Vidal.

Trees to 10 m tall. Branchlets gray-brown, stout, glabrous or subglaabrous. Petiole 2–4 cm, glabrous; stipules not seen; leaf blade lanceolate, oblong, or elliptic, 7–12(–20) × 2–3.5(–8) cm, adaxially lustrous, midvein prominent abaxially, lateral veins (7–)10(–12) pairs, both surfaces glabrous, base cuneate, margin remotely short-serrate or entire near base, apex acuminate. Panicle spreading, 8–12 × 8–12 cm, tomentose, densely flowered; peduncle short, densely brown tomentose; bractlets lanceolate, both surfaces brown tomentose. Pedicel 3–5 mm. Hypanthium 2–3 mm, abaxially tomentose. Sepals triangular-ovate, ca. 1 mm, abaxially densely brown tomentose, margin entire, apex obtuse or acute. Petals white, obovate or suborbicular, 4–5 mm, glabrous or adaxially pubescent at base, apex rounded or emarginate. Stamens 20. Ovary pubescent apically, 2- or 3-loculed, with 2 ovules per locule; styles 2 or 3(or 4), pubescent basally. Pome ovoid-globose, 1–1.5 cm in diam.; fruiting pedicel brown tomentose; sepals reflexed. Fl. Nov.–Feb.

● Mixed forests on slopes; 1200–1800 m. NE Guizhou (Fanjing Shan), SE Yunnan.

**Eriobotrya bengalensis var. bengalensis** (including f. intermedia J. E. Vidal) occurs in Cambodia, India, Indonesia, Laos, Myanmar, Thailand, and Vietnam.


大花枇杷 da hua pi ba


Trees 4–5 cm tall. Branchlets brownish yellow, stout, glabrous. Leaves in clusters at apices of branches; stipules caducous, not seen; petiole 1.5–4 cm, glabrous; leaf blade oblong, oblong-lanceolate, or oblong-oblaniceolate, 7–18 × 2.5–7 cm, leathery, midvein prominent on both surfaces, lateral veins 7–14 pairs, reticulate veins conspicuous abaxially, abaxially subglaabrous, adaxially lustrous, glabrous, base attenuate, margin remotely sharply serrate, entire near base, apex acuminate. Panicle 9–12 cm in diam., many flowered; peduncle sparsely brown pubescent; bracts caducous, not seen. Pedicel 3–10 mm, sparsely brown pubescent. Flowers 1.5–2.5 cm in diam. Hypanthium cupular, abaxially sparsely brown pubescent. Sepals triangular-ovate, 2–3 mm, tomentose along margin, apex obtuse. Petals white, obovate, 8–10 mm. Stamens 20. Ovary glabrous, 2- or 3-loculed; styles 2 or 3, connate at base, ca. 4 mm, white villous basally. Pome yellowish red, elliptic or subglobose, 1–1.5 cm in diam., glabrous; fruiting pedicel 3–10 mm, hairy; sepals reflexed. Fl. Apr.–May, fr. Jul.–Aug.

Slopes, mixed river side forests; 500–2000 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Sichuan [N Vietnam].

台湾枇杷 tai pi ba


Trees 5–12 m tall. Branchlets brownish gray, stout, densely brown tomentose when young, glabrescent. Leaves in clusters at apices of branchlets; stipules caducous, not seen; petiole 2–4 cm, glabrous; leaf blade oblong or oblong-lanceolate to obovate-oblong, (9–)10–19 × (1.5–)3–7 cm, leathery, adaxially lustrous, midvein prominent on both surfaces, lateral veins 10–12 pairs, both surfaces initially shortly tomentose, soon glabrescent, base cuneate, margin remotely irregularly incurved-crenate, revolute, apex shortly caudate or acuminate. Petiole 6–8 cm in diam., many flowered; peduncle densely brown tomentose; bracts and bractlets lanceolate, 4–6 mm, abaxially tomentose. Pedicel 6–12 mm, densely brown tomentose. Flowers 1.5–1.8 cm in diam. Hymanthium cupular, abaxially brown tomentose. Sepals triangular-ovate, slightly shorter than hynanthium, ca. 1.2 cm, abaxially brown tomentose, adaxially glabrous, apex obtuse or acute. Petals white, orbicular or obovate, ca. 8 × 7 mm. Stamens 20. Ovary glabrous, 3–5-loculed, with 2 ovules per locule; styles 3 or 4, villous basally. Stamens 15. Ovary villous apically, 3- or 4-loculed, with 2 ovules per locule; styles 3–5, crenate at base, pubescent. Pome obovoid or subglobose, 8–12 mm in diam., rusty tomentose; fruiting pedicel 2–3 mm, densely brown pubescent; sepals reflexed. Fl. May–Jun, fr. Jun–Aug.

Slopes, broad-leaved valley forests; 1000–2100 m. Guangdong, Hainan, Taiwan [S Vietnam].

12. Eriobotrya henryi Nakai, J. Arnold Arbor. 5: 70. 1924.

窄叶枇杷 xiao ye pi ba

Shrubs or small trees, to 7 m tall. Branchlets gray, slender, initially tomentose, soon glabrescent. Stipules caducous, not seen; petioles 5–13 mm, subglabrous; leaf blade lanceolate or oblanceolate, rarely ovate-oblong, 5–11 × 0.8–2.7 cm, leathery, midvein prominent on both surfaces, lateral veins 16–20 pairs, adaxially lustrous, rusty tomentose when young, soon glabrescent, base cuneate or attenuate, margin remotely and sharply serrate, apex acuminate. Petiole 2.5–4.5(–7) cm in diam., many flowered; peduncle densely pubescent; bracts caducous, linear, both surfaces rusty tomentose, apex acuminate or shortly caudate. Panicle 2.5–4.5 cm in diam., many flowered; peduncle short, densely rusty tomentose; bracts caducous, linear, abaxially tomentose, apex obtuse or acute. Petiole 2–4 mm, abaxially rusty tomentose. Flowers ca. 1 cm in diam. Hymanthium shallowly campanulate, abaxially rusty tomentose. Sepals broadly ovate, short, ca. 2 mm, abaxially rusty tomentose, apex obtuse. Petals white, suborbicular or obcordate, ca. 4 mm. Stamens 15. Ovary villous apically, 3- or 4-loculed, with 2 ovules per locule; styles 3 or 4, villous basally. Pome dark purplish brown, ovoid, ca. 1 cm in diam., slightly pubescent; fruiting pedicel 2–3 mm, densely brown pubescent; sepals reflexed. Fl. Mar–Apr, fr. Jun–Jul.

● Thickens on slopes; 500–1500 m. SW Guizhou, SE Yunnan.


楲园枇杷 tuo yuan pi ba

*Mespilus cuila* Buchanan-Hamilton.

Trees evergreen, 5–10 m tall. Branchlets grayish brown, stout, glabrous. Stipules caducous, not seen; petiole 2–4 cm, glabrous. Leaf blade oblong or oblong-lanceolate, rarely oblong-oblancoate, 18–25 × 6–9 cm, leathery, lateral veins 15–20 pairs, abaxially prominent, adaxially impressed, both surfaces glabrous, base cuneate, rarely subrounded, margin obtusely serrate, apex acuminate or shortly caudate. Petiole terminal, many flowered; peduncle densely tomentose; bracts caducous, not seen. Pedicel subsessile. Hymanthium shallowly campulate. Sepals triangular, abaxially tomentose, apex obtuse. Petals orbicular or elliptic, base pilose. Stamens 20. Styles 5; ovary pubescent. Pome obovoid or subglobose, 8–12 mm in diam.

Evergreen broad-leaved forests; 500–1800 m. SE Xizang (Mêdog Xian) [Nepal].


石斑木属 shi ban mu shu

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Stephen A. Spongberg

Shrubs or small trees, evergreen. Leaves simple, shortly petiolate, leathery, venation camptodromous, margin serrate or entire;
stipules caducous, subulate. Inflorescences in terminal racemes or panicles. Hypanthium campanulate to tubular. Sepals 5, erect or reflexed. Petals 5, white or pink, base shortly clawed. Stamens 15–20. Ovary inferior, 2-loculed, with 2 erect ovules per locule; styles 2 or 3, connate at base. Pome drupe-like, purplish black or bluish, subglobose, succulent, with early caducous sepals leaving an annular ring; seeds 1 or 2, subglobose, large, seed coat thin, cotyledons thickened, plano-convex or semiglobose.

About 15 species: E Asia; seven species (three endemic) in China.


**石斑木** shi ban mu

Shrubs, rarely small trees, to 4 m tall. Branchlets purplish brown when young, grayish brown when old, terete, initially brown tomentose; glabrous when old. Petiole 0.5–1.8 cm or nearly absent, slightly brown tomentose or subglabrous; stipules caducous, lanceolate, sparsely brown tomentose, apex acuminate; leaf blade ovate, oblong, rarely obovate, oblong-lanceolate, narrowly elliptic or lanceolate-elliptic, (2–)4–8 × 1.5–4 cm, leathery, veins prominent abaxially, reticulate veins conspicuous abaxially and conspicuous or not adaxially, abaxially pale, glabrous or sparsely tomentose, adaxially lustrous, glabrous, base attenuate, margin crenulate, serrate, or obtusely serrate, apex obtuse, acute, acuminate, or long caudate. Panicle or racemes terminal, many or few flowered; peduncle and pedicels petiolate; bracts and bractlets caducous, lanceolate or narrowly lanceolate, 2–7 mm, both surfaces initially brown tomentose, densely so at margin, soon glabrescent, apex acuminate. Pedicel 0.5–1.5 cm, initially brown tomentose, soon glabrescent. Flowers 1–1.3(–1.5) cm in diam. Hypanthium tubular, brown tomentose at margin and on both surfaces or glabrous. Sepals triangular-lanceolate or linear, 4.5–6 mm, both surfaces slightly brown tomentose or glabrous, apex acute. Petals white or pinkish, obovate or lanceolate, 5–7 × 4–5.5 mm, pubescent basally, apex obtuse. Stamens 15, ca. as long as or shorter than petals. Ovary glabrous, 2- or 3-loculed, with 2 ovules per locule; styles 2 or 3, connate at base, subglabrous. Pome purplish black, globose, 5–8 cm in diam., globose; fruiting pedicel 5–10 mm, glabrous; sepals caducous, leaving an annular ring. Fl. Apr, fr. Jul–Aug.

Slopes, roadsides, thickets at stream sides; 700–1600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang [Cambodia, Japan, Laos, Thailand, Vietnam].

1a. Inflorescence sparsely pubescent, few flowered; leaf margin serrate apically ........................................... 1b. var. *shilanensis*

1b. Inflorescence densely rusty tomentose, usually numerous flowered; leaf margin crenulate or obtusely serrate.

2a. Leaf blade ovate or oblong, rarely obovate or oblong-lanceolate, 2–8 cm; inflorescence tomentose or glabrous; fruit 5–8 mm in diam. ................................. 1. *R. indica*

2b. Leaf blade narrowly elliptic to obovate-oblong, 7–15 cm; inflorescence tomentose; fruit 7–10 mm in diam. ................................. 2. *R. major*

4a. Leaf margin remotely serrate.

5a. Leaf blade ovate or oblong, rarely obovate or oblong-lanceolate, 2–8 cm; inflorescence tomentose or glabrous; fruit 5–8 mm in diam. ................................. 1. *R. indica*

5b. Leaf blade narrowly elliptic to obovate-oblong, 7–15 cm; inflorescence tomentose; fruit 7–10 mm in diam. ................................. 2. *R. major*

4b. Leaf margin entire or remotely crenate.

6a. Branches spreading; leaf blade narrowly elliptic, ovate, or obovate; pediole 5–10 mm ......................... 3. *R. umbellata*

6b. Branches erect or ascending; leaf blade oblong or oblong-obovate; pediole very short or nearly absent ................................................................. 4. *R. integerrima*

1a. *Rhaphiolepis indica* var. *indica*, **石斑木(原变种)** shi ban mu (yuan bian zhong)

*Crateagus indica* Linnaeus, Sp. Pl. 1: 477. 1753; *C. rubra* Loureiro; *Mespilus sinensis* Poiret; *Rhaphiolepis gracilis* Nakai; *R. parvibracteolata* Merrill; *R. rubra* (Loureiro) Lindley; *R. rugosa* Nakai; *R. sinensis* M. Roemer.

Leaf blade ovate or oblong, rarely obovate or oblong-lanceolate, (2–)4–8 × 1.5–4 cm, margin crenulate. Inflorescences rusty tomentose, numerous flowered; bracts narrowly lanceolate, 2–7 mm ................................. 1a. var. *indica*

2a. Leaf blade ovate, oblong, rarely obovate, or oblong-lanceolate, 2–7 cm, margin crenulate; bracts narrowly lanceolate, 2–7 mm ................................. 1a. var. *indica*

2b. Leaf blade narrowly elliptic or lanceolate-elliptic, obtusely serrate; bracts lanceolate, ca. 7 mm ................................. 1c. var. *tashiroi*


**恒春石斑木** heng chun shi ban mu

*Crateagus indica* Linnaeus, Sp. Pl. 1: 477. 1753; *C. rubra* Loureiro; *Mespilus sinensis* Poiret; *Rhaphiolepis gracilis* Nakai; *R. parvibracteolata* Merrill; *R. rubra* (Loureiro) Lindley; *R. rugosa* Nakai; *R. sinensis* M. Roemer.

Leaf blade ovate or oblong, rarely obovate or oblong-lanceolate, (2–)4–8 × 1.5–4 cm, margin crenulate. Inflorescences rusty tomentose, numerous flowered; bracts narrowly lanceolate, 2–7 mm. Pedicel 0.5–1.5 cm.

Slopes, roadsides, thickets at stream sides; 1500–1600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang [Cambodia, Japan, Laos, Thailand, Vietnam].

*Rhaphiolepis impressivena* Masamune (*R. indica* f. *impressivena* (Masamune) S. S. Ying) might be an allied species or ecotype of *R. indica*.


**恒春石斑木** heng chun shi ban mu

*Crateagus indica* Linnaeus, Sp. Pl. 1: 477. 1753; *C. rubra* Loureiro; *Mespilus sinensis* Poiret; *Rhaphiolepis gracilis* Nakai; *R. parvibracteolata* Merrill; *R. rubra* (Loureiro) Lindley; *R. rugosa* Nakai; *R. sinensis* M. Roemer.

Leaf blade ovate or oblong, rarely obovate or oblong-lanceolate, (2–)4–8 × 1.5–4 cm, margin crenulate. Inflorescences rusty tomentose, numerous flowered; bracts narrowly lanceolate, 2–7 mm. Pedicel 0.5–1.5 cm.

Slopes, roadsides, thickets at stream sides; 1500–1600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang [Cambodia, Japan, Laos, Thailand, Vietnam].

*Rhaphiolepis impressivena* Masamune (*R. indica* f. *impressivena* (Masamune) S. S. Ying) might be an allied species or ecotype of *R. indica*.
Leaf blade oblong to oblanceolate, 4–5 × 1.5–2 cm, margin serrate apically. Inflorescences sparsely pubescent, few flowered; bracts lanceolate, ca. 4 mm. Pedicel 0.7–1.5 cm.

- 5 Taiwan (Pingtung Xian).

The names *Rhaphiolepis hiiranensis* (Kanehira, Formos. Trees, rev. ed., 276. 1936) and *R. indica var. hiiranensis* (Li, Lloydia 4: 235. 1951), synonyms with this taxon, are invalid under Art. 36.1 of the St. Louis Code because Kanehira did not provide a Latin description.


- 700–1000 m. C and N Taiwan.


大叶石斑木 da ye shi ban mu

*Rhaphiolepis indica* (Linnaeus) Lindley var. *grandifolia* Franchet.

Shrubs to 4 m tall. Branchlets initially green, grayish brown when old, terete, initially glabrous, rarely pubescent, glabrous or subglabrous when old. Stipules caducous, lanceolate, 1.5–2 cm, membranous, initially sparsely pubescent, soon glabrescent; petiole 1.5–2.5 cm, subglabrous or glabrous; leaf blade narrowly elliptic or obovate-oblong, 7–15 × 4–6 cm, leathery, midvein prominent on both surfaces, lateral veins 8–14 pairs, abaxially glabrescent, adaxially glabrous or with sparse hairs in vein axils when young, base cuneate-attenuate, margin shallowly crenulate, entire near base, apex acute or shortly acuminate. Petiole terminal, many flowered; peduncle glabrescent; bracts not seen; pedicels lanceolate, 5–7 mm, membranous, initially sparsely brown pubescent, soon glabrescent, apex acuminate. Petidell 0.7–1.5 cm, initially sparsely brown pubescent, soon glabrescent, pubescent, apex acuminate. Pedicel 0.7–1.5 cm, initially sparsely brown pubescent, soon glabrescent. Flowers 1.3–1.5 cm in diam. Hypanthium campanulate, abaxially rusty tomentose, adaxially glabrous. Sepals triangular-lanceolate, rarely ovate-lanceolate, slightly longer than hypanthium, 5–6 mm, abaxially slightly pubescent, adaxially densely so, apex acuminate. Petals white, ovate, 5–7 × 4.5–5.5 cm, pubescent basally, apex acute or obtuse. Stamens 15, ca. as long as or shorter than petals. Ovary 2-loculed, with 2 ovules per locule; styles 2, connate at base, subglabrous. Pome black, globose, 7–10 mm in diam., pubescent or subglabrous; fruiting pedicel 8–10 mm, brown tomentose; sepals caducous, leaving an annular ring. Fl. Apr–Jun, fr. Sep–Nov.

- Taiwan, E Zhejiang (Putuo Xian, Tiantai Xian) [Japan].


全缘石斑木 quan yuan shi ban mu


Shrubs or small trees. Branchlets blackish brown, terete, initially brown pubescent, glabrescent. Stipules not seen; petiole 5–10 mm, subglabrous; leaf blade greenish brown, abaxially dark green, narrowly elliptic, ovate, or obovate (2–)4–10 × (1.2–)2–4 cm, thickly leathery, reticulate veins conspicuous abaxially, adaxially slightly lustrous, base cuneate, margin entire or remotely crenate, slightly revolute, apex obtuse to slightly acute. Panicle terminal, many flowered; peduncle densely brown pubescent; bracts not seen. Pedicel absent or 1–2 mm, densely brown pubescent. Hypanthium obconical, densely brown pubescent. Sepals lanceolate or triangular-lanceolate, longer than hypanthium, 3–4.5 mm, abaxially sparsely brown pubescent, adaxially densely so, margin entire, apex acuminate. Petals white, obovate, 1–1.2 cm, glabrous, apex obtuse. Stamens 20, shorter than petals. Ovary 2-loculed, with 2 ovules per locule; styles 2, connate at base. Pome blackish purple, globose, 7–10 mm in diam., glaucous; fruiting pedicel 2–5 mm, glabrous; sepals caducous, leaving an annular ring. Fl. Apr–May, fr. Nov.

- Taiwan (Hong Yu, Huoshao Dao, Jilong Shi) [Japan (Ryukyu Islands)].


柳叶石斑木 liu ye shi ban mu

leaves deep green adaxially, pale green abaxially, lanceolate or oblong-lanceolate, rarely obovate-oblong, 6–9 × 1.5–2.5 cm, midvein prominent on both surfaces, adaxially lustrous, base attenuate, margin remotely irregularly crenulate, sometimes entire basally, apex acuminate or acute. Panicle terminal, few to several flowered; peduncle and pedicels pubescent; bracts not seen. Pedicel 2–5 mm. Flowers ca. 1 cm in diam. Hypanthium tubular, abaxially pubescent, abaxially subglabrous. Sepals triangular-lanceolate or elliptic-lanceolate, 2–2.5 mm, abaxially nearly glabrous, adaxially pubescent, apex emarginate. Petals white, elliptic or obovate-elliptic, 6 × 2 mm, glabrous, apex obtuse. Stamens 20, shorter than petals. Ovary 2-loculed, with 2 ovules per locule; styles 2, pubescent. Pome black, globose, 5–8 mm in diam., yellow tomentose when young, later subglabrous. Ovary 3-loculed, with 2 ovules per locule; styles 3, connate at apex obtuse. Stamens 15, longer than or ca. as long as petals. Ovary 3-loculed, with 2 ovules per locule; styles 3, connate at base, glabrous. Pome black, globose, 5–8 mm in diam., yellow tomentose when young, later subglabrous or sparsely rusty tomentose apically; fruiting pedicel short, 4–7 mm, densely rusty tomentose; sepals deciduous, leaving an annular ring. Fl. Apr–June. Fruit pedicel 6–10 mm, subglabrous. Fl. Apr, fr. Oct.

Slopes, forest margins, open forests at mountain summits. Fujian, Guangdong, Guangxi [Vietnam].


細叶绣毛石 xi ye shi ban mu

Rhaphiolepis hainanensis F. P. Metcalf; R. indica (Linnaeus) Lindley var. angustifolia Cardot.

Trees, rarely trees, to 1–1.5 m tall. Branchlets blackish purple, terete, stout, brown pubescent when young, soon glabresent. Stipules not seen; petiole 2–4 mm, glabrous; leaf blade narrowly lanceolate, 3–7.5 cm × 5–14 mm, leathery, midvein and lateral veins prominent abaxially, midvein impressed adaxially, abaxially glabrous or nearly so, adaxially lustrous, glabrous, base narrowly cuneate, margin sparsely crenate, apex obtuse or shortly acuminate. Panicle terminal, many flowered; peduncle and pedicels brown pubescent; bracts lanceolate or subulate, 2–4 mm, both surfaces pubescent, apex acute. Pedicel ca. 2 mm. Hypanthium tubular, abaxially brown pubescent. Sepals lanceolate, longer than hypanthium, 4.5–6 mm, both surfaces pubescent, apex acute or acuminate. Petals white or pinkish, elliptic-lanceolate, 6–7 × 1.5–4 mm, glabrous, apex obtuse. Stamens 3-loculed, with 2 ovules per locule; styles 3, connate at base, glabrous. Pome black, globose, 4–7 mm in diam., subglobose; fruiting pedicel 4–5 mm, pubescent; sepals deciduous, leaving an annular ring. Fl. Apr, fr. Oct.

● Open forests on slopes, open thickets in valleys; 400–1500 m. ?Guangdong, Guangxi, Hainan.


绣毛石斑木 xiu mao shi ban mu

Trees or shrubs, more than 10 m tall. Branchlets blackish brown when young, grayish black when old, terete, densely rusty tomentose. Stipules caducous, lanceolate, 5 mm, both surfaces tomentose, apex acuminate; petiole 1–2.5 cm, densely rusty tomentose; leaf blade elliptic or broadly lanceolate, 6–15 × 2.5–5.5 cm, leathery, midvein impressed adaxially, veins slightly prominent abaxially, abaxially densely rusty tomentose or pubescent, adaxially tomentose when young, glabrescent, base cuneate, margin entire or serrate, revolute or not, apex acute or shortly acuminate. Panicles terminal, many flowered; peduncle and pedicels densely pubescent; bracts lanceolate, ca. 6 mm, rusty tomentose, margin entire, apex acuminate. Pedicel 2–4 mm. Flowers 8–10 mm. Hypanthium campanulate, abaxially densely rusty tomentose. Sepals ovate, slightly longer than hypanthium, ca. 3 mm, abaxially densely rusty pubescent, margin entire, apex acute. Petals white, ovate-oblong, ca. 4 mm, glabrous, apex obtuse. Stamens unequal, ca. as long as or shorter than petals. Ovary 2-loculed, with 2 ovules per locule; styles 2, connate at base, glabrous. Pome black, globose, 5–8 mm in diam., yellow tomentose when young, later subglobose or sparsely rusty tomentose apically; fruiting pedicel short, 4–7 mm, densely rusty tomentose; sepals deciduous, leaving an annular ring. Fl. Apr–June, fr. Oct.

● Slopes, valleys, open forests at roadsides and on slopes, stream sides; 300–600 m. Fujian, Guangdong, Guangxi, Hainan.

5a. Leaf margin entire and revolute, blade abaxially densely rusty pubescent....... 7a. var. ferruginea

5b. Leaf margin conspicuously serrate apically, blade abaxially sparsely rusty pubescent.... 7b. var. serrata

7a. Rhaphiolepis ferruginea var. ferruginea

绣毛石斑木(原变种) xiu mao shi ban mu (yuan bian zhong)

Leaf blade entire and revolute at margin, abaxially densely rusty pubescent.

● Slopes, valleys, open forests at roadsides; 300–600 m. Fujian, Guangdong, Guangxi, Hainan.


齿叶绣毛石斑木 chi ye xiu mao shi ban mu

Leaf blade conspicuously serrate apically, not revolute, abaxially sparsely rusty pubescent.

● Stream sides, open forests on slopes. Fujian, Guangdong, Guangxi.


花楸属 hua qiu shu

Lu Lingdi (陆玲娣 Lu Ling-ti); Stephen A. Spongberg

Aria (Persoon) Host; Micromeles Decaisne; Pleiosorus Lihua Zhou & C. Y. Wu; Sorbus subgen. Aria Persoon.

Trees or shrubs, usually deciduous. Winter buds usually rather large, ovoid, conical, or spindle-shaped, sometimes viscid; scales

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15 Extensive contributions on compound-leaved taxa were received from Hugh McAllister, Ness Botanic Gardens, The University of Liverpool, Environmental and Horticultural Research Station, Ness, Neston, South Wirral, Cheshire L64 4AY, United Kingdom.
imbricate, several, glabrous or pubescent. Leaves alternate, membranous or herbaceous; stipules caducous, simple or pinnately compound, plicate or rarely convolute in bud; leaf blade usually serrate, sometimes nearly entire, venation craspedodromous or camptodromous, glabrous or pubescent. Inflorescences compound, rarely simple corymbs or panicles. Hypanthium campanulate, rarely obconical or urceolate. Sepals 5, ovate or triangular, glabrous, pubescent, or tomentose, sometimes glandular along margin. Petals 5, glabrous or pubescent, base clawed or not. Stamens 15–25(–44) in 2 or 3 whorls, unequal in length; anthers ovoid or subglobose. Carpels 2–5, partly or wholly adnate to hypanthium; ovary semi-inferior to inferior, 2–5(–7)-loculed, with 2 or 3(4) ovules per locule, one usually abortive; styles 2–5, free or partially connate, glabrous or pubescent. Fruit a pome, white, yellow, pink, or brown to orange or red, ovoid or globose to ellipsoid or oblong, usually small, glabrous or pubescent, laevigate or with small lenticels, apically with sepals persistent or caducous leaving an annular scar, with 2–5(–7) locules, each with 1 or 2 exendospermous seeds; seeds several, with thin perisperm and endosperm enclosing embryo with compressed cotyledons.

About 100 species: widely distributed throughout temperate regions of Asia, Europe, and North America; 67 species (43 endemic) in China.

This account follows the FRPS generic concept; however, the reader should note the alternative of treating simple-leaved species within the genus *Aria* (see Ohashi & Itetani, J. Jap. Bot. 68: 355–361. 1993).

*Sorbus forrestii* McAllister & Gillham (Bot. Mag. 183: n.s., t. 792. 1980), described from NW Yunnan, requires further study. We are unable to treat it in this account because we have seen no specimens.


*Sorbus* species are ornamental plants with attractive, large clusters of white flowers, and most bear colorful fruits. The fruits can be used for making jam, marmalade, various drinks, wine, vinegar, etc. The wood is hard, heavy, and fine-grained, suitable for making furniture or small, carved articles.

1a. Leaves pinnately compound.

2a. Leaflets 3–7(–9) pairs.

3a. Dwarf shrub, less than 1 m tall.

4a. Leaflets abaxially sparsely villous, abaxially glabrous; inflorescence white villous, intermixed with rust-brown hairs; flowers and fruit white ................................................................. 14. *S. reducta*

4b. Leaflets glabrous on both surfaces; inflorescence rust-brown pubescent; flowers and fruit pink ............... 15. *S. poterifolia*

3b. Erect tree or shrub, more than (4–)5 m tall.

5a. Leaflets more than 10 cm, rarely shorter, apex obtuse, margin shallowly obtusely dentate and slightly revolute ........................................................................................................................................... 1. *S. insigne*

5b. Leaflets less than 10 cm, rarely longer, apex acute or shortly acuminate, rarely obtuse, margin sharply or obtusely serrate, not revolute.

6a. Stipules herbaceous, late caducous; fruit red, yellow, or orange, rarely white.

7a. Buds densely white tomentose; fruit red.

8a. Leaflets 5–9 cm, abaxially densely grayish white tomentose; styles tomentose basally ..................... 6. *S. esserteauana*

8b. Leaflets 3–5 cm, abaxially tomentose when young but glabrescent; styles pubescent basally .... 7. *S. pohuashanensis*

7b. Buds apically glabrous or puberulous; fruit white, yellow, red, or orangish red.

9a. Fruit white or yellow ............................................................................................................................... 5. *S. discolor*

9b. Fruit red or orangish red.

10a. Leaflet abaxially densely tomentose when young, with sparse hairs only along midvein when mature, blade 7–13 cm ................................................................. 2. *S. sargentiana*

10b. Leaflet abaxially glabrous or pubescent along midvein, glabrescent, blade 4–8.5 cm.

11a. Rachis of leaves and leaflets abaxially glabrous or puberulous along midvein; leaflet margin shallowly minutely serrate ............................................................. 3. *S. wilsoniana*

11b. Rachis of leaves and leaflets abaxially rust-brown pubescent; leaflet margin coarsely and sharply serrate ........................................................................................................... 4. *S. amabilis*

6b. Stipules membranous, caducous; fruit red, pink, or white.

12a. Leaflets 3 or 4 pairs, margin obtusely serrate or doubly serrate; fruit white ....................................... 8. *S. helenae*

12b. Leaflets 4–8 pairs, margin sharply serrate; fruit red or white tinged red.

13a. Buds white pubescent; leaflets mostly with distinct teeth along margin; flowers 1.5–2 cm in diam.; fruit red.

14a. Leaflets glabrous on both surfaces; inflorescence glabrous ........................................................... 9. *S. tianschanica*

14b. Leaflets abaxially white pubescent along midvein; inflorescence white tomentose ................. 10. *S. tapashana*

13b. Buds glabrous; leaflets with few teeth above the middle or at apex; flowers less than 1.5 cm in diam.; fruit white or white tinged red.

15a. Leaflet apically acute or shortly acuminate, rarely obtuse, abaxially white tomentose along midvein .................................................................................................................. 11. *S. hupehensis*
15b. Leaflet apically obtuse or subacute, both surfaces usually glabrous or abaxially puberulous along midvein.
16a. Leaflet basally broadly cuneate to rounded, apically with few teeth; petals glabrous adaxially; flowers 6–7 mm in diam. ................................................................. 12. S. oligodonta
16b. Leaflet basally truncate or subrounded-truncate, coarsely sharply serrate above base; petals pilose adaxially; flowers to 15 mm in diam. ................................................................. 13. S. macrantha
2b. Leaflets (4–8)–21 pairs.
17a. Leaflets (4–8)–14–21 pairs, usually more than 2 cm, rarely shorter.
17b. Leaflets (4–8)–14–21 pairs, usually less than 2 cm, rarely longer.
18a. Leaflet margin with few apical teeth.
19a. Fruit white .................................................................................................................. 22. S. glomerulata
19b. Fruit red.
20a. Inflorescence grayish white tomentose; hypanthium glabrous ........................................ 21. S. scalaris
20b. Inflorescence rust-brown pubescent; hypanthium glabrous or pubescent.
21a. Hypanthium brown pubescent ................................................................................... 20. S. obsoleteidentata
21b. Hypanthium glabrous.
22a. Stipules membranous, lanceolate .............................................................................. 19. S. kiukiangensis
22b. Stipules herbaceous, lanceolate or ovate to suborbicular.
23a. Leaflets (4–6)–9-paired; styles 2 or 3 (or 4), basally glabrous ........................................ 16. S. foliolosa
23b. Leaflets 9–14–(15)–paired; styles 3–5, basally puberulous.
24a. Leaflets ovate-linear or linear-oblong, 15–30 × 6–8 mm, at intervals of 6–8 mm, abaxially densely papillose, apex with few sharp teeth; stipules lanceolate to ovate, 4–6 mm; styles 3–5 ..................................................... 17. S. pteridophylla
24b. Leaflets linear or narrowly lanceolate, 25–50(–60) × 10–15 mm, at intervals of 10–20 mm, abaxially not papillose, densely sharply serrate from base or above middle; stipules broadly ovate or suborbicular, 10–12 mm, rarely narrower; styles 5 ........................................... 18. S. ursina
18b. Leaflet margin serrate except base sparsely few toothed.
26a. Leaflets 6–8–(10)–paired, with 15–20 teeth on each margin; stipules herbaceous, large, dentate or entire; styles 4 ................................................................. 28. S. monbeigi
26b. Leaflets 9–13-paired, with 4–8 sharp minute teeth on each margin; stipules membranous, subulate; styles 5 ................................................................. 29. S. vilmorinii
27a. Leaflets abaxially and inflorescence glabrous; leaflets 5–8-paired ........................................ 23. S. zayensis
27b. Leaflets abaxially and inflorescence pubescent; leaflets 7–13–(17)–paired.
28a. Fruit reddish to scarlet; branchlets with numerous lenticels.
29a. Leaflet apically acute or obtuse, with 10–20 teeth on each margin; rachis and pedicels rust-brown pubescent ................................................................. 24. S. rehderiana
29b. Leaflet apically acuminate, with 20–30 teeth on each margin; rachis and pedicels sparsely pubescent or subglabrous ................................................................. 25. S. randaiensis
28b. Fruit white; branchlets with few lenticels.
30a. Leaflet margin wholly serrate except at base, abaxially not papillose; styles 5, ± free at base .... 26. S. koehneana
30b. Leaflet margin sharply minutely serrate apically, abaxially densely papillose; styles 4 or 5, connate basally or from base to 1/3 length ................................................................. 27. S. prattii
17b. Leaflets (8–)14–21 pairs, usually less than 2 cm, rarely longer.
31a. Leaflets with few teeth (3–5 per side), rarely more; leaflets abaxially and inflorescence glabrous.
32a. Leaflet margin with 3–5 coarse teeth per side apically; fruit scarlet ........................................ 30. S. filipes
32b. Leaflet margin with few sharp teeth; fruit white or white tinged blush ............................. 31. S. microphylla
31b. Leaflets with more teeth (4 or)5–16 per side; leaflets abaxially and inflorescence glabrous or pubescent.
33a. Small shrub, less than 1.5 m tall; leaflets 13–18-paired, 6–11 mm, with 4–7 incised sharp teeth on each margin ................................................................. 32. S. lanpingensis
33b. Shrub or small tree, more than 2.5 m tall; leaflets 8–21-paired, usually 10–25 mm, with (4 or)5–16 teeth on each margin.
34a. Fruit red; petals pink to purple; leaflets abaxially and inflorescence pubescent.
35a. Leaflets abaxially and inflorescence rust-red pubescent; hypanthium glabrous; stipules coarsely sharply serrate; leaflets with 6–10 incurved sharp teeth per side ........................................ 33. S. rufopilosa
35b. Leaflets abaxially and inflorescence white pubescent; hypanthium pubescent; stipules entire; leaflets with 5–10 sharp teeth per side ........................................ 34. S. albopilosa
34b. Fruit white; petals white; leaflets abaxially and inflorescence glabrous or pubescent.
1b. Leaves simple.

37a. Fruit ovoid-globose, oblong, or obovate-oblong, 1–2 cm in diam.; leaf margin obtusely crenate or shallowly lobed.

37b. Fruit subglobose, (0.8–)1–1.2 cm in diam.; leaf margin sharply serrate.

38a. Leaves abaxially glabrous or tomentose only in vein axils.

38b. Leaves abaxially densely tomentose over entire surface.

39a. Leaflets abaxially and inflorescence pilose, glabrescent, leaflets 17–21 pairs, oblong or oblong-lanceolate, with 6–16 sharp teeth per side .................................................................................................................. 36. *S. multijuga*

40a. Leaflets abaxially and inflorescence glabrous; leaflets 12–17 pairs, narrowly oblong, 5–11-crenate per side ................................................................................................................. 35. *S. setschwanensis*
56b. Fruit smaller, 1–2 cm in diam., 2–4-loculed; styles 2–4; petiole 1–3 cm.

57a. Leaves ovate or elliptic-ovate, rounded basally, shallowly crenate; petiole 2.5–3 cm .......... 54. S. corymbifera
57b. Leaves rhombic, cuneate basally, minutely obtusely crenulate apically; petiole 1–2 cm .......... 55. S. rhombifolia

54b. Fruit less than 1 cm in diam., rarely larger, without or with few inconspicuous lenticels; petiole usually less than 1 cm.

58a. Inflorescences gray tomentose; leaves obovate or oblong-ovate ............................................ 59. S. keissleri
58b. Inflorescences glabrous; leaves elliptic, oblong-elliptic, elliptic-lanceolate, or elliptic-ovate.

59a. Leaves glabrous on both surfaces, margin shallowly obtusely minutely serrate apically; fruit glabrous, with few small lenticels ......................................................... 57. S. thomsonii
59b. Leaves abaxially sparsely tomentose along veins when young, glabrescent, margin sharply serrate but entire near base; fruit ovoid, without lenticels ........................................... 58. S. aronioides

48b. Leaves tomentose abaxially.

60a. Leaves abaxially densely gray or yellowish white tomentose.

60b. Leaves abaxially densely rusty or rust-brown tomentose.

61a. Leaves abaxially yellowish white tomentose; inflorescence rust-brown tomentose; fruit subglobose .......... 62. S. dunnii
61b. Leaves abaxially and inflorescence densely gray tomentose; fruit oblong, oblong-ellipsoid, or obovob-oblung.

62a. Leaf basally broadly cuneate to rounded, lateral veins nearly parallel; petiole 0.5–1(–1.5) cm; styles 2 or 3, connate and white tomentose basally ................................................. 60. S. folgneri
62b. Leaf basally rounded to subcordate, lateral veins curved; petiole 1.2–2 cm; styles 2, connate basally, glabrous ................................................................. 61. S. tsinlingensis

60b. Leaves abaxially densely rusty or rust-brown tomentose.

60a. Leaves abaxially densely gray or yellowish white tomentose.

63a. Lateral veins nearly parallel, terminating in marginal teeth.

64a. Leaves ovate, elliptic, or obovate, both surfaces densely tomentose when young, glabrescent, lateral veins 6–8(–11) pairs, petiole 1–1.5 cm ......................................................... 63. S. ferruginea
64b. Leaves narrowly elliptic or elliptic-ovate to elliptic-obovate, abaxially persistently rust-brown tomentose, lateral veins 12–15 pairs, petiole 0.5–1 cm ......................................................... 64. S. epidendron

63b. Lateral veins anastomosing near leaf margin.

65a. Leaves 4–7(–9) cm, lateral veins 6–8 pairs, petiole 5–7(–10) mm; fruit ovoid, 5–10 mm in diam., usually not lenticellate ................................................................. 67. S. astateria
65b. Leaves 9–15 cm, lateral veins 10–15 pairs, petiole 10–30 mm; fruit subglobose, 10–15 mm in diam., with conspicuous lenticels.

66a. Leaves ovate or elliptic-ovate, rarely elliptic-ovate, shortly acuminate, rarely acute, margin shallowly crenate-serrate above base, petiole 20–30 mm; fruit ca. 10 mm in diam. ........................................... 65. S. ochracea
66b. Leaves elliptic-lanceolate, acuminate to caudate, margin usually entire or apically sparingly serrate, petiole ca. 10 mm; fruit 10–15 mm in diam. ......................................................... 66. S. subochracea


卷边花楸 juan bian hua qiu


Trees, rarely shrubs, to 10–15 m tall. Branchlets reddish brown when young, grayish brown when old, terete, rust-brown tomentose when young, glabrous when old, with elliptic lenticels 2–4 mm; buds narrowly ovoid, 1–1.8 cm × 7–12 mm, apex shortly acuminate or acute; scales several, brownish, initially puberulous, glabrate. Leaves imparipinnate, together with rachis 20–30 cm; petiole 1.7–4 cm; stipules persistent, sub-ovate, 1–2 cm, sometimes lobed; rachis slightly winged, sulcate, sparsely tomentose, glabrous when old; leaflet blades 3–5(or 6) pairs, at intervals of 1–2(–3) cm, dark green adaxially, oblong or oblong-lanceolate, (6–)10–15(–20) × 2–4(–5) cm, abaxially glaucous, lateral veins 24–30 pairs, arching and anastomosing at margin, both surfaces tomentose when young, glabrescent, base rounded or obliquely cordate, margin slightly revolute and shallowly crenate, apex obtuse. Inflorescences 10–15 cm in diam., densely flowered; rachis and pedicels sparsely pubescent, with large lenticels; bracts linear-sabulate. Flowers 6–8 mm in diam. Hypanthium campanulate, 1–1.3 cm, abaxially ± pubescent. Sepals triangular, with reddish dentate glands along margin, glabrous or somewhat puberulous. Petals dull white, suborbicular, ca. 3 mm in diam. Stamens ca. 20, nearly as long as or slightly shorter than petals. Styles 2 or 3, to 2.5 mm, glabrous. Fruit white or crimson, globose or obovate-globose, 5–8 mm in diam., glabrous, 2- or 3-loculed, with large lenticels and persistent erect sepal. Fl. May–Jun., fr. Sep–Oct. 2n = 34.

Broad-leaved forests, rocky slopes; 2500–4000 m. E Xizang, NW Yunnan [NE India, Myanmar, Nepal, Sikkim].


晚绣花楸 wan xiu hua qiu

Pyrus sargentiana (Koehne) Bean.

Trees 6–10 m tall. Branchlets grayish brown when young, dark gray when old, terete, grayish white tomentose, with numerous elliptic lenticels; buds narrowly ovoid, 1–1.7 cm, apex acute; scales many, brown, sparsely pubescent. Leaves impari-
pinnate, together with rachis 18–28 cm; petiole 5–6 cm; stipules persistent, semioblong, 1–2 cm in diam., margin sharply serrate; rachis adaxially shallowly sulcate, slightly winged, grayish white tomentose; leaflet blades 3–5 pairs, at intervals of 2.5–3.2 cm, terminal and basal leaflets smaller than others, elliptic-lanceolate, 7–13 × 2–4.2 cm, lateral veins 20–35 pairs, arcuate-anastomosing, abaxially initially densely tomentose, gradually glabrescent, with sparse hairs persisting only along veins, adaxially sparsely pubescent, glabrescent, base rounded or obliquely cordate, margin sharply serrate, with 28–52 teeth per side, entire on basal 1/4, apex acuminate, rarely acute. Inflorescences 8–11 × 9–15 cm, densely flowered; rachis and pedicles grayish white tomentose, gradually glabrescent, with oblong lenticels; bracts linear-lanceolate. Pedicel 1–3 mm. Flowers 5–7 mm in diam. Hypanthium campanulate, 1–1.4 mm, abaxially tomentose. Sepals triangular, 1–2(–2.5) mm, shorter than petals, petal acute or ± obtuse. Petals white, broadly ovate, 2.5–3.5 × 2–3 mm, glabrous, apex obtuse. Stamens ca. 20, shorter than petals. Styles 3 or 4(or 5), not exceeding stamens, grayish white tomentose basally. Fruit red, globose, 5–6 mm in diam.; sepals persistent, erect. Fl. May–Jun, fr. Oct–Nov. 2n = 34*.

- Mixed forests, woodlands, sunny slopes; 2000–3200 m. SW Sichuan, NE Yunnan.


华西花楸 hua xi hua qiu

Pyrus wilsoniana (C. K. Schneider) Cardot; Sorbus expanse Koehne.

Trees 5–10 m tall. Branchlets dark gray to grayish brown, terete, tomentose when young, glabrate, lenticellate; buds narrowly ovoid, 0.9–1.7 cm, apex acute; scales reddish brown, glabrous or pubescent apically. Leaves imparipinnate, together with rachis 20–25 cm; petiole 5–6 cm; stipules sometimes caducous after anthesis, suboblong, 1–2 × 1–1.7 cm, coarsely sharply serrate; rachis abaxially glabrous or pubescent near base of petioles, adaxially shallowly sulcate, ± winged; leaflets 6 or 7 pairs at intervals of 1.5–3 cm, terminal and basal ones usually smaller than middle ones, blades oblong-elliptic or oblong-lanceolate, 5–8.5 × 1.8–2.5 cm, lateral veins 17–20 pairs, slightly arching and anastomosing at margin, both surfaces glabrescent, subglabrous in fruit, with numerous elliptic lenticels; bracts caducous, smaller than stipules. Pedicel 1–3 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, abaxially glabrous or nearly so. Sepals triangular, 1–2 mm, abaxially glabrous, apex obtuse. Petals white, broadly ovate or suborbicular, 3–4 mm in diam., adaxially puberulous or glabrous, apex obtuse. Stamens 20, shorter than petals. Styles 3 or 4, equaling or lower than stamens, densely pubescent basally. Fruit red, subglobose, 6–7 mm in diam.; sepals persistent. Fl. May, fr. Sep–Oct.

- Mixed forests, mountain slopes; 900–2000 m. SE Anhui, NW Fujian, NE Hubei, N Jiangxi, NW Zhejiang.


Trees to 10 m tall. Branchlets purplish brown when old, terete, glabrous or nearly so when young, sparsely lenticellate when old; buds oblong-ovoid, 6–9 mm, apex shortly acuminated or acute; scales several, brownish, glabrous or puberulous. Leaves imparipinnate, together with rachis 10–20 cm; petiole 3–4(–5) cm; stipules persistent, 5–8 mm, lobed or coarsely serrate; rachis adaxially shallowly sulcate, glabrous, somewhat winged; leaflets 5–7 pairs, at intervals of 1.2–3 cm, basal pair usually smaller than others, blades oblong or oblong-elliptic to oblong-lanceolate, 3–6 × 1–1.8 cm, lateral veins 12–20 pairs, arcuate-anastomosing at margin, both surfaces glabrous, abaxially paler, glaucescent, base usually rounded, margin minutely sharply serrate, with 12–20 teeth on each margin, entire in basal 1/3, apex acute to shortly acuminate. Inflorescences loose, 5–8 × 5–10 cm, many flowered; rachis and pedicles glabrous, with small lenticels; bracts similar to stipules, but smaller. Pedicel 2–3 mm. Flower 6–8 mm in diam. Hypanthium campanulate,
Sorbus amurensis

Shrubs or trees, 5–10(–14) m tall. Branchlets gray or brownish gray, terete, grayish white tomentose when young, gradually glabrescent, with minute lenticels; buds narrowly ovoid or oblong-ovoid, 0.8–1.2(–1.4) cm × 5–9 mm, apex acute to shortly acuminate; scales several, reddish brown, tomentose-villous when young, gradually glabrescent, with small grayish white lenticels; buds oblong-ovoid, 6–9 mm in diam., margin coarsely serrate; rachis shallowly sulcate adaxially, initially grayish white tomentose, with few remaining hairs when old; leaflets 5 or 6 pairs, at intervals of 2–3.5 cm, blades dark green adaxially, elliptic, oblong-elliptic, or oblong-lanceolate, 5–9 × 2–3 cm, basal ones smaller, lateral veins 12–16 pairs, arcuate-anastomosing, abaxially prominent and adaxially deeply impressed, abaxially persistently densely grayish white tomentose, adaxially glabrous, base rounded or obliquely cordate, margin sharply minutely serrate, 8–20-toothed per side, entire near base, apex acuminate. Inflorescences 7–12 × 10–18 cm, densely flowered; rachis and pedicels densely grayish white tomentose when young, glabrescent; bracts smaller than stipules. Pedicel 1.5–3.5 mm. Hypanthium campanulate, abaxially tomentose-villous or glabrescent. Sepals triangular, 1.5–2.5 × 1–2 mm, glabrous or subglabrous, apex acute. Stamens 20, ca. 1/3 as long as petals. Styles 3 or 4, not exceeding stamens, adaxially puberulous, apex obtuse. Stamens 20, nearly as long as petals. Styles 3(4), not exceeding stamens, pubescent basally. Fruit red or orangish red, 6–8 mm in diam., glabrous when mature; sepals persistent. Fl. Jun–Jul. fr. Aug–Sep. 2n = 34*.

- Mountain slopes, mixed forests in valleys; 900–2500 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi.

Sorbus pohuashanensis

Trees 3–7(–10) m tall. Branchlets blackish gray, stout, with few indistinct lenticels, glabrous; buds oblong-ovoid, 6–9 mm, apex acute; scales dark brown, glabrous. Leaves imparipinnate, together with rachis 13–20 cm; petiole 2.5–4(–5) cm; stipules persistent, 5–7 mm, membranous, margin entire or slightly incised at apex, somewhat pubescent; rachis sulcate, narrowly winged, abaxially glabrous or reddish brown villous; leaflets 3 or 4 pairs, at intervals of 1.5–2.5 cm, blade pale abaxially, dark green adaxially, oblong or oblong-elliptic, (4.5–)5–9(–11) × 2–3 cm, basal pair smaller than middle ones, lateral veins 15–20 pairs, curved-anastomosing at margin, adaxially reddish brown villous along veins, adaxially glabrous or subglabrous, base broadly cuneate, rounded, or subcordate, margin serrate or doubly serrate, apex acute or obtuse. Inflorescences 7–11 × 8–15 cm, densely flowered; rachis and pedicels reddish brown villous; bracts 3–5 mm, membranous, margin entire or slightly serrate. Pedicel 2–5 mm. Flowers 6–8 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular-ovate, 1–2 mm, sometimes with puberulous margin, apex acute. Petals white, orbicular-ovate, 3–4 × 2.5–3.5 mm, glabrous, apex obtuse. Stamens 20, ca. 1/3 as long as petals. Styles 5, not exceeding stamens, villous basally. Fruit white, globose, 6–8 mm in diam., glabrous; sepals persistent. Fl. Jun–Jul. 2n = 34*.

- Forests in mountainous regions; 2500–3000 m. W Sichuan.
1b. Leaflet blade 4.5–7 × 2–4 cm, margin sharply serrate or doubly serrate ...... 8b. var. argutisserrata

8a. Sorbus helenae var. helenae


9a. Sorbus tianschanica var. tianschanica


Shrubs or small trees, ca. 4 m tall. Branchlets brownish or grayish brown, terete, with distinct lenticels, white pubescent when young, glabrous when old; buds narrowly ovoid, 0.9–1.7 cm, apex acuminate; scales several, brownish, white pubescent. Leaves imparipinnate, together with rachis 9–18 cm; petiole 1.5–2.7 cm; stipules caducous, linear-lanceolate, 5–7 mm, membranous, margin entire; rachis sulcate, slightly winged, white pubescent; leaflets (4 or)5- or 6(or 7)-paired, at intervals of 1–2 cm, blade dark green adaxially, ovate-lanceolate or elliptic-lanceolate, 4–6.5 × 1–1.7 cm, terminal and basal ones smaller than middle ones, abaxially with white hairs along midvein, adaxially glabrous, base obliquely rounded, margin sharply serrate, subentire basally or lower 1/3, apex shortly acuminate. Inflorescences 5–9 × 5–8 cm, loosely many flowered; rachis and pedicels white pubescent; bracts linear–4–6 mm, membranous, margin entire. Pedicel 5–8 mm. Flowers 1.5–2 cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular, 1.5–2.5 mm, apex obtuse, rarely acute. Petals white, ovate or elliptic, 6–9 × 5–7 mm, adaxially white pubescent, apex obtuse. Stamens (15–)20, ca. 1/2 as long as petals or shorter. Styles (3–)5, somewhat shorter than or nearly as long as stamens, densely white tomentose basally. Fruit scarlet, globose, 1–1.2 cm in diam., glabrous; sepals persistent. Fl. May–Jun, fr. Sep–Oct. 2n = 34*.

Mountain valleys, stream sides, forest margins; 2000–3200 m. Gansu, Qinghai, Xinjiang [Afghanistan, W Pakistan, Russia; SW Asia].

1a. Leaflet blade 5–7 cm, margin usually sharply serrate, entire only basally ...... 9a. var. tianschanica

1b. Leaflet blade 2.5–5 cm, margin entire or apically with 2–5 teeth per side ........................................ 9b. var. integrifoliolata

9a. Sorbus tianschanica var. tianschanica

9b. Sorbus tianschanica var. integrifoliolata

Mountain valleys, stream sides, forest margins; 2000–3200 m. Gansu, Qinghai, Xinjiang [Afghanistan, W Pakistan, Russia; SW Asia].
 mentose when young, glabrescent; buds oblong-ovoid, 6–9 mm, apex acute or shortly acuminate; scales several, reddish brown, glabrous. Leaves imparipinnate, together with rachis 10–15 cm; petiole 1.5–3.5 cm; stipules caducous or some persistent, linear-lanceolate, 4–7 mm, membranous or nearly herbaceous, margin entire or apically 2-lobed; rachis sulcate adaxially, initially tomentose, glabrescent; leaflets (3 or)4–8 pairs, terminal and basal ones smaller than middle ones, at intervals of 0.5–1.5 cm, blades oblong, oblong-lanceolate, or ovate-lanceolate, 3–5 × 1–1.8(–3) cm, lateral veins 7–16 pairs, slightly arcuate-anatomosing, abaxially white tomentose along midvein, glabrate, adaxially glabrous, base cuneate, margin entire or subentire basally, emarginate-serrate apically, apex acute to shortly acuminate, rarely obtuse. Inflorescences (4–)5–8 × 6–10 cm, many flowered; flowers and pedicels glabrous or sparsely white pubescent; bracts linear, 3–6 mm, membranous, margin usually entire, glabrous. Pedicel 3–5(–7) mm. Flowers 5–7 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular, 1.5–2.5 mm, abaxially glabrous or puberulous only along margin, apex acute. Petals white, ovate, 3–4 × 2–3 mm, glabrous, base shortly clawed, apex obtuse. Stamens 20, ca. 1/2 as long as petals. Styles 4 or 5, slightly shorter than or nearly as long as stamens, gray pubescent basally, glabrescent. Fruit white, sometimes stained reddish, globose, 5–8 mm in diam., glabrous; sepal persistent. Fl. May–Jul, fr. Aug–Sep.

- Slopes, dense forests in gullies, thickets; 300–3800 m. Anhui, Gansu, Guizhou, Hubei, Jiangxi, Shaanxi, Shandong, Sichuan, Yunnan.

1a. Leaflets 4–8-paired, blade oblong-lanceolate or ovate-lanceolate, 1–1.8 cm wide ........................................... 11a. var. hupehensis

1b. Leaflets 3–4-paired, blade oblong, 2–3 cm wide .................................................. 11b. var. paucijuga

11a. Sorbus hupehensis var. hupehensis

湖北花楸(原变种) hu bei hua qiu (yuán biàn zhòng)

Pyrus hupehensis (C. K. Schneider) Bean (1933), not Pampapinoni (1910); P. mesoegae Cardot; Sorbus aperta Koehne; S. hupehensis var. laxiflora (Koehne) C. K. Schneider; S. hupehensis var. obtusa C. K. Schneider; S. hupehensis var. syncarpa Koehne; S. laxiflora Koehne.

Leaflets 4–8 pairs, blades oblong-lanceolate or ovate-lanceolate, 3–5 × 1–1.8 cm.

- Shaded slopes, dense forests in gullies, thickets; 300–3800 m. Anhui, Gansu, Guizhou, Hubei, Jiangxi, Shaanxi, Shandong, Sichuan, Yunnan.


少叶花楸 shào yè huā qiú


Leaflets 3 or 4 pairs, blades oblong, 4–5 × 2–3 cm.

- Slopes; 300–600 m. Shandong.


少齿花楸 shào chǐ huā qiú


Trees to 5–15 m tall. Branchlets reddish brown to grayish brown, terete, with scattered small lenticels, glabrous; buds oblong-ovoid, 7–12 mm, apex acute; scales several, reddish brown, glabrous, rarely reddish brown pubescent along margin. Leaves imparipinnate, together with rachis 15–20 cm; petiole 2.5–3.5 cm; stipules caducous, lanceolate, 3–5 mm, membranous; rachis adaxially sulcate, somewhat winged, glabrous; leaflets (4 or)5–8-paired; basal ones usually smaller than middle ones, at intervals of 1.2–2 cm, blades elliptic or oblong-elliptic, 3–6 × 1–2 cm, lateral veins 7–14 pairs, arcuate-anatomosing, both surfaces glabrous or abaxially sparsely pubescent at base of midvein, base broadly cuneate to rounded, margin mostly entire, with few teeth only at apex, or with 2–10 teeth per side, apex acute, or ± obtuse and apiculate. Inflorescences 6–12 × 6–10 cm, densely flowered; rachis and pedicels glabrous or sparsely pubescent; bracts lanceolate, 3–4 mm, membranous. Pedicel 2–3 mm. Flowers 6–7 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals broadly ovate or broadly ovate-triangular, 1–2 mm, apex obtuse or acute. Petals yellowish white, ovate, 3–4 × 2–3 mm, apex obtuse. Stamens 20, shorter than petals. Styles 4 or 5, not exceeding stamens, pubescent basally. Fruit white, stained red, ovoid, 6–8 mm in diam.; sepal persistent. Fl. May, fr. Sep.

Mountain slopes, mixed forests along river banks; 2000–3600 m. W Sichuan, SE Xizang, NW Yunnan [Myanmar].


大花花楸 da huā huā qiú

Trees 6–8 m tall. Branchlets dark purple or purplish brown, terete, glabrous, with few oblong, rarely suborbicular lenticels; buds ovoid, apex shortly acuminate; scales purplish brown, glabrous. Leaves imparipinnate, together with rachis 15–20 cm; petiole 3–4 cm; stipules caducous, smaller; rachis adaxially sulcate, narrowly winged, with glands in axils of petioles; leaflet blades 5- or 6-paired, opposite or subopposite, at intervals of 1.6–2 cm, pale green abaxially, oblong or oblong-elliptic, 2–5 × 1–1.8 cm, both surfaces glabrous, base obliquely truncate or surrounded-truncate, margin coarsely sharply serrate, apex obtuse to subacute. Inflorescences terminal at apices of branchlets, 8–10 × 4–8 cm, loosely few flowered; rachis and pedicels glabrous, with narrowly elliptic lenticels; bracts caducous. Pedicel 1–2 cm. Flowers 8–11 × 10–15 mm. Hypanthium campanulate, ca. 4 mm, to 8 mm in diam., abaxially glabrous. Sepals broadly triangular, ca. 2 × 3 mm, margin shallowly glandular serrate, apex acute. Petals broadly ovate or suborbicular, 5–6 × 4–5 mm, adaxially puberulous, apex obtuse. Stamens ca. 20; filaments 3–4 mm; anthers ellipsoid, ca. 1 mm. Styles 3(–5), free, ca. 5 mm, slightly yellowish brown to-

Xizang, Yunnan [N Myanmar].


铺地花楸 pu di hua qiu

Shrubs dwarf, 15–60 cm tall. Branchlets brownish gray to brownish black, terete, with white and brown hairs when young, gradually glabrescent; buds ovoid, 4–8 mm, apex acute to shortly acuminate; scales several, reddish brown, apically white and reddish brown pubescent. Leaves imparipinnate, together with rachis 6–8 cm; petiole 1–2 cm; stipules linear-lanceolate, 5–7 mm, submembranous; rachis sulcate, slightly winged, sparsely pubescent when young, glabrate; leaflet blades 4–6-paired, at intervals of 6–10 mm, oblong-elliptic or oblong, 1–2 cm × 6–10 mm, abaxially glabrous, adaxially sparsely appressed villous, glabrous or subglabrous when old, base obliquely rounded, margin minutely sharply serrate, entire only at base, apex obtuse or acute. Inflorescences corymbose or compound corymbose, (2–)3–6 × 3–5 cm, few flowered; rachis and pedicles white pubescent, intermixed with few reddish brown hairs; bracts linear-lanceolate, 4–6 mm. Pedicel 1–2 mm. Flowers 6–7 mm in diam. Hypanthium campanulate, abaxially glabrous or reddish brown pubescent. Sepals triangular, 1.5–2.5 mm, apex obtuse. Petals white, ovate or broadly obovate, 3.5–4 × 3–4 mm, puberulous, apex obtuse, rarely somewhat emarginate. Stamens 20, ca. 1/2 as long as petals. Styles 3 or 4, shorter than or nearly as long as stamens, plicate basally. Fruit globose, 6–8 mm in diam.; sepals persistent, erect. Fl. May–Jun, fr. Sep–Oct. 2n = 68.

Stony slopes, low shrubby thickets in high mountain areas; 3000–4000 m. NW Yunnan [N Myanmar].


尼泊尔花楸 ni po er hua qiu

**Pyrus foliolosa** Wallich, Pl. Asiat. Rar. 2: 81. 1831; **P. foliolosa var. ambiguca** Cardot; **P. wallichii** J. D. Hooker; **Sorbus wallichii** (J. D. Hooker) T. T. Yu.

Shrubs or small trees, 1–4 m tall. Branchlets brownish to grayish brown, terete, densely rusty pubescent when young, glabrescent, with oblong lenticels; buds ovoid, 4–6 mm, apex obtuse; scales several, brown, glabrous or rusty puberulous apically. Leaves imparipinnate, together with rachis 7–12 cm; petiole 1.5–2 cm; stipules caducous, linear-lanceolate, 4–8 mm, margin entire or serrate; rachis shallowly sulcate, slightly rusty puberulous, narrowly winged; leaflet blades (4–)6–9 mm, subleathery, at intervals of 0.8–1.2 cm, dark green adaxially, oblong-elliptic or oblong, 2.3(–4.5) × 0.8–1.4 cm, lateral veins slender, abaxially slightly pubescent, rusty puberulous or subglabrous along midvein, glabrous, rarely pubescent, base obliquely rounded, margin sharply few toothed apically. Compound corymb 4.5–10 cm in diam., many flowered; rachis and pedicels with rusty hairs and oblong lenticels; bracts caducous, linear, 1–3 mm. Pedicel 1–2 mm or indistinct. Flowers 6–9 mm in diam. Hypanthium campanulate or obconic, glabrous or slightly pubescent. Sepals triangular, glabrous, apex obtuse or acute. Petals white, ovate to broadly obovate, 2–3 mm, base shortly clawed. Stamens 20, shorter than petals. Styles 2 or 3 (or 4), free at base, glabrous. Fruit red, globose or ovoid, 4–6 mm in diam., with sparse small lenticels; sepals persistent; seeds brownish, 1–2 mm. Fl. Apr–Jun, fr. Sep–Oct. 2n = 68.

Mixed forests, stream sides; 2500–4200 m. SE Xizang, Yunnan [Bhutan, N India, N Myanmar, Nepal, Sikkim].

蕨叶花楸  jue ye hua qiu

Shrubs or small trees, 4–7 m tall. Branchlets brown or blackish brown, terete, sparsely lenticellate; buds compressed-ovoid, 4–6 mm, apex acute; scales several, dark brown, tomentulose when young, glabrescent. Leaves imparipinnate, together with rachis 6–13 cm; petiole 1–1.5 cm; stipules lanceolate to ovate, 4–6 mm, herbaceous, sharply incised-serrate, rarely subentire; rachis slender, shallowly sulcate, pubescent, glabrescent, narrowly winged; leaflet blades 9–14-paired, at intervals of 6–8 mm, pale abaxially, dark green adaxially, ovate-linear or linear-oblong, 1.5–3 cm × 6–8 mm, lateral veins ca. 10 pairs, abaxially pubescent along midvein, papillose, adaxially glabrous, base obliquely rounded, margin mostly entire, with 4–8 sharp teeth per side near apex, apex obtuse or acute. Compound corymbs 3–6 × 4–7 cm; rachis and pedicels pubescent, gradually glabrescent, sparsely minutely lenticellate. Pedicel 3–5 mm. Flowers 5–7 mm in diam. Hypanthium campanulate, puberulous when young, glabrate. Sepals broadly triangular, 1–2 mm, glabrous, apex obtuse or acute. Petals white, broadly ovate or elliptic-ovate, ca. 3 × 2.5–3 mm, glabrous, apex obtuse. Stamens 20, shorter than petals. Styles 3–5, nearly as long as stamens, pubescent basally. Fruit ovoid, 6–8 mm in diam.; sepals persistent. Fl. Jun, fr. Aug–Sep.

Dry slopes, mixed forests in mountain valleys, cliffs; 2700–3800 m. Xizang, Yunnan [N Myanmar].

1a. Rachis, midvein of leaflet blade, and inflorescence rusty pubescent .......... 17a. var. pteridophylla
1b. Rachis, midvein of leaflet blade, and inflorescence sparsely gray pubescent .................................. 17b. var. tephroclada

17a. Sorbus pteridophylla var. pteridophylla

蕨叶花楸(原变种)  jue ye hua qiu (yuan bian zhong)

Rachis, midvein of leaflet blade, and inflorescence rusty pubescent.

- Dry slopes, mixed forests in mountain valleys; 2800–3800 m. Xizang, Yunnan.


灰毛蕨叶花楸  hui mao jue ye hua qiu

Rachis, midvein of leaflet blade, and inflorescence sparsely gray pubescent.

Cliffs; 2700–3700 m. NW Yunnan [N Myanmar].

One of us (Spongberg) prefers to treat this variety as a synonym of the species because of the slight differences.


美叶花楸  mei ye hua qiu

Shrubs or small trees, 2–6 m tall. Branchlets brownish or grayish brown, terete, glabrous, with sparse, orbicular or elliptic lenticels; buds ovoid or conical, 0.8–1.4 cm × 4–8 mm, apex acute or acuminate; scales reddish brown. Leaves imparipinnate, together with rachis 7–12–18 cm; petiole 2–5 cm; stipules broadly ovate or suborbicular, 1–1.2 cm, cleft to multifid or entire with large teeth, rarely narrower, subulate, sparsely reddish brown pubescent; rachis glabrate, narrowly winged, abaxially rust-brown pubescent, with glands at base of leaflet; leaflet blades 9–15-paired, at intervals of 1–2 cm, pale abaxially, dark green adaxially, linear or narrowly lanceolate, 2.5–5(–6) × 1–1.5 cm, abaxially rust-brown pubescent along midvein, adaxially lustrous, base rounded, margin sharply serrate from base or above middle, apex shortly acuminate. Compound corymbs terminal, 5–7(–10) cm in diam., many flowered; rachis and pedicels densely rust-brown pubescent; bracts reddish brown, broadly linear-triangular, 3–10 mm, puberulous. Pedicel 2–4 mm. Flowers ca. 8 mm in diam. Hypanthium widely obconical or somewhat shortly tubular. Sepals greenish or reddish, triangular, 1–1.5 mm, glabrous, glandular at margin. Petals white, rarely reddish at margin, orbicular, obovate, or rhombic, 2.5–3 × 1.5–2 mm, base shortly clawed. Stamens ca. 20. Ovary 5-loculed; styles 5, free, slightly pubescent. Fruit globose, 7–8 mm in diam., glabrous, with persistent erect sepals; seeds blackish, lanceolate-ellipsoid, 4–5 mm, slightly rugose. Fl. Jun–Jul, fr. Sep–Oct.

Coniferous forests, high mountain thickets; 2700–5400 m. NW Sichuan, S Xizang, NW Yunnan [Bhutan, India, NE Myanmar, Nepal, Sikkim].

1a. Leaflet blades linear or narrowly lanceolate, margin sharply serrate from base or above; hypanthium widely obconical or somewhat shortly tubular........... 18a. var. ursina
1b. Leaflet blades narrowly lanceolate, margin sharply serrate apically; hypanthium somewhat turbinate .................................. 18b. var. wenzigiana

18a. Sorbus ursina var. ursina

美叶花楸(原变种) mei ye hua qiu (yuan bian zhong)

Sorbus foliolosa (Wallich) Spach var. ursina Wenzig, Linnaea 38: 75. 1874.

Leaflet blades linear or narrowly lanceolate, margin sharply serrate from base or above middle. Hypanthium widely obconical or somewhat shortly tubular.

Coniferous forests, high mountain thickets; 2700–4600 m. NW Sichuan, S Xizang, NW Yunnan [Bhutan, India, NE Myanmar, Nepal, Sikkim].


西藏美叶花楸  xi zang mei ye hua qiu

Sorbus wenzigiana (C. K. Schneider) Koehne.

Leaflet blades narrowly lanceolate, margin sharply serrate apically. Hypanthium somewhat turbinate.

Coniferous forests, high mountain thickets; 3000–5400 m. SE Xizang [NW India, Nepal, Sikkim].

俅江花楸  qiu jiang hua qiu

Shrubs or small trees, 3–7 m tall. Branchlets grayish brown to blackish brown, terete, glabrous, with sparse, large lenticels; buds oblong-ovoid, apex acuminate; scales several, dark reddish brown, glabrous or apically rust-brown pilose. Leaves imparipinnate, together with rachis 11–17 cm; petiole 1.3–3 cm; stipules caducous, lanceolate, 6–11 mm, membranous; rachis adaxially shallowly sulcate, distinctly narrowly winged, rust-brown pubescent, usually intermixed with white hairs; leaflet blades 7–9-paired, terminal and basal ones smaller, at intervals of 6–12 mm, dark green adaxially, oblong or ovate-oblong, 2.5–3.5 × 1.2–1.5 cm, both surfaces subglabrous, or abaxially reddish brown pubescent, later only along veins, adaxially white pubescent, glabrescent, base obliquely rounded, with few sharp teeth apically, apex usually obtuse, rarely acute. Compound corymbs 6–11 cm, many flowered; rachis and pedicels rust-brown pubescent; bracts lanceolate, 6–9 mm, membranous. Pedicel 2–4 mm. Flowers 6–8 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular, 1.5–2 mm, apex obtuse or acute. Petals ovate or suborbicular, 3–4 × 2–3.5 mm, glabrous, apex obtuse. Stamens 3–4 × 2.5–3.5 mm, glabrous, usually intermixed with white pilose. Fruit not seen.


宾川花楸  bin chuan hua qiu


Shrubs or small trees. Branchlets brownish gray, terete, glabrous when old, with few lenticels; buds ovoid, apex acute or shortly acuminate; scales several, dark red, brown pubescent. Leaves imparipinnate, together with rachis 6–9 cm; petiole 1–1.5 cm; stipules caducous, lanceolate, margin entire, membranous; rachis abaxially sparsely brown pubescent, adaxially sulcate, sometimes with few dark red glands, slightly winged; leaflet blades 11–14-paired, at intervals of 4–8 mm, blade dark green adaxially, linear-oblong to oblong-lanceolate, 1–2.5 × 0.4–0.8 cm, abaxially slightly brown pubescent or subglabrous, adaxially glabrous, base ± obliquely rounded, margin entire or apically shallowly few toothed, apex acute or ± obtuse. Compound corymbs terminal, 2–5 cm in diam., densely flowered; rachis and pedicels brown pubescent; bracts caducous, reddish brown, linear, membranous. Pedicel 1–2 mm. Flowers 5–7 mm in diam. Hypanthium campanulate, abaxially brown pubescent. Sepals triangular, slightly rust-brown pubescent or subglabrous, apex acute or obtuse. Pedals white, ovate, 3–4 × 2–3 mm, adaxially glabrous or puberulous, apex obtuse. Stamens ca. 20, nearly 1/2 as long as petals. Styles 4, ca. as long as stamens, glabrous. Fruit not seen.


樧叶花楸  ti ye hua qiu

Pyrus scalaris (Koehne) Bean; Sorbus foliolosa (Wallich) Spach var. pluripinnata C. K. Schneider; S. pluripinnata (C. K. Schneider) Koehne.

Shrubs or small trees, 3–7 m tall. Branchlets blackish gray when old, terete, gray or brown pubescent when young, subglabrous when old; buds ovoid, 7–9 × 4–7 mm, apex obtuse; scales several, brownish, with grayish white hairs. Leaves imparipinnate, together with rachis 10–18 cm; petiole 1–2.5 cm; stipules persistent, suborbicular or ovate, 0.7–1.4 cm in diam., margin coarsely serrate; rachis purplish, abaxially white tomentose, adaxially sulcate; leaflet blades (8–)10–14 pairs, terminal and basal ones smaller, at intervals of 8–10 mm, oblong or nearly broadly linear, 2–3(–)4 × 0.6–1.4 cm, abaxially gray tomentose and papillose, adaxially glabrous, base rounded or obliquely so, margin minutely sharply serrate near apex, with 2–8 teeth per side, apex obtuse or acute. Inflorescences terminal, 6–10 × 7–12 cm, many flowered; rachis and pedicels gray or grayish white tomentose, glabrescent, subglabrous in fruit, with prominent lenticels. Flowers 6–8 mm in diam. Hypanthium campanulate, glabrous or slightly tomentose near base. Sepals triangular, 1–2 mm, glabrous, apex obtuse. Petals white, ovate or suborbicular, 2.5–3.5 mm, glabrous, apex obtuse. Stamens ca. 20, nearly as long as petals. Styles 3 or 4, not exceeding stamens, densely pubescent basally. Fruit red, ovoid-globose, 5–6 mm in diam.; sepal persistant. Fl. May–Jun, fr. Aug–Sep. 2n = 34*.

Mixed forests on mountain slopes; 1600–3000 m. W Sichuan, Yunnan.

Trees to 4 m tall. Branchlets brownish gray, terete, with small lenticels; buds ovoid or oblong-ovoid, small, apex acute or ± obtuse; scales several, brown. Leaves imparipinnate, together with rachis 6–10 cm; petiole 2–3 cm; stipules persistent, ovate to lanceolate, 0.8–1.2 mm × 0.8–1.6 mm, margin entire or few toothed at apex; rachis shallowly sulcate, glabrous or puberulous, winged; leaflet blades 7–9(or 10) pairs, at intervals of 1–1.5 cm, oblong to oblong-lanceolate, 2.5–5 × 1–1.5 cm, lateral veins 10–20 pairs, both surfaces pilose or abaxially rust-brown pubescent along midvein, sometimes glabrescent, base obliquely rounded or broadly cuneate, margin minutely to coarsely serrate, apex acute, rarely obtuse. Compound corymbs terminal, rarely axillary, 4–6 × 3–5 cm, densely flowered; rachis and pedicels initially sparsely rust-brown pubescent, sometimes glabrescent or subglabrous; bracts caducous, linear to lanceolate, smaller than stipules. Petal 1–2 mm. Flowers 6–8 mm in diam. Hypanthium campanulate, abaxially glabrous or subglabrous. Sepals triangular-ovate, 1–2 mm, apiculate. Petals white, broadly ovate, 3–3.5 × 2–3 mm, glabrous, apex ± obtuse. Stamens 20, ca. 1/2 as long as petals. Styles 5, nearly as long as stamens, glabrous. Fruit white, ovoid, 6–8 mm in diam., glabrous; sepals persistent. Fl. May–Jun, fr. Aug–Sep. 2n = 34*.

- Thickets, coniferous and broad-leaved mixed forests; 1600–4000 m. Hubei, Sichuan, Yunnan.


Trees to 4 m tall. Branchlets brownish gray, terete, with small lenticels; buds ovoid or oblong-ovoid, small, apex acute or ± obtuse; scales several, brown. Leaves imparipinnate, together with rachis 6–10 cm; petiole 2–3 cm; stipules persistent, 5–7 mm, herbaceous, glabrous, margin dentate or entire; rachis shallowly sulcate adaxially, slightly winged, glabrous; leaflet blades 5–8-paired, terminal and basal ones smaller than middle ones, at intervals of 1–1.3 cm, oblong or elliptic-oblong, 2–3.5 × 0.9–1.2 cm, both surfaces glabrous, base broadly cuneate or obliquely rounded, margin coarsely sharply serrate except at entire base, apex obtuse or ± acute. Compound corymbs many flowered; rachis and pedicels glabrous; bracts 4–6 mm, glabrous, margin entire or few toothed. Pedicel 2–4 mm. Flowers 8–10 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular, 1.5–2 mm, apex acute. Petals white, nearly orbicular or elliptic, adaxially puberulous or subglabrous, base shortly clawed. Stamens ca. 20, shorter than petals. Styles 4, nearly as long as stamens, glabrous, base connate or ± free. Fruit not seen. 2n = 34*.

- Roadsides, river banks, forests on mountain slopes; below 3600 m. SE Xizang (Zayü Xian).


 Shrubs or small trees, 3–8 m tall. Branchlets dark grayish brown or dark reddish brown, terete, lenticellate, puberulous when young, glabrous when old; buds narrowly ovoid, 0.9–1.4 cm, apex acute to shortly acuminate; scales several, dark reddish brown, glabrous or rust-brown pubescent along margin. Leaves pinnately compound, together with rachis 10–15 cm; petiole 1–3 cm; stipules caducous, ovate to lanceolate, 0.8–1.2 cm × 0.8–1.6 cm, margin entire or few toothed at apex; rachis shallowly sulcate, glabrous or puberulous, winged; leaflet blades 7–9(or 10) pairs, at intervals of 1–1.5 cm, oblong to oblong-lanceolate, 2.5–5 × 1–1.5 cm, lateral veins 10–20 pairs, both surfaces pilose or abaxially rust-brown pubescent along midvein, sometimes glabrescent, base obliquely rounded or broadly cuneate, margin minutely to coarsely serrate, apex acute, rarely obtuse. Compound corymbs terminal, rarely axillary, 4–6 × 3–5 cm, densely flowered; rachis and pedicels initially sparsely rust-brown pubescent, sometimes glabrescent or subglabrous; bracts caducous, linear to lanceolate, smaller than stipules. Petal 1–2 mm. Flowers 6–8 mm in diam. Hypanthium campanulate, abaxially glabrous or subglabrous. Sepals triangular, 1.5–2.5 mm, apex obtuse. Petals white, broadly ovate or elliptic-ovate, 3.5–5 × 3.5–5 mm, glabrous, base broadly clawed, apex obtuse. Stamens 20, ca. 1/2 as long as petals. Styles 4(or)5, ca. as long or slightly longer than stamens, puberulous basally. Fruit pinkish white to crimson, ovoid, 6–8 mm in diam.; sepals persistent. Fl. May–Jun, fr. Aug–Sep. 2n = 34*.

- Forests, forest margins, thickets on slopes and in valleys; 2600–4300 m. Qinghai, Sichuan, Xizang, Yunnan [N Myanmar].

1a. Leaflet margin deeply coarsely serrate; fruit pinkish white .......... 24c. var. grosseserrata

1b. Leaflet margin minutely sharply serrate; fruit reddish to dark red.

2a. Buds, leaflet blade abaxially along midvein, and inflorescence sparsely pubescent or rust-brown pubescent, glabrescent .......... 24a. var. rehderiana

2b. Buds, leaflet blade abaxially along midvein, and inflorescence densely rust-brown pubescent, not glabrescent ................. 24b. var. cupreonitens

24a. **Sorbus rehderiana** var. rehderiana

24b. **Sorbus rehderiana** var. cupreonitens
Leaflet margin minutely sharply serrate. Buds, leaflet blades abaxially along midvein, and inflorescences densely rust-brown pubescent, not glabrescent. Fruit reddish to dark red.

- Forests and forest margins on mountain slopes, thickets in valleys; 3000–4100 m. S Xizang, NW Yunnan.


巨齿西南花 ju chi xi nan hua qiu

Leaflet margin deeply cossetely serrate. Buds, leaflet blades abaxially along midvein, and inflorescences sparsely rust-brown pubescent, glabrescent. Fruit pinkish white.

- Forests, forest margins; 2600–3000 m. NW Sichuan.


台灣花 qiu tai wan hua qiu


Trees 3–8 m tall. Branchlets dark grayish brown, terete, reddish brown, glabrous or brown pubescent only apically.

- Mixed forests in mountain regions, thicket; 2300–4000 m. Gansu, Henan, Hubei, Qinghai, Shanxi, Sichuan, W Yunnan.


西康花 qiu xi kang hua qiu

Shrubs 2–4 m tall. Shoots dark gray to brownish gray, terete, with few lenticels, initially sparsely pubescent, glabrous when old; buds ovoid, 5–9 mm, apex acute; scales several, dark reddish brown, sparsely brown pubescent. Leaves imparipinnate, together with rachis 13–15 cm; petiole 1–2 cm; stipules caducous, lanceolate, 4–6 mm. Pedicel 1–2 mm. Flowers 8–9 mm in diam. Hypanthium campanulate, glabrous. Sepals triangular, shorter than petals, apex obtuse. Petals white, 4–6 × 3–4 mm, adaxially puberulous or subglabrous, base shortly clawed. Stamens 20, ca. 1/3 as long as petals. Styles 5, nearly as long as stamens, ± free at base, puberulous or subglabrous. Fruit white, globose, 6–8 mm in diam.; sepals persistent. Fl. May–Jun, fr. Aug–Sep. 2n = 34*, 68*.

- Mixed forests in mountain regions, thickets; 2000–4500 m. W Sichuan, S Xizang, C and NW Yunnan [Bhutan, Sikkim].

Mixed or coniferous forests in mountain regions; 2000–4500 m.
27a. Sorbus prattii var. prattii

西康花楸 (原变种)  xi khang hua qiu (yuan bian zhong)

*Sorbus munda* Koehne; *S. munda* f. *subarachnoidea* Koehne; *S. munda* f. *tatsienensis* Koehne; *S. pogonopetala* Koehne; *S. prattii* var. *tatsienensis* C. K. Schneider; *S. unguiculata* Koehne.


Mixed or coniferous forests in mountain regions; 2100–3800 m. W Sichuan, SE Xizang, NW Yunnan [Bhutan, Sikkim].


多对西康花楸  duo du xi khang hua qiu


Leaflet blades usually 13–17-paired. Rachis of leaves and inflorescences glabrous, rarely puberulous.

- Sparse mixed forests in high mountain regions; 2000–4500 m. W Sichuan, S Xizang, C and NW Yunnan.

One of us (Spongberg) prefers to treat this variety as a synonym of the species because of the slight differences.


维西花楸  wei xi hua qiu


Trees to 10 m tall. Branchlets brownish gray, glabrous, with small lenticels; buds reddish, shortly ovoid, ca. 8 mm, densely light brown pubescent; scales reddish. Leaves imparipinnate, together with rachis 10–15 cm; petiole 2–3.5 cm; stipules usually persistent, large, margin serrate, rarely entire; rachis adaxially shallowly sulcate, somewhat winged, pubescent; leaflet blades 6–8(–10) pairs, terminal and basal ones slightly smaller than others at intervals of 1–1.5 cm, green abaxially, dark green adaxially, oblong or elliptic-oblong, 2–4 × 0.9–1.2 cm, abaxially lustrous, pubescent along midvein and margin, adaxially puberulous when young, base broadly cuneate or subrounded, oblique on one side, margin serrate except at base, apex obtuse or ± acute. Corymbbs compound, 4–8 cm in diam., densely flowered; rachis and pedicels pubescent; bracts similar to stipules, but smaller. Pedicel 2–4 mm. Flowers 8–10 mm in diam. Hypanthium campanulate, abaxially pubescent. Sepals triangular, 1–2 mm, apex ± obtuse or acute. Petals white, suborbicular, 3.5–5 × 3.4–4.5 mm, adaxially puberulous or glabrous, base shortly clawed. Stamens 20, ca. 1/2 as long as petals. Styles 4, nearly as long as stamens, glabrous, nearly free or connate at base. Fruit orangish red, ovoid, 6–8 mm in diam.; sepal persistent. Fl. May–Jun, fr. Aug–Sep. 2n = 34*.

- Mixed forests, thickets on mountain slopes; 2500–3000 m. NW Yunnan.


川滇花楸  chuan dian hua qiu

Shrubs or small trees, 4–6 m tall. Branchlets reddish brown to grayish brown when young, dark blackish gray when old, terete, densely rust-brown pubescent when young, gradually glabresent; buds ovoid, 4–7 mm, apex shortly acuminate or acute; scales several, brown, rust-brown pubescent. Leaves imparipinnate, together with rachis 10–18 cm; petiole 1.2–2 cm; stipules caducous, subulate, 3–6 mm, membranous; rachis abaxially rust-brown pubescent, slightly winged, sulcate adaxially; leaflet blades 9–13-paired, at intervals of 6–12 mm, grayish green abaxially, oblong or oblong-elliptic, 1.5–2.5 × 6–10 mm, adaxially rust-brown pubescent along midvein, adaxially glabrous, base broadly cuneate or rounded, margin sparsely serrate apically, with 5–10 minute sharp teeth per side, usually entire basally, apex acute. Compound corymbs 5–7 × 2–5 cm, many flowered; rachis and pedicels rust-brown pubescent. Pedicel 1.5–3 mm. Hypanthium campanulate, rust-brown pubescent. Sepals triangular-ovate, 1–2 mm, apex ± obtuse. Petals white, ovate or subrounded, 3.3–5 × 2.5–3.3 mm, adaxially puberulous, apex obtuse. Stamens 20, ca. 1/2 as long as petals. Styles 5, slightly shorter than or nearly as long as stamens, glabrous. Fruit pink, globose, 7–8 mm in diam.; sepal persistent. Fl. Jun–Jul, fr. Sep–Oct. 2n = 34*, 68*.

- Mountain slopes, road sides, mixed forests along river banks, grasslands, bamboo thickets; 2800–4400 m. SW Sichuan, SE Xizang, NW Yunnan.

The type specimen is from an apomictic microspecies known only in cultivation, but almost indistinguishable specimens are diploid and frequent in the wild. In Sichuan, SE Xizang, and Yunnan there are similar apomictic microspecies with nearly identical fruits but larger leaflets. These are probably of hybrid origin with one parent being *Sorbus vilmorinii* and the other *S. rehderiana* or *S. monbeigii*. These trees have leaves 13–23(–40) cm, with 9–18 pairs of leaflets to 37(–75) × 15–17 mm.


纤细花楸  qian xi hua qiu


Shrubs 1.5–4.5 m tall. Branchlets brown or reddish brown when young, grayish black when old, reddish brown pubescent when young, prominently lenticellate when old; buds ovoid, 3–6 mm, apex ± obtuse or acute; scales several, dark brown, brown pubescent. Leaves imparipinnate, together with rachis 5–10 cm; petiole 0.5–1.5 cm; stipules caducous, purple, minute, 2–3 mm; rachis abaxially sparsely brown pubescent, narrowly winged, adaxially shallowly sulcate; leaflet blades usually 8–13 pairs, at intervals of 3–6 mm, elliptic or ovate-elliptic, 0.6–1.4 cm × 4–8 mm, lateral veins 4 or 5 pairs, both surfaces glabrous, base broadly cuneate or rounded, margin 3–5 coarsely toothed per side, apex obtuse or ± acute. Inflorescences corymbose or compound-corymbose, 3–6 cm, 3–10(–12)-flowered; rachis and pedicels glabrous or sparsely brown pubescent, glabrous in fruit; bracts caducous, linear, 1–3 mm, glabrous. Pedicel 7–10 mm. Hypanthium purple, campanulate, abaxially glabrous. Sepals triangular, 1.5–2.5 mm, apex obtuse. Petals crimson, broadly ovate, 4.4–5 × 3–4 mm, glabrous, apex obtuse. Stamens 20, shorter than petals. Styles 3–5, ca. as long as stamens, puberu-

For an apomictic microspecies, this taxon is remarkably constant over a wide geographic range.


小叶花楸  xiao ye hua qiu


Shrubs or small trees, 2–5 m tall. Branchlets reddish brown when young, grayish brown when old, terete, puberulous when young, with sparse, oblong or suborbicular lenticels; buds conical or ovoid, 5–7(–8) mm, apex acuminate and puberulous; scales several, reddish brown. Leaves imparipinnate, together with rachis 11–14 cm; petiole 1–1.5 cm; stipules lanceolate to semiorbicular, 3–5 mm, somewhat pubescent when young, base shortly clawed. Stamens 10–15, ca. as long as petals; filaments slightly shorter than petals. Petals pink, suborbicular, 2–3 mm and ca. as broad, without hairs, base shortly clawed. Stamens 10–15, ca. as long as petals. Styles 3, ca. as long as stamens, slightly pilose basally. Fl. May–Jun.

- Coniferous forests; below 3200 m. NW Yunnan (Langping Xian).


红毛花楸  hong mao hua qiu

Shrubs or small trees, 2.7–5 m tall. Young branches dark gray to grayish brown, terete, rusty pubescent when young, glabrescent, with few small lenticels; buds ovoid, 5–8 mm, apex acute and slightly pubescent; scales several, dark brown. Leaves imparipinnate, together with rachis 6–10 cm; petiole 1 cm; stipules lanceolate to semiornicular, 3–5 mm, somewhat herbaceous, margin coarsely serrate; rachis abaxially pubescent, narrowly winged, adaxially grooved; leaflet blades 8–14(–17)-paired, at intervals of 5–9 mm, elliptic to narrowly elliptic or lanceolate, (0.8–)1–2 cm × (3–)6–10 mm, lateral veins 6–8(–10) pairs, abaxially densely pubescent along midvein when young, subglabrous when old, adaxially sparsely pubescent, base broadly cuneate or rounded, with 6–10 minute sharp teeth per side, entire basally, apex acute or obtuse. Inflorescences corymbose or compound-corymbose, 2.5–4(–5) cm, 3–8(–or) more)-flowered; rachis and pedicels pubescent; bracts lanceolate or linear, 3–4 mm, margin slightly serrate. Pedicel 3–5 mm. Flowers 6–8 mm in diam. Hypanthium canapumulate, abaxially glabrous. Sepals triangular, apex acute, rarely obtuse. Petals pink, broadly ovate, 4–5 × 3–4 mm, glabrous. Stamens 20, shorter than petals. Styles 3 or 4( or 5), ca. as long as stamens, pilose basally. Fruit red, ovoid-globose, 8–10 mm in diam., with persistent erect sepals. Fl. May–Jun, fr. Aug–Sep. $2n = 34$.

Coniferous or mixed forests, thicket in valleys; 2700–4000 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, India, N Myanmar, Nepal, Sikkim].


兰坪花楸  lan ping hua qiu

Shrubs small, to 1.5 m tall. Branchlets gray or grayish brown, glabrous when old, with few oblong lenticels; buds ovoid to oblong-ovoid, apex acute or obtuse; scales several, brown, rusty pubescent. Leaves imparipinnate, together with rachis 4–7 cm; petiole 6–11 mm; stipules lanceolate or linear, 2–5 mm, margin entire, puberulous; rachis slender, abaxially rust-brown pubescent, slightly narrowly winged, adaxially shallowly grooved; leaflet blades 13–18 pairs, at intervals of 4–8 mm, elliptic or oblong-elliptic, 6–11 × 2–4 mm, abaxially rust-brown pubescent along midvein, adaxially glabrous, base cuneate, margin deeply sharply incised-serrate, entire near base, apex acute. Compound corymbs terminal, small, usually 5–12-flowered; rachis and pedicels rust-brown pubescent; bracts lanceolate, 3–5 mm, with sparse, rust-brown hairs. Pedicel 3–9 mm. Flowers 4–6 mm in diam. Hypanthium canapumulate, rust-brown pubescent when young, gradually glabrescent or subglabrous when old. Sepals triangular, apex acute, rarely obtuse. Petals pink, suborbicular, 2–3 mm and ca. as broad, without hairs, base shortly clawed. Stamens 10–15, ca. as long as petals. Styles 3, ca. as long as stamens, slightly pilose basally. Fl. May–Jun.

- Coniferous or mixed forests; thicket in valleys; 2700–4000 m. NW Yunnan (Xizang).
33a. *Sorbus rufopilosa* var. *rufopilosa*  
红毛花楸（原变种） hong mao hua qiu (yuan bian zhong)  

Branchlets, leaflet blades, and inflorescences rust-red hairy. Leaflet blades elliptic or narrowly so, 1–2 cm × 6–10 mm.

Coniferous or mixed forests, thickets in valleys; 2700–4000 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, India; N Myanmar, Nepal, Sikkim].

狭叶花楸 xia ye hua qiu  

Branchlets, leaflet blades, and inflorescences ± gray woolly hairy. Leaflet blades lanceolate, 0.8–1.2 cm × 3–5 mm.

Mixed forests in mountain regions; 2700–3700 m. SE Xizang, NE Yunnan [N Myanmar].

白毛花楸 bai mao hua qiu  

Shrubs or small trees, (2–)5–8 m tall. Branchlets purplish brown, terete, initially grayish white pilose, glabrous when old, with few lenticels; buds obovate-ovoid, apex acute; scales few, brown, brown pilose. Leaves imparipinnate, together with rachis 7–10 cm; petiole 1–2 cm; stipules lanceolate, 4–5 mm, margin entire. Compound corymb terminal on lateral branchlets, 5–9 × 3–7 cm, 10–25- or more flowered; rachis and pedicels white, with small oblong lenticels; bracts lanceolate or linear–lanceolate, 3–5 mm, margin entire or sometimes lobed. Pedicel 1–3 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular, 1–2 mm, apex acute or ± obtuse. Petals white, obovate-ovoid, 3–4 × 2.5–3 mm, adaxially puberulous or glabrous, base shortly clawed, apex obtuse. Stamens 20, shorter than petals. Styles 3–5, nearly as long as stamens, glabrous. Fruit white or slightly stained purplish, globose, 5–8 mm in diam., with persistent erect sepal. Fl. May–Jun, fr. Aug–Sep. 2n = 34*.

● Stony slopes, mixed forests; 2300–3000 m. Guizhou, Sichuan.

多对花楸 duo dui hua qiu  

*Sorbus setschwanensis* var. *microdenta* Koehne.  

Shrubs or small trees, 2.5–5(–7) m tall. Branchlets reddish brown when young, gray or blackish gray when old, terete, puberulous when young, glabrous when old, with small oblong lenticels; buds narrowly ovoid, 5–7 mm, puberulous or glabrous, apex shortly acuminated; scales dark purplish red. Leaves imparipinnate, together with rachis 8–13 cm; petiole 1–2 cm; stipules lanceolate, 5–7 mm, herbaceous, rarely submembranous, margin incised-serrate, apex acuminated; rachis puberulous abaxially, glabrescent, somewhat winged, adaxially grooved; leaflet blades 17–21-paired, at intervals of 5–10 mm, grayish green abaxially, obovate or obovate-lanceolate, 1.25 × 0.5–1 cm, lateral veins 8–10 pairs, abaxially pilose only along midvein, adaxially glabrous, base obliquely rounded, margin with 6–16 minute sharp teeth per side, entire near base, apex acute or ± obtuse. Compound corymb terminal, 5–9 × 3–7 cm, 10–30-flowered; rachis and pedicels initially sparsely pilose, glabrescent or subglabrous when mature; bracts lanceolate. Pedicels 2.4 mm. Flowers 5–6 mm in diam. Hypanthium campanulate, glabrous or sparsely pubescent. Sepals ovate, glabrous, apex acute or ± obtuse. Petals white, ovate, 4–4.5 × 3–4 mm, adaxially puberulous or subglabrous, base shortly clawed, apex obtuse. Stamens 15–20, slightly shorter than petals. Styles 3–5, basally connate, nearly as long as stamens, glabrous. Fruit white, globose, 6–7 mm in diam., with persistent erect sepal. Fl. May–Jun, fr. Aug–Sep.

● Coniferous forests on slopes, cut-over lands; 3300–4100 m. S Xizang.

大果花楸 da guo hua qiu  

Shrubs or small trees, 5–8 m tall. Branchlets dark purple when young, greyish brown when old, with conspicuous small lenticels; buds obovate, 5–7 mm, apex acute or shortly acuminate; scales several, dark reddish brown, reddish brown pubescent. Leaves imparipinnate, together with rachis 5–13 cm; petiole 0.8–1.5(–2.5) cm; stipules ovate-lanceolate or lanceolate, 4–6 mm, membranous, margin entire or lobed; rachis adaxially sulcate, glabrous, slightly winged; leaflets 12–17 pairs, terminal ones smaller, at intervals of 4–6 mm, pale abaxially, dark green adaxially, narrowly oblong, 0.7–1.6 cm × 4–7 mm, both surfaces glabrous, base usually obliquely rounded, apex obtuse or acute. Compound corymb terminal on lateral branchlets, 3.5–5 × 2.5–4 cm, 10–25- or more flowered; rachis and pedicels glabrous, with small oblong lenticels; bracts lanceolate or linear–lanceolate, 3–5 mm, margin entire or sometimes lobed. Pedicel 1–3 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular, 1–2 mm, apex acute or ± obtuse. Petals white, obovate-ovoid, 3–4 × 2.5–3 mm, adaxially puberulous or glabrous, base shortly clawed, apex obtuse. Stamens 20, shorter than petals. Styles 3–5, nearly as long as stamens, glabrous. Fruit white or slightly stained purplish, globose, 5–8 mm in diam., with persistent erect sepal. Fl. May–Jun, fr. Aug–Sep. 2n = 34*.
**Sorbus megalocarpa**

37a. *Sorbus megalocarpa* var. *megalocarpa*

大果花楸 (原变种)  da guo hua qiu (yuan bian zhong)

*Aria megalocarpa* (Rehder) H. Ohashi & Iketani; *Pyrus megalocarpa* (Rehder) Bean.

Leaf petiole 1–1.8 cm; blade cuneate to subrounded at base. Fruit ovoid or ovoid-globose, 1.5–2 cm in diam.

- Mountain valleys, river sides, rocky forests on slopes, cliffs; 1200–2700 m. Guangxi, Guizhou, Hubei, Hunan, Sichuan, N Yunnan.

37b. *Sorbus megalocarpa* var. *cuneata*

大果花楸 锐齿花 (yuan bian zhong)

*Aria megalocarpa* var. *cuneata* (Rehder) H. Ohashi & Iketani.

Leaf petiole less than 1 cm; blade cuneate at base. Fruit subglobose, 1–1.5 cm in diam.

- Rocky forests on slopes, stream sides; 1300–2700 m. Guizhou, Sichuan.


灌县花楸  guan xian hua qiu

Trees ca. 6 m tall. Branchlets yellowish brown when young, blackish brown when old, terete, usually glabrous; buds brownish, ovoid-globose, 6–8 mm, apex acute; scales several, brown, broadly ovate, subglobose. Leaves simple; petiole 6–10 mm; leaf blade pale green abaxially, dark green adaxially, narrowly elliptic or obovately narrowly elliptic, 9–20 × 4–8.5 cm, lateral veins 12–14 pairs, raised abaxially, both surfaces usually glabrous or sparsely lanuginose at vein axils abaxially, base cuneate, margin crenulate, apex shortly acuminate. Compound corymbs terminal, 7–8 × 8–9 cm in fruit; racis and pedicels sparsely pubescent when young, with conspicuous lenticels when mature. Pedicel 6–10 mm. Hypanthium campanulate, abaxially initially lanuginose, glabrescent. Sepals triangular, 1–2 × 1–1.5 mm, apex acute or obtuse. Stamens ca. 20. Fruit brownish when young, oblong or obovoid-oblong, 1.5–2 × 1–1.5 cm. Fr. Aug–Sep.

- Slopes, thicket. Sichuan (Guan Xian).


楸叶花楸 rui chi hua qiu

*Aria arguta* H. Ohashi & Iketani.

Trees small, 4–5 m tall. Branchlets reddish brown when young, dark gray or blackish brown when old, sparsely pubescent when young, glabrous when old; buds ovoid, 5–8 mm, apex acute; scales several, brownish, glabrous. Leaves simple; petiole ca. 1 cm, glabrous when mature; leaf blade pale green abaxially, dark green adaxially, oblong-ovate or ovate-lanceolate, 6–10 × 2.5–4 cm, lateral veins 13–18 pairs, nearly parallel and terminating in marginal teeth, distinctly raised abaxially and impressed adaxially, abaxially usually with few tomentose hairs in axils of veins, adaxially puberulent when young, glabrous when old, base broadly cuneate to subrounded, margin sharply incised doubly serrate or lobed, apex acuminate. Compound corymbs terminal, 3–4 × 2–4 cm in fruit, few flowered; racis and pedicels sparsely pubescent, glabrous when old, with sparse, inconspicuous lenticels. Flowers not seen. Fruit reddish brown, nearly globose, 1–1.2 cm in diam., 4-loculed, with many small white lenticels; sepals persistent, triangular, ca. 2 mm, puberulent, apex acute; fruiting pedicels 7–8 mm. Fr. Aug–Sep.

- Mixed forests on slope; 1000–1300 m. S Sichuan, Yunnan.


楸叶花楸 锐齿花 (rui ye hua qiu)


 Shrubs 3.5–8 m tall. Shoots purplish brown when young, grayish brown when old, terete, glabrous when old, sparsely lenticellate; buds narrowly ovoid, 7–10 mm, apex acute; scales brown, broadly ovate, glabrous. Leaves simple; petiole 1–1.5 cm, abaxially sometimes tomentose-pilose, gradually glabrescent, adaxially glabrous; leaf blade pale green abaxially, dark green adaxially, elliptic or oblong-elliptic, 5–8 × 2–3.5 cm,
lateral veins 7–11 pairs, nearly parallel and terminating in marginal teeth, raised abaxially and impressed adaxially, both surfaces glabrous or slightly tomentose near base adaxially or at vein axils abaxially, base cuneate, margin irregularly serrate, apex acute or shortly acuminate. Compound corymbs terminal, few flowered; fruiting rachis and pedicels tomentose when young, glabrous, with grayish white elliptic lenticels. Flowers not seen. Fruit reddish brown, subglobose, (0.8–)1–1.2 cm in diam., 2-loculed, glabrous, with few small lenticels; sepals persistent, erect or slightly spreading, triangular or triangular-ovate, tomentose. 

- **Forests; 1000–1800 m. SE Yunnan (Malipo Xian, Xichou Xian).**


**Aria hunanica** (C. J. Qi) H. Ohashi & Iketani; *A. zahlbruckneri* (C. K. Schneider) H. Ohashi & Iketani; *Sorbus hunanica* C. J. Qi.  

**Trees or shrubs,** to 15 m tall. Branchlets dark reddish brown to blackish brown, sparsely white tomentose when young, glabrescent, with few elliptic lenticels; buds ovoid or narrowly ovoid, 6–10 mm; scales several, dark reddish brown, glabrous or apically sparsely tomentose. Leaves simple; petiole 2–3 cm, white tomentose; leaf blade narrowly elliptic or oblong-ovate, 9–14 × 5–9 cm, lateral veins 10–14 pairs, nearly parallel and terminating in marginal teeth, raised abaxially, abaxially grayish white tomentose, gradually glabrescent, adaxially pubescent, glabrate, base rounded or broadly cuneate, margin irregularly serrate or shallowly doubly serrate, apex acute. Compound corymbs terminal, 5–8 × 4–6 cm, many flowered; rachis and pedicels white tomentose when young, glabrate, with sparse, small lenticels. Fruit narrowly ovoid to oblong, 6–10 × 4–7 mm, white tomentose, 2-loculed; sepals persistent. Fr. Jul–Aug.  

- **Slopes, mountain valleys, dense forests; 1300–2000 m. Guangxi, Guizhou, Hubei, Hunan, Sichuan.**


**Aria yuana** (Spongberg) H. Ohashi & Iketani.  

**Trees small to medium-sized,** to ca. 15 m tall. Branchlets reddish brown when young, purplish or grayish black when old, terete, sparsely white tomentose when young, glabrate, with small elongated or rounded lenticels; buds ovoid, 0.9–1.2 cm × 4–6 mm; scales chestnut-brown, glabrous except with scattered white hairs along margin. Leaves simple; petiole 1.5–2.7 cm, pubescent when young, later subglabrous; leaf blade pale green abaxially, dark green adaxially, elliptic to obovate-elliptic, 6–13 × 3.5–9.5 cm, lateral veins 11–13 pairs, nearly parallel and terminating in marginal teeth, prominent adaxially and impressed adaxially, abaxially persistently grayish white tomentose, adaxially glabrous when old, base cuneate or rounded to subcordate, margin deeply regularly doubly serrate, apex acute to shortly acuminate. Compound corymbs terminal on elongated shoots, to 20 cm in diam., many flowered; rachis and pedicels purplish brown, tomentose when young, glabrate. Fruit cherry-red, oblong or obovoid-oblong, 1–1.6 cm × 6–13 mm, sparsely tomentose especially at base and apex, with few scattered lenticels, 2-loculed, with persistent remains of hypanthium and stamens, with densely pubescent base of style; seeds obovate, ca. 7 × 4 mm, testa dark reddish brown. Fl. May–Jun, fr. Sep.  

- **Steep ravine slopes; above 2000 m. W Hubei, Sichuan.**  

This is a rare tree.  


**康藏花楸** kang zang hua qiu  

*Pyrus thibetica* Cardot, Notul. Syst. (Paris) 3: 349. 1918; *Aria thibetica* (Cardot) H. Ohashi & Iketani; *Sorbus atrosanquinea* T. T. Yu & H. T. Tsai; *S. wardii* Merrill.  

**Trees,** rarely shrubs, ca. 7(–10) m tall or more. Branchlets brown to grayish brown, white tomentose when young, gradually glabrescent, with few gray orbicular small lenticels; buds ovoid, 5–9 mm, apex acute to acuminate; scales imbricate, several, dark reddish brown, glabrous or sparsely pubescent apically. Leaves simple; petiole 3–10 mm, initially grayish white tomentose, subglabrous when mature; leaf blade dark green adaxially, broadly elliptic, elliptic-ovate, or elliptic-obovate, 9–15 × 4–9 cm, lateral veins (10–)13–16 pairs, nearly parallel and terminating in marginal teeth, prominent abaxially, abaxially gray tomentose, subglabrous when old, adaxially glabrous, base cuneate, rarely to subrounded, margin irregularly doubly serrate, apex acute to shortly acuminate. Compound corymbs terminal, 3–6 × 4–8 cm, 20–30-flowered or more; rachis and pedicels grayish white tomentose, glabrescent. Pedicel 5–9 mm. Flowers (0.8–)1–1.6 cm in diam. Hypanthium campanulate, abaxially grayish white tomentose. Sepals triangular-lanceolate, 2–4 mm, apex acuminate. Petals white, spatulate, ovate, or obovate, 5–8 × 3.5–5 mm, adaxially grayish white tomentose near apex, apex obtuse. Stamens 15–20, shorter than petals. Styles 2, rarely 3 or 4, free or slightly connate at base, slightly longer than or nearly as long as stamens. Fruit scarlet, ovoid or obovoid, 0.9–1.2(–1.5) cm × 7–11(–13) mm, with 2, rarely 3 or 4 locules, sparsely small lenticellate; sepals persistent; seeds dark brown, obovoid or triangular-lanceolate, 6–8 mm, compressed. Fl. May–Jul, fr. Sep–Oct.  

**Dense forests on slopes or in valleys, rocky slopes, stream banks, shrubby thickets; 2400–3800 m. SE Xizang, NW Yunnan [Bhutan, N Myanmar].**  


**灰叶花楸** hui ye hua qiu  

*Aria pallescens* (Rehder) H. Ohashi & Iketani; *Sorbus ochrocarpa* Rehder.  

**Trees** to 7 m tall. Branchlets reddish brown or purplish brown when young, dark grayish brown when old, terete, sparsely pubescent when young, glabrous when old, with few
scattered prominent lenticels; buds ovoid or narrowly ovoid, 6–9 mm, apex acute to shortly acuminate; scales several, dark reddish brown, glabrous. Leaves simple; petiole 5–12 mm, sparsely tomentulose or subglabrous; leaf blade elliptic, elliptic-obovate, or oovate, 5–10 × 2–5 cm, lateral veins 10–14 pairs, nearly parallel and terminating in marginal teeth, slightly raised abaxially and impressed adaxially, both surfaces tomentose when young, abaxially persistently tomentose intermixed with soft hairs along midvein and lateral veins, adaxially glabrate, base cuneate to rounded, margin irregularly doubly serrate, apex acute to shortly acuminate. Compound corymbs terminal, 1.5–3.5 × 4.4–5.6 cm, 10–20(–25)-flowered; rachis and pedicels yellowish white tomentose, glabrate. Pedicel 3–4 mm. Flowers 0.9–1.2 cm in diam. Hypanthium campanulate, abaxially densely yellowish white tomentose. Sepals triangular, 1.5–2 mm, apex acute. Petals white, ovoid or triangular-ovate, rarely obovate, ca. 4 × 3 mm, adaxially yellowish white tomentose, apex obtuse or emarginate. Stamens 20, shorter than or nearly as long as petals. Styles 2–4(or 5), shorter than or nearly as long as stamens, basally connate and yellowish white tomentose. Fruit white, stained red, subglobose, 6–8(–10) mm in diam., sparsely gray tomentose at base and apex when young, with or without few small lenticels, 2–(or 5)-loculed, hypanthium persistent; seeds brown, ovobovoid, 3–4 mm, compressed. Fl. May–Jun, fr. Aug–Sep.

- Mixed forests on slopes, forest margins, thickets, stream sides; 2000–3300 m. W Sichuan, S Xizang, NW Yunnan.

45. Sorbus cuspidata (Spach) Hedlund, Kongl. Svenska Vetenskapsakad. Handl. 35: 89. 1901.

白叶花楸 bai ye hua qiu

*Cranoglossus cuspidatus* Spach, Hist. Veg. Phan. 2: 106. 1834; *Pyrus crenata* Lindley (1835), not D. Don (1825); *P. vestita* Wallich ex J. D. Hooker.

Shrubs 7–8 m tall. Branchlets purplish brown when young, grayish brown when old, grayish white tomentose when young, glabrous when old; buds ovoid, 0.7–1.4 cm, glabrous, apex acute; scales imbricate, several, brown. Leaves simple; petiole 1–2 cm, stout, white tomentose; stipules brownish, lanceolate, 0.8–1.2 cm, membranous, tomentose; leaf blade elliptic, 12–22 × 7–12 cm, lateral veins 10–15 pairs, nearly parallel and terminating in marginal teeth, abaxially densely white tomentose, adaxially puberulent when young, glabrate, base rounded or broadly cuneate, margin unevenly serrate or doubly serrate, sometimes ± lobed, apex acute or ± obtuse, rarely shortly acuminate. Compound corymbs 5–8 × (5–)7–10 cm, 30–45-flowered; rachis and pedicels initially white tomentose, glabrescent. Pedicel 5–8 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, abaxially white pubescent except at base. Sepals triangular or lanceolate, 2.5–3 × 1.5–2.5 mm, apex acute. Petals white, obovate, 6–8 × 4–6 mm, adaxially puberulent, base shortly clawed. Stamens 20–25, slightly shorter than petals; anthers purple. Styles 3–5, basally connate and tomentose. Fruit dark red, globose, 1.5–2 cm in diam., 3–5-loculed, with many conspicuous lenticels; sepal persistent; seeds brown, lanceolate, compressed, 7–8 × 3–4 mm. Fl. Jun–Jul, fr. Aug–Sep.


江南花楸 jiang nan hua qiu

*Micromeles hemsleyi* C. K. Schneider, Ill. Handb. Lutholz. 1: 704. 1906; *Aria hemsleyi* (C. K. Schneider) H. Ohashi & Iketani; *A. xanthoneura* (Rehder) H. Ohashi & Iketani; *M. schwerinii* C. K. Schneider; *Pyrus xanthoneura* (Rehder) Cardot; *Sorbus henryi* Rehder; *S. xanthoneura* Rehder.

Trees or shrubs, 7–10 m tall. Branchlets dark reddish brown when young, brown when old, terete, glabrous, prominently lenticellate; buds ovoid or narrowly ovoid, apex acute; scales several, dark red, glabrous. Leaves simple; petiole 1–2 cm, slightly tomentulose when young, later glabrous; leaf blade dark green adaxially, ovate to narrowly elliptic-ovate, rarely narrowly elliptic-obovate, 5–11(–15) × 2.5–5.5(–8) cm, lateral veins 12–14 pairs, nearly parallel and terminating in marginal teeth, raised abaxially, abaxially grayish white tomentose, glabrous only along midvein and lateral veins, adaxially glabrate, base cuneate, rarely subrounded, margin serrulate and somewhat recurved, apex acute or shortly acuminate. Compound corymbs terminal, 3–4 × 3.5–5 cm, (15–)20–30-flowered; rachis and pedicels grayish white tomentose. Pedicel 5–12 mm. Flowers 1–1.2 cm in diam. Hypanthium campanulate, abaxially densely grayish white tomentose. Sepals triangular-ovate, 1.5–2.5 mm, apex acute to shortly acuminate. Petals pale green, broadly ovate to oblong, 3.5 × 2–3(–4) mm, adaxially tomentulose, apex obtuse or somewhat emarginate. Stamens 20, unequal in length, long ones ca. as long as petals. Styles 2 or 3, not exceeding stamens, basally connate and grayish white tomentose. Fruit russet, subglobose, 5–8 mm in diam., with distinct small brownish lenticels; sepal persistent. Fl. May–Jun, fr. Jul–Sep.

- Dry forests on slopes, evergreen broad-leaved forests; 900–3200 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

One of us (Spongberg) believes that *Sorbus henryi* (*Micromeles schwerinii*) is distinct from *S. hemsleyi* and should be recognized.


冠花楸 guan hua qiu

Trees to 10 m tall. Branchlets brown or purplish brown, terete, initially densely tomentose, gradually glabrescent, with many grayish white lenticels; buds narrowly ovoid, 5–8 mm, apex acute to shortly acuminate; scales several, reddish brown. Leaves simple; petiole (0.5–)1–2 cm, sparsely tomentose or subglabrous; leaf blade dark green adaxially, oblong-elliptic or oblong-ovate to ovate-lanceolate, 7–13 × 4–6 cm, lateral veins (9–)12–16 pairs, nearly parallel and terminating in marginal teeth, distinctly raised abaxially and impressed adaxially, abaxially densely gray tomentose, sometimes glabrescent, midvein and lateral veins initially tomentose, glabrate, adaxially gla-
brous, base broadly cuneate to rounded, margin unevenly minutely serrate to doubly serrate, apex acuminate. Compound coryms terminal, 3-4 × 4-5 cm, 20-30-flowered; rachis and pedicels densely grayish white tomentose, sometimes glabrescent. Pedicel 3-5 mm. Flowers 8-11 mm in diam. Hypanthium campanulate, abaxially grayish white tomentose. Sepals ovate-triangular, ca. 2 mm, apex acute. Petals white, obovate or suborbicular, 3-4 mm, adaxially tomentulose, apex obtuse. Stamens ca. 20, nearly as long as petals. Styles 2 or 3, not exceeding stamens, glabrous or puberulent, connate at base. Fruit red, subglobose, 8-10 mm in diam., initially tomentose, 2- or 3-loculed, lenticellate; sepals persistent; seeds brown, ovoid or subglobose, compressed. Fl. Apr-May, fr. Aug-Sep.

Mixed forests in ravines, forests on slopes, river banks, mountain regions; 1800-3200 m. W Guizhou, Xizang, N Yunnan [N Myanmar].

1a. Petiole 0.5–1 cm; leaf blade abaxially and pedicel glabrescent .......................... 47c. var. glabrescens

1b. Petiole 1–2 cm; leaf blade abaxially and pedicel persistently pubescent.

2a. Leaf blade oblong-elliptic or oblong-ovate to ovate-lanceolate; lateral veins 12–16 pairs ............... 47a. var. coronata

2b. Leaf blade ovate-lanceolate; lateral veins 9 or 10 pairs .................. 47b. var. ambrozyana

47a. Sorbus coronata var. coronata

冠萼花楸 (原变种) guan e hua qiu (yuan bian zhong)


Petiole 1–2 cm; leaf blade oblong-elliptic or oblong-ovate to ovate-lanceolate, abaxial surface and pedicels usually persistently pubescent; lateral veins 12–16 pairs.

Mixed forests in ravines, coniferous forests on slopes, river banks; 1800–3200 m. W Guizhou, Xizang, N Yunnan [N Myanmar].


少脉冠萼花楸 shao mai guan e hua qiu


Petiole 1–2 cm; leaf blade ovate-lanceolate, abaxial surface and pedicels usually persistently pubescent; lateral veins 9 or 10 pairs.

- Mountain regions; 3000–3200 m. NW Yunnan (Lijiang Xian).


脱毛冠萼花楸 tuo mao guan e hua qiu

Petiole 0.5–1 cm; leaf blade abaxially and pedicels usually glabrescent, becoming glabrous or subglabrous.

- Forests on slopes; below 2800 m. SE Xizang (Mêdog Xian).


水榆花楸 shui yu hua qiu

Trees to 20 m tall. Branchlets dark reddish brown when young, dark grayish brown when old, terete, puberulent when young, glabrous when old, with white lenticels; buds ovoid, 4–7 mm, apex acute; scales several, dark reddish brown, glabrous. Leaves simple; petiole 1.5–3 cm, glabrous or slightly puberulent; leaf blade ovate to elliptic-ovate or suborbicular, 5–10 × 3–6 cm, lateral veins 6–10(–14) pairs, nearly parallel and terminating in marginal teeth, raised abaxially, both surfaces glabrous or abaxially puberulent along veins, base broadly cuneate to rounded, margin irregularly sharply doubly serrate or lobed, apex shortly acuminate. Compound coryms terminal, 4–8 cm in diam., loosely 6–25-flowered; rachis and pedicels sparsely pubescent. Pedicel 6–12 mm. Flowers 1–1.4(–1.8) cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals triangular or triangular-ovate, apex acute. Petals white, suborbicular to oblong-ovate, 5–7 × 3.5–6 mm, base clawed, apex obtuse. Stamens 20; filaments white, slightly shorter than petals. Ovary 2-loculed; styles 2, not exceeding stamens, glabrous, connate basally. Fruit red, oblong, ovoid-oblong, or globose, 1–1.4 cm × 7–10 mm, without or with few minute lenticels, sepals caducous, leaving a small annular scar; seeds pale brownish orange, linear-oblong. Fl. Apr–May, fr. Aug–Sep.

Slopes, gullies, mixed forests, thickets; 500–2300 m. Anhui, Fujian, Gansu, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Zhejiang [Japan, Korea].

1a. Leaf blade ovate to elliptic-ovate, margin usually not lobed, irregularly doubly serrate; fruit oblong or ovoid-oblong, rarely subglobose ................................. 48a. var. alnifolia

1b. Leaf blade orbicular-ovate, or suborbicular, margin usually lobed, doubly serrate; fruit ovoid-oblong or globose.

2a. Fruit ovoid-oblong, rarely subglobose ........................................ 48b. var. lobulata

2b. Fruit globose, 5-sulcate, impressed at both ends .......................... 48c. var. angulata

48a. Sorbus alnifolia var. alnifolia

水榆花楸 (原变种) shui yu hua qiu (yuan bian zhong)


Leaf blade ovate to elliptic-ovate, margin usually not lobed, irregularly sharply doubly serrate. Fruit oblong or ovoid-oblong, rarely subglobose.

Slopes, gullies, mixed forests, thickets; 500–2300 m. Anhui, Fujian, Gansu, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Zhejiang [Japan, Korea].


裂叶水榆花楸 lie ye shui yu hua qiu
Leaf blade orbicular-ovate or suborbicular, margin usually lobed, doubly serrate. Fruit ovoid-oblong, rarely subglobose.

Slopes, mixed forests; 700–900 m. Liaoning, Shandong [Korea].


美脉花（原变种）美脉花 梁世芳, 梁世芳

Leaf blade suborbicular, margin often lobed, doubly serrate. Fruit globose, 5-sulcate, impressed on both ends.

● Slopes; ca. 600 m. NC Shandong (Zibo Shi).


广东美脉花 丘国明, 丘国明

Trees or shrubs, 10–12 m tall. Branchlets dark reddish brown, terete, glabrous, with few inconspicuous lenticels; buds ovoid to narrowly ovoid, 6–10 mm, apex acute; scales several, brown, glabrous. Leaves simple; petiole 1–2(–3) cm, initially puberulent, glabrate; leaf blade grayish green abaxially, narrowly elliptic or narrowly ovate to obovate-elliptic, 7–12 × 3–7 cm, lateral veins (8–)10–12(–18) pairs, nearly parallel and terminating in marginal teeth, abaxially puberulent along veins, adaxially glabrous, base broadly cuneate to rounded, margin obtusely crenate, apex acuminate, rarely acute. Inflorescences compound-corymbose, 3.5–5 × 4–6 cm, many flowered; rachis and pedicels sparsely brownish yellow pubescent. Pedicel 2–5 mm. Flowers 6–10 mm in diam. Hypanthium campanulate, abaxially puberulous. Sepals triangular-ovate, 1.5–2.5 mm, apex ± obtuse or acute. Petals white, broadly ovate to obovate, 3–5 mm, apex obtuse. Stamens 20; anthers purple, shorter than petals. Styles 4 or 5, not exceeding stamens, glabrous, connate basally. Fruit brown, globose or obovoid, 1–1.4 cm × 8–10 mm, glabrous, 4- or 5-loculed, distinctly but minutely lenticellate, apex with an annular scar. Fl. Apr–May, fr. Aug–Oct.

● Mixed forests in mountain regions, valleys; 600–2100 m. Fujian, Guangdong, Guangxi, Hubei, Hunan, Jiangxi, Sichuan, SE Yunnan.

1a. Petiole 1–2 cm; lateral veins 10–12(–18) pairs 49b. var. kwangtungensis

1b. Petiole to 3 cm; lateral veins 8–10 pairs 49b. var. kwangtungensis

49a. Sorbus caloneura var. caloneura

美脉花 梁世芳

Trees or shrubs, 10–12 m tall. Branchlets dark reddish brown, terete, glabrous, with few inconspicuous lenticels; buds ovoid to narrowly ovoid, 6–10 mm, apex acute; scales several, brown, glabrous. Leaves simple; petiole 1–2(–3) cm, initially puberulent, glabrate; leaf blade grayish green abaxially, narrowly elliptic or narrowly ovate to obovate-elliptic, 7–12 × 3–7 cm, lateral veins (8–)10–12(–18) pairs, nearly parallel and terminating in marginal teeth, abaxially puberulent along veins, adaxially glabrous, base broadly cuneate to rounded, margin obtusely crenate, apex acuminate, rarely acute. Inflorescences compound-corymbose, 3.5–5 × 4–6 cm, many flowered; rachis and pedicels sparsely brownish yellow pubescent. Pedicel 2–5 mm. Flowers 6–10 mm in diam. Hypanthium campanulate, abaxially puberulous. Sepals triangular-ovate, 1.5–2.5 mm, apex ± obtuse or acute. Petals white, broadly ovate to obovate, 3–5 mm, apex obtuse. Stamens 20; anthers purple, shorter than petals. Styles 4 or 5, not exceeding stamens, glabrous, connate basally. Fruit brown, globose or obovoid, 1–1.4 cm × 8–10 mm, glabrous, 4- or 5-loculed, distinctly but minutely lenticellate, apex with an annular scar. Fl. Apr–May, fr. Aug–Oct.

● Mixed forests in mountain regions, valleys; 600–2100 m. Fujian, Guangdong, Guangxi, Hubei, Hunan, Jiangxi, Sichuan, SE Yunnan.

1a. Petiole 1–2 cm; lateral veins 10–12(–18) pairs 49a. var. caloneura

1b. Petiole to 3 cm; lateral veins 8–10 pairs 49b. var. kwangtungensis

49b. Sorbus caloneura var. kwangtungensis

广东美脉花 丘国明, 丘国明

One of us (Spongberg) believes that Sorbus salwinensis is synonymous with this species, and that S. paniculata is a distinct species.


怒江花楸 努江花楸 梁世芳, 丘国明

Trees 6–8 m tall. Branchlets grayish brown or gray when young, blackish brown and glabrous when old, terete, with numerous oblong and elliptic small lenticels; buds ovoid, 5–8 mm, apex ± obtuse; scales several, reddish brown. Leaves simple; petiole 3–8 mm, pubescent, gradually glabrescent; leaf blade dark green adaxially, oblong-lanceolate to obovate-lanceolate, (6–)8–14 × 1.5–3.5 cm, lateral veins 11–17 pairs, nearly parallel and terminating in marginal teeth, raised abaxially and impressed adaxially, white tomentose when young, both surfaces glabrous or abaxially sparsely pubescent, pubescent when mature, densely flowered; rachis and pedicels glabrous.

- Mountain valleys, ridges, broad-leaved and coniferous mixed forests; 2700–3100 m. NW Yunnan (Fugong Xian, Gongshan Xian).


泡吹叶花楸 pao chui ye hua qiu

_Aria meliosmifolia_ (Rehder) H. Ohashi & Iketani; _Micromeles meliosmifolia_ (Rehder) Kovanda & Challice; _Pyrus meliosmifolia_ (Rehder) Bean.

Trees to 10 m tall. Branchlets reddish brown or purplish brown when young, blackish brown when old, puberulent, soon glabrescent, with few indistinct lenticels; buds ovoid or narrowly ovoid, 6–8 mm, apex acute; scales several, reddish brown, glabrous. Leaves simple; petiole 5–8 mm, glabrous or slightly puberulous; leaf blade grayish green abaxially, light green adaxially, narrowly elliptic-ovate to elliptic-ovoblate, 9–13(–18) × 3–6(–8) cm, lateral veins 16–24 pairs, nearly parallel and terminating in marginal teeth, raised abaxially and impressed adaxially, abaxially lanuginose in vein axils, subglabrous when old, adaxially glabrous, base cuneate, margin doubly serrate, apex acuminate, sometimes acute. Compound corymb terminal, 4–8 cm and nearly as broad, numerous flowered; rachis and pedicels yellow pubescent, glabrous in fruit. Pedicel 6–12 mm. Flowers to 1 cm in diam. Hypanthium campanulate, yellow pubescent. Sepals triangular-ovate, 2–4 mm, apex acute. Petals white, ovate, 3–4 mm and ca. as broad, apex obtuse. Stamens 20, ca. as long as petals. Styles 3(or 4), nearly as long as stamens, glabrous, connate basally. Fruit brown, subglobose or ovoid, 1–1.4 cm in diam., glabrous when old, with many rusty small lenticels, with an annular scar at apex, 3(or 4)-loculed; seeds brown, broadly ovoid or obovoid, 4–4.5 mm, compressed. Fl. Apr–May, fr. Aug-Sep.

- Mountain valleys, forests; 1400–2800 m. NE Guangxi, W Si-chuan, NW Yunnan.

One of us (Spongberg) notes that this species appears to merge with _Sorbus corymbifera_ (Miquel) N. T. Kh’ep & G. P. Yakovlev. The variation of the two taxa is continuous.


墨脱花楸 mo tuo hua qiu


Trees to 30 m tall. Branchlets grayish brown, terete, glabrous, with yellowish brown lenticels, glabrous; buds oblong-ovoid, apically acute; scales more than 10, reddish brown, glabrous. Leaves simple; petiole 3–5 mm; leaf blade elliptic to obovate-elliptic, 26–29.5 × 8.5–10 cm, lateral veins 13–15 pairs, prominent abaxially, abaxially persistently sparsely hairy, adaxially glabrous when old, base narrowly cuneate, margin sparsely inconspicuously shallowly crenulate, apex acute. Compound corymb large, ca. 40-flowered; rachis and pedicels glabrous. Pedicel 3–5.5 mm. Flowers 1–1.5 cm in diam. when open. Hypanthium campanulate, abaxially glabrous. Sepals triangular, abaxially glabrous, apex acute. Petals white, broadly ovate, 6–8 × 6–9 mm, ca. 2 × as long as sepals, base cuneate, margin slightly undulate, apex obtuse. Stamens 25–44, nearly as long as petals; filaments purple; anthers yellow. Ovary 5–7-locculed, with (2 or)3(or 4) ovules per locule; styles 5–7, unequal in length, glabrous, connate at base. Fruit subglobose, 3–5 mm in diam., with conspicuous orbicular lenticels and a slightly deep annular scar. Fl. Apr–May, fr. Oct.

- Forests; ca. 2100 m. SE Xizang (Mêdog Xian).


疣果花楸 you guo hua qiu

_Vaccinium corymbiferum_ Miquel, Fl. Ned. Ind., Eerste Bijk. 588. 1861; _Aria corymbifera_ (Miquel) H. Ohashi & Iketani; _Micromeles corymbifera_ (Miquel) Kalkman; _M. granulosa_ C. K. Schneider; _Photinia bartletti_ Merrill; _Pyrus granulosa_ Bertoloni; _Sorbus granulosa_ (Bertoloni) Rehder.

Trees, rarely shrubs, to 18 m tall. Branchlets brown when young, blackish brown when old, terete, rust-brown tomentose when young, glabrate; buds ovoid, 6–8 mm, apex acute; scales brownish, glabrous. Leaves simple; petiole 2.5–3 mm, rust-brown tomentose when young, glabrescent; leaf blade ovate or elliptic-ovate, 9–13 × 4.5–6 cm, lateral veins 7–11 pairs, slightly curved and anastomosing toward margin, both surfaces rust-brown tomentose, glabrate, base rounded, margin shallowly crenate, apex acuminate. Inflorescences 4–7 × 3–5(–6) cm, many flowered; rachis and pedicels rust-brown tomentose, glabrous when old, small lenticellate. Pedicel 3–4 mm. Flowers 6–7 mm in diam. Hypanthium initially rust-brown tomentose, glabrate. Sepals triangular, 1.5–2.5 × 2–3 mm, apex acute. Petals white, ovate, 3–4 × 2–3 mm, adaxially puberulous, apex obtuse. Stamens 20(–25), nearly as long as or somewhat shorter than petals. Styles (2 or)3 or 4, not exceeding stamens, glabrous, connate near base. Fruit reddish brown, globose to oval-globose, 1–1.5(–2) cm in diam., 2–4-loculed, with rusty lenticels, conspicuously marked by an annular scar. Fl. Jan–Feb, fr. Aug-Sep.

- Moist mixed forests; 1200–3400 m. Guangdong, Guangxi, Gui-zhou, Hainan, Hunan, Yunnan (Cambodia, Indonesia, E India, Laos, N Myanmar, Thailand, SE Vietnam).


菱叶花楸 ling ye hua qiu

Trees to 5 m tall. Branchlets reddish brown, glabrous, lenticellate; buds ovoid, glabrous. Leaves simple; petiole 1–2 cm, glabrous; leaf blade rhombic, 7.5–10 × 2.5–4 cm, subleathery, lateral veins 7–9 pairs, curved and anastomosing toward mar-
ROSACEAE

gin, prominent on both surfaces, both surfaces glabrous, base narrowly cuneate, margin entire basally, crenulate apically, apex shortly acuminate. Flowers not seen. Infructescences terminal; rachis and pedicels glabrous, with small lenticels. Fruiting pedicels ca. 0.5 cm. Fruit dark red, globose, 1–1.4 cm in diam., 3-loculed, lenticellate. Fr. Sep.

- Dense forests; ca. 500 m. W Hunan (Tongdao Xian).

56. Sorbus globoa (T. T. Yu & H. T. Tsai) H. Ohashi & Iketani.

Trees, rarely shrubs, to 7 m tall. Branchlets blackish brown when old, terete, rust-brown pubescent when young, soon glabrous, with few small lenticels; buds ovoid, 5–8 mm, apex ± acute; scales several, glabrous. Leaves simple; petiole 1–1.5 cm, sparsely puberulous or glabrous; leaf blade pale green abaxially, dark green adaxially, ovate-lanceolate or elliptical-lanceolate, 8–10 × 3.5–4.5 cm, lateral veins 5–11 pairs, anastomosing toward margin, abaxially rust-brown pubescent along veins, gradually glabrescent, adaxially glabrous, base cuneate, rarely subrounded, margin sparsely sharply serrate, nearly entire basally, apex acuminate. Infructescences panicularly compound corymbose, 6–12 × 2.5–5 cm, 15–21-flowered; rachis, pedicels, and hypanthium abaxially rust-brown pubescent. Pedicel 5–9 mm. Flowers 5–8 mm in diam. Hypanthium campanulate. Sepals reflexed, ovate-triangular, 2.5–3.5 mm, apex obtuse. Petals white, obovate to ovate, 4.5–5 × 3–3.5 mm, sparsely rust-brown pilose, base shortly clawed, apex obtuse. Stamens 20, unequal in length, longer or shorter than petals. Styles 2 or 3, not exceeding stamens, glabrous, connate basally. Fruit brown, globose, 1–1.2 cm in diam., 2- or 3-loculed, with orbicular tomentose base exceeding stamens, glabrous, connate basally. Fruit red, ovoid, 0.9–1.1 cm × 8–10 mm, 3-loculed, lenticellate. Fl. Apr–May, fr. Aug–Sep.

Slope forests, shrub thickets; 1000–3000 m. Guangxi, Guizhou, W Yunnan [N Myanmar].

One of us (Spongberg) believes that Sorbus paniculata is a related taxon and could be placed here.


滇缅花楸 yuan guo hua qiu

Aria globoa (T. T. Yu & H. T. Tsai) H. Ohashi & Iketani.

Shrubs or trees, 4–12(–15) m tall. Branchlets purplish brown when young, purplish black when old, terete, glabrous when old, sparsely lenticellate; buds ovoid, apex acute or ± obtuse; scales few, brown or purplish brown, glabrous. Leaves simple; petiole 5–10 mm; leaf blade pale green abaxially, dark green adaxially, elliptic, oblong-elliptic, or elliptic-ovate, 6–12 × 2.5–6 cm, lateral veins 7–10 pairs, branched and anastomosing toward margin, abaxially sparsely tomentose along raised veins, glabrous when old, adaxially glabrous, sparsely glandular along somewhat impressed midvein, base cuneate, margin sharply but minutely serrate, entire near base. Compound corymb terminal, 3.5–5 cm in diam. and nearly as long, densely flowered; rachis and pedicels glabrous. Pedicel 2–5 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, glabrous. Sepals ovate-triangular, sparsely pubescent along margin, soon glabrate, apex acute. Petals white, irregularly ovate or narrowly ovate, 2.5–3.5 × 2–3 mm, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20, nearly as long as or slightly longer than petals; anthers brown, broadly ovate. Styles 2 or 3, rarely 4, 3–3.5 mm, ca. as long as stamens or slightly shorter, glabrous, connate basally. Fruit red, ovoid, 0.9–1.1 cm × 8–10 mm, 3-loculed, with an annular scar; seeds brown, obovoid, compressed. Fl. Apr–Jun, fr. Aug–Oct.

Coniferous and broad-leaved mixed forests on slopes, stream side mixed forests; 1000–3600 m. Guangxi, Guizhou, W Sichuan, W Yunnan [N Myanmar].


毛背花楸 mao bei hua qiu

Aria aronioides (Rehder) H. Ohashi & Iketani; Micromeles aronioides (Rehder) Kovanda & Challice.

Shrubs or trees, 4–15 m tall. Branchlets purplish brown when young, purplish black when old, terete, glabrous when old, sparsely lenticellate; buds ovoid, apex acute or ± obtuse; scales few, brown or purplish brown, glabrous. Leaves simple; petiole 5–10 mm; leaf blade pale green abaxially, dark green adaxially, elliptic, oblong-elliptic, or elliptic-ovate, 6–12 × 2.5–6 cm, lateral veins 7–10 pairs, branched and anastomosing toward margin, abaxially sparsely tomentose along raised veins, glabrous when old, adaxially glabrous, sparsely glandular along somewhat impressed midvein, base cuneate, margin sharply but minutely serrate, entire near base. Compound corymb terminal, 3.5–5 cm in diam. and nearly as long, densely flowered; rachis and pedicels glabrous. Pedicel 2–5 mm. Flowers 7–8 mm in diam. Hypanthium campanulate, glabrous. Sepals ovate-triangular, sparsely pubescent along margin, soon glabrate, apex acute. Petals white, irregularly ovate or narrowly ovate, 2.5–3.5 × 2–3 mm, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20, nearly as long as or slightly longer than petals; anthers brown, broadly ovate. Styles 2 or 3, rarely 4, 3–3.5 mm, ca. as long as stamens or slightly shorter, glabrous, connate basally. Fruit red, ovoid, 0.9–1.1 cm × 8–10 mm, 3-loculed, with an annular scar; seeds brown, obovoid, compressed. Fl. Apr–Jun, fr. Aug–Oct.

Coniferous and broad-leaved mixed forests on slopes, stream side mixed forests; 1000–3600 m. Guangxi, Guizhou, W Sichuan, W Yunnan [N Myanmar].


毛序花楸 mao xu hua qiu


Shrubs or trees, 7–15 m tall. Branchlets grayish brown to blackish brown when old, terete, initially grayish white tomentose, soon glabrate, prominently small lenticellate; buds ovoid, apex ± acute; scales several, brown, glabrous. Leaves simple; petiole ca. 5 mm, gray tomentose when young, gradually glabrescent; leaf blade pale green abaxially, green adaxially, obovate or oblong-ovate, 7–11 × 3.5–6 cm, lateral veins 8–10
pairs, branched and anastomosing toward margin, raised abaxially, adaxially lustrous, both surfaces tomentose when young, gradually glabrate or sparsely tomentulose only abaxially along midvein, base cuneate, margin crenulate, entire near base, apex shortly acuminate. Compound corymbs terminal, 4–5 cm in diam. and ca. as long, densely flowered; rachis and pedicels grayish white tomentose. Pedicel 2–5 mm. Flowers 7–9 mm in diam. Hypanthium campanulate, sparsely grayish white tomentose. Sepals triangular-ovate, glabrous, apex ± acute or ± obtuse. Petals white, broadly ovate or suborbicular, ca. 3 mm and ca. as broad, apex obtuse. Stamens 20, ca. as long as petals. Styles 2 or 3, somewhat not exceeding stamens, glabrous, connate basally. Fruit brownish green, ovoid or flattened orange-shaped, 9–10(–12) mm in diam., glabrous, 2- or 3-loculed, with few inconspicuous lenticels, with an annular scar. Fl. May–Jun, fr. Aug–Sep.


Leaf margin sharply and doubly serrate.

- Slopes, roadsides. N Hunan (Taoyuan Xian), W Zhejiang (Kaihua Xian).

Spongberg and Wu think this variety is a synonym of the species because of the slight differences.

One of us (Spongberg) prefers to treat this variety as a synonym of the species because of the slight differences; Wu Zhengyi (editor’s note) concurs.


秦岭花楸 qin ling hua qiu

_Aria tsinlingensis_ (C. L. Tang) H. Ohashi & Iketani.

Trees 5–8 m tall. Branchlets reddish brown when young, blackish brown when old, terete, glabrous or subglabrous, sparsely orbicular-lenticellate; buds ovoid, 4–8 mm, glabrous, apex acute; scales several, reddish brown. Leaves simple; petiole 1.5–2.5 cm, brown tomentose; leaf blade elliptic or oblong, 8(–10) cm × 3–5(–8) cm, acuminate. Compound corymbs 4–6 cm in diam., densely 20–35-flowered; rachis and pedicels densely grayish white tomentose. Pedicel 5–10 mm. Flowers 1–1.2 cm in diam. Flowers 7–9 mm in diam. Hypanthium campanulate, abaxially grayish white tomentose. Sepals triangular-ovate, apex acute. Petals white, ovate, 3.4–3.5 mm, apex obtuse. Stamens 18–20, nearly as long as or slightly longer than petals. Styles 2 or 3, not exceeding stamens, basally connate and tomentose. Fruit red or yellow, oblong or oblong-obovate, 0.9–1.5 cm × 6–9 mm, glabrous or with few inconspicuous lenticels, 2–3-loculed, with an annular scar. Fl. Apr–May, fr. Jul–Aug.


60a. Sorbus folgneri var. folgneri

石灰树 (原变种) shi hui shu (yuan bian zhong)


Leaf margin serrate, with obtuse or slightly ± acute teeth.


齿叶石灰树 chi ye shi hui shu

_Aria folgneri_ (C. J. Qi) H. Ohashi & Iketani; _Sorbus chengii_ C. J. Qi.

Leaf margin sharply and doubly serrate.

- Slopes, roadsides. N Hunan (Taoyuan Xian), W Zhejiang (Kaihua Xian).

Spongberg and Wu think this variety is a synonym of the species because of the slight differences.

One of us (Spongberg) prefers to treat this variety as a synonym of the species because of the slight differences; Wu Zhengyi (editor’s note) concurs.


棕脉花楸 zhong mai hua qiu

_Aria dunnii_ (Rehder) H. Ohashi & Iketani.

Trees small, 2–7 m tall. Branchlets brownish purple when young, brown or grayish brown when old, terete, yellow pubescent when young, glabrate, minutely lenticellate; buds ovoid, 5–8(–10) mm, apex acuminate; scales several, brown, glabrous. Leaves simple; petiole 1.5–2.5 cm, brown tomentose, gradually glabrescent; leaf blade elliptic or oblong, 6(–10) × 3–5(–8) cm, apex acuminate; scales several, brown pubescent. Leaves simple; petiole 1.5–2.5 cm, brown tomentose, gradually glabrescent; leaf blade elliptic or oblong, 6(–10) × 3–5(–8) cm, apex acuminate; scales several, brown pubescent.

Trees or shrubs, 4–10 m tall. Branchlets grayish brown when old, densely rusty tomentose when young, gradually glabrescent, prominently lenticellate when old; buds ovoid, 4–6 mm, apex obtuse; scales several, brown, glabrous. Leaves simple; petiole 1–1.5 cm, initially densely rusty tomentose, glabrous or subglabrous when old; leaf blade ovate, elliptic, or obovate, 5–8(–10) × 3–4.5 cm, lateral veins 6–8(–11) pairs, nearly parallel, terminating in marginal teeth, abaxially prominent, both surfaces initially densely rusty tomentose, glabrescent, abaxially rusty tomentose only along veins when old, base broadly cuneate to rounded, margin minutely serrate, apex shortly acuminate or acute. Compound corymbs terminal, 3.5–3–4 cm, few flowered; rachis and pedicels rusty tomentose. Pedicel 3–5 mm. Flowers 7–9 mm in diam. Hypanthium campanulate, abaxially rusty tomentose. Sepals triangular-ovate, apex obtuse. Petals white, broadly obovate, rarely obovate, 3–4 mm and ca. as broad, adaxially puberulent, base shortly clawed, apex obtuse. Petiole 5–8 mm in diam., smooth or with few minute lenticels, 3- or 4-loculed, with an annular scar. Fl. May, fr. Sep–Oct.

Slope or valley forests, rocky hills, river banks; 2200–2800 m. C and W Yunnan [Bhutan, Sikkim].


Trees or shrubs, 10–15 m tall. Branchlets purplish brown to blackish brown when old, terete, initially densely rust-brown tomentose, gradually glabrescent, glabrous when old, with grayish white lenticels; buds ovoid, 5–7 mm, apex ± obtuse to ± acute; scales several, dark brown, glabrous. Leaves simple; petiole 2–3 cm, densely rust-brown tomentose; leaf blade ovate or elliptic-ovate, rarely elliptic-obovate, 9–14 × 5–8 cm, lateral veins 10–12 pairs, slightly curved and anastomosing toward leaf margin, both surfaces rust-brown tomentose when young, usually only abaxially sparsely tomentose when old, base broadly cuneate to rounded, margin shallowly crenulate apically, apex shortly acuminate, rarely acute. Compound corymbs terminal, 5–7 cm in diam., ca. 20–30-flowered or more; rachis and pedicels densely rust-brown tomentose. Pedicel 3–5 mm. Flowers 7–10 mm. Hypanthium campanulate, abaxially rust-brown tomentose. Sepals reflexed after anthesis, triangular-ovate, ca. 2 mm, apex acute. Petals yellowish white, broadly ovate or elliptic, 3–4 × ca. 3 mm, adaxially sparsely pilose, base clawed, apex obtuse or emarginate. Stamens 15–20, unequal in length, longer ones longer than petals. Styles (2 or)3 or 4, somewhat not exceeding stamens, glabrous, connate at base. Fruit globose or ovoid-globose, 5–8 mm in diam., 2- or 3-loculed, with few minute orbicular lenticels, with an annular scar. Fl. May, fr. Aug–Sep.

Sparse woods at river sides, shrub thickets in mountain valleys; 2300–3000 m. Guizhou, W Yunnan [N Myanmar, N Vietnam].


Trees or shrubs, 10–15 m tall. Branchlets purplish brown to blackish brown when old, terete, initially densely rust-brown tomentose, gradually glabrescent, glabrous when old, with grayish white lenticels; buds ovoid, 5–7 mm, apex ± obtuse to ± acute; scales several, dark brown, glabrous. Leaves simple; petiole 5–10 mm, densely rust-brown tomentose, leaf blade narrowly elliptic or elliptic-ovate to elliptic-obovate, 7–12(–15) × 3.5–6(–7) cm, lateral veins 12–15 pairs, nearly parallel, terminating in marginal teeth, abaxially densely persistent rust-brown tomentose, axially sparsely puberulous, base cuneate, margin minutely serrate except for basal part, apex shortly acuminate or acute. Compound corymbs terminal, 6–9 × 5–10 cm, many flowered; rachis and pedicels densely rust-brown tomentose. Pedicel 4–7 mm. Flowers 8–10 mm in diam. Hypanthium campanulate, 3–4 mm, abaxially rust-brown tomentose. Sepals triangular-ovate, 1.5–2 mm, apex acute. Petals yellowish white, broadly obovate, rarely obovate, 3–4 mm and ca. as broad, abaxially sparsely puberulous, base shortly clawed, apex obtuse. Stamens 15–20, nearly as long as or slightly shorter than petals. Styles 2 or 3, somewhat not exceeding stamens, glabrous, connate at base. Fruit globose or ovoid-globose, 5–8 mm in diam., 2- or 3-loculed, with few minute orbicular lenticels, with an annular scar. Fl. May, fr. Aug–Sep.

Sparse woods on slopes, shrub thickets in valleys; 600–3000 m. SE Anhui, NW Fujian, NE Guangxi, SE Guizhou, NW Yunnan, W Zhejiang.
**ROSACEAE**

- Mixed forests on slopes, valleys, stream sides; 1300–2700 m. E Xizang, Yunnan.


尾叶花楸 *wei ye hua qiu*


Trees to 6 m tall. Branchlets dark purplish brown, terete, brown or grayish brown tomentose when young, glabrescent, with many grayish white oblong lenticels. Leaves simple; petiole ca. 1 cm, rusty tomentose; leaf blade elliptic-lanceolate, 11–15 × 4–6 cm, lateral veins 10–15 pairs, curved and anastomosing toward leaf margin, abaxially rusty tomentose when young, with few hairs only along midvein or at base of midvein when old, adaxially glabrous, base cuneate, margin usually entire basally or sparsely serrate in apical 1/3, apex long acuminate to caudate. Compound corymbs terminal, many flowered; rachis and pedicels tomentose, glabrate. Flowers not seen. Fruit yellowish brown, globose, 1–1.5 cm in diam., with numerous prominent lenticels, with an annular scar. Fr. Aug–Sep.


多变花楸 *duo bian hua qiu*

*Aria astateria* (Cardot) H. Ohashi & Iketani.

Shrubs or small trees, to 8 m tall. Branchlets grayish brown, terete, ± rust-brown tomentose, later becoming glabrous, minutely lenticellate; buds narrowly ovoid, apex acute; scales several, brownish, glabrous or sparsely rust-brown pubescent apically. Leaves simple; petiole 5–7(–10) mm, tomentose; leaf blade ovate-lanceolate, 4–7(–9) × 2–4 cm, lateral veins 6–8 pairs, curved and anastomosing toward leaf margin, both surfaces densely rusty tomentose when young, glabrescent, abaxially tomentose only along veins when mature, base cuneate to rounded, margin minutely serrate apically, apex short to long acuminate. Inflorescences usually paniculate, 2–7 cm in diam., many flowered; rachis and pedicels pubescent. Pedicel 4–7 mm. Flowers ca. 1 cm in diam. Hypanthium campanulate, short, abaxially rusty tomentose. Sepals reflexed after anthesis, triangular, apex acute. Petals white, obovate or suborbicular, 4–5 × 2.5–3 mm, adaxially puberulent, base clawed, apex obtuse. Stamens ca. 20, outer stamens nearly as long as petals, inner ones shorter than petals. Styles 3 or 4, glabrous, connate at base. Fruit ovoid, 5–10 mm in diam., 3- or 4-loculed, usually without lenticels, with an annular scar. Fl. Mar–May, fr. Oct.


榅桲属 *wen po shu*

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Stephen A. Spongberg

Shrubs or small trees, deciduous. Branches unarmed; buds small, pubescent, with few scales. Leaves simple, petiolate, stipulate, venation camptodromous, margin entire. Flowers solitary at apices of leafy branchlets. Sepals 5, margin entire, reflexed. Petals 5, white or pinkish, obovate. Stamens 20. Ovary inferior, 5-loculed, with numerous ovules per locule; styles 5, free, pubescent basally. Fruit a many seeded pome, with persistent, recurved sepals.

One species: C Asia; cultivated in China.

1. **Cydonia oblonga** Miller, Gard. Dict., ed. 8, Cydonia no. 1. 1768.

榅桲 *wen po*

*Pyrus cydonia* Linnaeus, Sp. Pl. 1: 480. 1753; *Cydonia vulgaris* Persoon.

Shrubs or small trees, to 8 m tall. Branchlets purplish red when young, purplish brown when old, terete, initially densely tomentose, glabrous when old, sparsely lenticellate; buds purplish brown, tomentose. Stipules caducous, ovate; petiole 0.8–1.5 cm, tomentose; leaf blade ovate to oblong, 5–10 × 3–5 cm, abaxially with conspicuous veins and densely villous, adaxially glabrous or sparsely pubescent when young, base rounded or subcordate, margin entire, apex acute or emarginate. Pedicel ca. 5 mm or nearly absent, densely tomentose. Flowers 4–5 cm in diam.; bracts caducous, ovate. Hypanthium campanulate, abaxially densely tomentose. Sepals ovate or broadly lanceolate, 5–6 mm, longer than hypanthium, both surfaces tomentose, margin glandular serrate, apex acute. Petals white or pinkish, ca. 1.8 cm. Stamens less than 1/2 as long as petals. Styles nearly as long as stamens, densely villous basally. Fruit fragrant, yellow, pear-shaped, 3–5 cm in diam., densely tomentose, with persistent reflexed sepals; fruiting pedicel ca. 5 mm, stout, tomentose. Fl. Apr–May, fr. Oct. 2n = 34*.

Cultivated. Fujian, Guizhou, Jiangxi, S Shaanxi (Qin Ling), Shanxi, Xinjiang [native to C Asia].


栘木属 *duo yi shu*

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Stephen A. Spongberg

Trees evergreen or semievergreen; buds ovoid, small, with several exposed scales. Leaves simple, alternate, stipulate, petiolate,
venation camptodromous, margin entire or serrate, sometimes slightly lobed. Flowers shortly stalked, 2–5-fascicled, precocious or synantherous; bracts caducous, small. Hypanthium campanulate, abaxially densely tomentose. Sepals 5, lanceolate. Petals 5, white, base shortly clawed. Stamens 30–50, 2-whorled. Ovary inferior, 5-loculed, with 3–10 ovules per locule; styles 5, connate at base, villose. Pome subglobose, ovoid, or pyriform, 2–3 cm in diam., with persistent erect or incurved sepals.

About two species: Bhutan, China, India, Myanmar, Nepal, Pakistan, Sikkim, Thailand, Vietnam; two species (one endemic) in China.

1a. Leaf blade elliptic or oblong-lanceolate, abaxially pubescent or subglabrous, margin serrate, rarely entire, firmly papery; stamens ca. 30; pome globose or ellipsoid, shortly stalked .......................................................... 1. D. indica
1b. Leaf blade lanceolate to ovate-lanceolate, abaxially densely yellow tomentose, margin entire or slightly serrate, leathery; stamens 40–45; pome ovoid or oblong, long stalked .......................................................... 2. D. delavayi


Trees semi-evergreen or deciduous, to 2–3 m tall. Branchlets purplish brown or blackish brown when old, terete, stout, initially densely pubescent, glabrous when old; buds reddish brown, pubescent, apex acute. Stipule caducous, lanceolate, small, apex acuminate; petiole 0.5–2 cm, usually pubescent; leaf blade elliptic or oblong-lanceolate, 3.5–8 × 1.5–2.3 cm, firmly papery, abaxially sparsely pubescent or subglabrous, adaxially glabrous, lustrous, base broadly cuneate or subrounded, margin shallowly crenate, rarely serrate or entire only at apex, pubescent at apex or acuminate. Pedicel short or nearly absent, pubescent. Flowers 3–5-fascicled, ca. 2.5 cm in diam.; bracts lanceolate. Hypanthium campanulate, abaxially densely pubescent. Sepals lanceolate or triangular-lanceolate, 5–8 mm, both surfaces pubescent, slightly shorter than hypanthium, margin entire, apex acute or acuminate. Petals white, oblong or oblong-ovate, 1.2–1.6 cm × 5–9 mm. Stamens ca. 30. Styles ca. as long as stamens, connate and pubescent at base. Pome yellow, subglobose or ellipsoid, 2–3 cm in diam., slightly pubescent when young; sepal persistent, erect. Fl. Mar–Apr, fr. Aug–Sep.

Slopes, stream sides, thickets; 2000–3000 m. SW Sichuan, NE Yunnan [Bhutan, India, Myanmar, Nepal, Pakistan, Sikkim, Thailand, Vietnam].


Trees evergreen, to 3–10 m tall. Branchlets reddish brown or purplish brown, robust, terete, initially densely yellow tomentose, glabrescent; buds reddish brown, ovoid; scales with pubescent margin, apic acuminate. Stipules caducous, lanceolate, small; petiole ca. 1 cm, densely tomentose; leaf blade lanceolate or ovate-lanceolate, 6–8 × 2–3 cm, leathery, abaxially densely yellowish white tomentose, adaxially lustrous, base cuneate or subrounded, margin entire or slightly crenulate, apex acute or acuminate. Pedicel short, subglabrous, in fruit becoming longer, densely tomentose. Flowers 3–5-fascicled, 2.5–3 cm in diam.; bracts lanceolate, apex acuminate. Hypanthium campanulate, abaxially yellowish-white tomentose. Sepals lanceolate or triangular-lanceolate, 5–8 mm, both surfaces densely tomentose, shorter than hypanthium, margin entire, apex acute or acuminate. Petals white, ovate or oblong-ovate, 1.2–1.5 cm × 5–8 mm. Stamens 40–45. Styles equaling or lower than stamens, connate and pubescent at base. Pome yellow, ovoid or oblong, 2–3 cm in diam., initially densely tomentose, slightly tomentose or subglabrous when mature; sepals persistent. Fl. Mar–Apr, fr. Aug–Sep.

● River sides in valleys, mixed forests, mountainous areas; 1000–3000 m. W Guizhou, W Sichuan, NW Yunnan.


木瓜属 木瓜属 木瓜属

*Gu Cuizhi (谷粹芝 Ku Tsue-chih); Stephen A. Spongberg*

*Pseudochaenomeles* Carrière; *Pseudocydonia* C. K. Schneider.

Shrubs, subshrubs, or small trees, deciduous or evergreen, sometimes with thorny branches; buds small, with 2 exposed scales. Leaves simple, alternate, shortly petiolate, stipulate, herbaceous, venation camptodromous, margin serrate or crenate. Flowers solitary or fascicled, precocious or coetaneous. Sepals 5, caducous, margin entire or serrate. Petals 5. Stamens 20 or more, 2-whorled. Ovary 3-fascicled, with many ovules per locule, 2-seriate; styles 2–5, connate at base. Fruit a pome, large, many seeded, often with persistent incurved styles; seed brown, seed coat leathery, albumen absent.

About five species: E Asia; five species (three endemic) in China.

1a. Branches unarmed; flowers solitary, coetaneous; sepals reflexed; stipules ovate-lanceolate, margin glandular serrate .......................................................... 1. *C. sinensis*
1b. Branches armed; flowers fascicled, precocious or coetaneous; sepals erect, rarely reflexed; stipules herbaceous, reniform or auriculate, margin serrate.

2a. Leaf margin entire ................................................................................................................................................... 5. C. thibetica

2b. Leaf margin serrate or crenate.

3a. Branchlets scabrous, verruculose when old; fruit small, 3–4 cm in diam., maturing early; leaf blade obovate to spatulate, margin crenate ................................................................................................................ 4. C. japonica

3b. Branchlets smooth, not verruculose when old; fruit medium-sized to large, 5–8 cm in diam., maturing late; leaf blade ovate, elliptic, or lanceolate, margin serrate.

4a. Leaf blade ovate to narrowly elliptic, abaxially glabrous or initially slightly pubescent, margin sharply serrate; styles glabrous or slightly pubescent ............................................................................................. 2. C. speciosa

4b. Leaf blade elliptic or lanceolate, abaxially densely brown tomentose, margin aristate-serrate; styles basally pubescent or lanose ................................................................................................................................................ 3. C. cathayensis


木瓜 mu gua


Shrubs or small trees, to 5–10 m. Branchlets purplish red, terete, unarmed, initially pubescent, soon glabrate, with pale lenticels; buds purplish brown, glabrous, apex obtuse. Stipules ovate-oblong, rhomboidal, or lanceolate, 5–12 mm, herbaceous, subglabrous, margin glandular serrate, apex acute; petiole 5–10 mm, pubescent, glandular serrate; leaf blade elliptic-ovate or elliptic-oblong, rarely obovate, 5–8 × 3.5–5.5 cm, abaxially yellowish white tomentose when young, soon glabrescent, base broadly cuneate or rounded, margin aristate and sharply serrate (teeth glandular at apices), apex acute. Pedicel short, 5–10 mm, glabrous. Flowers solitary, 2.5–3 cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals reflexed, triangular-lanceolate, 6–10 mm, abaxially glabrous, adaxially brown tomentose, apex acute or acuminate. Petals pinkish, obovate, base shortly clawed, apex rounded. Stamen 40–50, ca. 1/2 as long as petals. Styles 5, ca. as long as stamens, connate at base, glabrous or slightly pubescent. Pome fragrant, yellow or yellowish green, globose or ovoid, 4–6 cm in diam.; sepals caducous; fruiting pedicle short or absent. Fl. Mar–May, fr. Sep–Oct. 2n = 34*.

Fujian, Gansu, Guangdong, Guizhou, Hubei, Jiangsu, Shaanxi, Sichuan, Xizang, Yunnan [Myanmar].

This species is planted in parks and gardens as an ornamental; its fruit are used medicinally.


木瓜海棠 mu guai hai tang

Cydonia cathayensis Hemsley, Hooker’s Icon. Pl. 27: t. 2657. 1901; Chaenomeles lagenaria Koidzumi var. cathayensis (Hemsley) Rehder; C. lagenaria var. wilsonii Rehder; C. speciosa Nakai var. cathayensis (Hemsley) H. Hara; C. speciosa var. wilsonii (Rehder) H. Hara; Cydonia japonica (Thunberg) Persoon var. cathayensis (Hemsley) Cardot.

Shrubs or small trees, deciduous, 2–6 m tall, with short thorns. Branchlets Purplish brown, terete, glabrous, with sparse, pale brown lenticels; buds purplish brown, triangular-ovoid, glabrous, apex acute. Stipules reniform, auriculate, or suborbicular, 5–10 mm, herbaceous, abaxially brown tomentose, margin minutely aristate-serrate, apex acute; petiole ca. 1 cm, pubescent or nearly so; leaf blade elliptic or lanceolate to ovate-lanceolate, 5–11 × 2–4, abaxially initially densely brown tomentose, glabrescent, adaxially glabrous, base cuneate to broadly cuneate, margin minutely aristate-serrate, sparsely serrate or subentire basally, doubly serrate apically, apex acute or acuminate. Pedicel short or nearly absent. Flowers precocious, 2- or 3-fascicled, 2–4 cm in diam. Hypanthium campanulate, abaxially glabrous or slightly pubescent. Sepals erect, ovate to elliptic, 3–5 mm, abaxially glabrous, adaxially and marginally petiole ca. 1 cm, initially sparsely pubescent, glabrescent; leaf blade ovate to elliptic, rarely narrowly elliptic, 3–9 × 1.5–5 cm, glabrous or pubescent abaxially along veins on leaves of shoots, base cuneate to broadly cuneate, margin shortly serrate, apex acute or obtuse. Pedicel absent or short, ca. 3 mm, subglabrous. Flowers precocious, 3–5-fascicled on second year’s branchlets, 3–5 cm in diam. Hypanthium campanulate, glabrous. Sepals erect, suborbicular, rarely ovate, 3–4 mm, abaxially glabrous, adaxially pubescent. Petals scarlet, rarely pinkish or white, ovate or suborbicular, base shortly clawed, apex rounded. Stamen 40–50, ca. 1/2 as long as petals. Styles 5, ca. as long as stamens, connate at base, glabrous or slightly pubescent. Pome fragrant, yellow or yellowish green, globose or ovoid, 4–6 cm in diam.; sepals caducous; fruiting pedicle short or absent. Fl. Mar–May, fr. Sep–Oct. 2n = 34*.

Fujian, Gansu, Guangdong, Guizhou, Hubei, Jiangsu, Shaanxi, Sichuan, Xizang, Yunnan [Myanmar].

This species is planted in parks and gardens as an ornamental; its fruit are used medicinally.
brown pubescent, apex obtuse or acute. Petals pink or white, obovate or suborbicular. Stamens 45–50, ca. 1/2 as long as petals. Styles 5, ca. as long as stamens, pubescent or lanose basally. Pome fragrant, yellowish red, ovoid or subcylindrical, 6–7 cm diam.; sepals caducous; fruiting pedicel short or nearly absent. Fl. Mar–Jun, fr. Aug–Oct.

- Slopes, forest margins, roadsides, widely cultivated; 900–2500 m. Fujian, Gansu, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.


和圆子 he yuan zi


Shrubs to 1 m tall, with slender thorns. Branches spreading; branchlets purple when young, blackish brown when old, terete, with sparse, oblong lenticels; buds red-brown, triangular, with few scales, apex obtuse. Stipules subfalcate or subreniform, large, ca. 1 × 1.2 cm, herbaceous, margin irregularly serrate, apex acute, rarely obtuse; petiole short, 1–1.6 cm, initially brown tomentose, soon glabrous; leaf blade dark green adaxially, ovate-lanceolate or oblong-lanceolate, 6–8.5 × 1.8–3.5 cm, leathery, midvein and lateral veins conspicuous abaxially and impressed adaxially, abaxially densely brown tomentose, base cuneate, margin entire, apex acute. Pedicel short. Flowers 3- or 4-fascicled. Hypanthium campanulate, abaxially glabrous. Sepals reflexed, triangular, ca. 2 mm, glabrous. Petals and stamens not seen. Styles 5, connate and densely gray pubescent at base. Pome fragrant, yellow, oblong or pear-shaped, 5–9 cm in diam., sepals caducous; fruiting pedicel short. Fl. Jul, fr. Sep–Oct.

- Among shrubs on slopes or in valleys; 2600–3800 m. W Sichuan, E Xizang.

Yu and Lu (in FRPS 36: 354. 1974) suggested that this species is a hybrid between *Chaenomeles cathayensis* and *Docynia delavayi*.


梨属 li shu

Gu Cuizhi (谷梓芝 Ku Tsue-chih); Stephen A. Spongberg

Trees or shrubs, deciduous, rarely semievergreen, sometimes armed. Leaves alternate, simple, petiolate, stipulate, involute in bud, venation camptodromous, margin serrate or entire, rarely lobed. Inflorescences corymbose-racemose. Flowers precocious or synantherous. Hypanthium cupular. Sepals 5, reflexed or spreading. Petals 5, white, rarely pink, clawed. Stamens 15–30; anthers usually dark red or purple. Ovary inferior, 2–5-loculed, with 2 ovules per locule; styles 2–5, free. Pome with juicy pulp, rich in stone cells, 2–5-celled, with cartilaginous endocarp (core), with persistent or caducous sepals; seeds black or blackish brown, seed coat cartilaginous; cotyledons plano-convex.

About 25 species: N Africa, Asia, Europe; 15 species (nine endemic) in China.

*Pyrus taihangshanensis* S. Y. Wang & C. L. Chang (J. Henan Agric. Coll. 1980(2): 10. 1980), described from Henan, requires further study. We are unable to treat it in this account because we have seen no specimens. The same applies to *Pyrus maulei var. silvestrii* Pampanini (Nuovo Giorn. Bot. Ital., n.s., 17: 290. 1910), described from Hubei, which may belong to *Sorbus*.

1a. Pome with few persistent sepals, most sepals caducous; styles 2–5.

2a. Leaf margin spiny serrate; styles 4 or 5.

3a. Pome yellow; leaf basally broadly cuneate ................................................................. 10. *P. bretschneideri*

3b. Pome brown; leaf basally rounded or subcordate ................................................. 11. *P. pyrifolia*

2b. Leaf margin serrate or obtusely serrate, and without spines; styles 2–4(or 5).

4a. Leaf margin serrate.

5a. Pome subglobose, 0.5–1 cm in diam., 2- or 3-loculed; young branches, corymbs, and leaves abaxially tomentose ........................................................................................................ 12. *P. betulifolia*
5b. Pome globose or ovoid, 2–2.5 cm in diam., 3- or 4-loculed; young branches, corymbs, and leaves abaxially initially tomentose, glabrescent ................................................................. 13. *P. phaeocarpa*

4b. Leaf margin obtusely serrate.

6a. Stamens 20; styles 2 or 3; leaves and corymb glabrous ................................................................. 14. *P. calleryana*

6b. Stamens 25–30; styles 3–5; leaves and corymb initially pubescent, glabrescent .................................. 15. *P. pashia*

1b. Pome with persistent sepals; styles 3–5.

7a. Leaf margin spiny-serrate.

8a. Leaf blade long spiny-serrate, 5–10 cm; styles 5; pome yellow; fruiting pedicel 1–2 cm ................. 1. *P. ussuriensis*

8b. Leaf blade shortly spiny-serrate, 4–7 cm; styles 4; pome brown; fruiting pedicel longer, (1.5–)3 cm ...... 2. *P. hopeiensis*

7b. Leaf margin serrulate or obtusely serrate, not spiny-lobed.

9a. Leaf margin serrulate.

10a. Pome yellowish green, ovoid or obovoid, 5-loculed; fruiting pedicel 4–5 cm, thickened distally ................................................................................................................................. 3. *P. sinkiangensis*

10b. Pome brown, subglobose or obovoid, 3– or 4-loculed; fruiting pedicel 3–4 cm, not thickened distally ................................................................................................................................. 4. *P. serrulata*

9b. Leaf margin obtusely serrate.

11a. Pome yellowish green; petals obovate; flowers 7–10.

12a. Pome obovate or subglobose; leaf blade elliptic to ovate; petiole thin, 1.5–5 cm ............... 5. *P. communis*

12b. Pome depressed-globose; leaf blade broadly ovate to suborbicular; petiole thick, 2–3 cm ............................................. 6. *P. armeniacifolia*

11b. Pome brown; petals broadly ovate; flowers 3–6.

13a. Stamens 25; pome 1.5–2.5 cm in diam. ................................................................................................. 7. *P. pseudopashia*

13b. Stamens 20; pome 1–1.5 cm in diam.

14a. Pome 4- or 3-loculed; flowers 3–6 in umbel-like racemes, petiole and leaves glabrous ................................................................................................................................. 8. *P. xerophila*

14b. Pome 3-loculed; flowers 8–10 in corymbs, petiole and leaf blade abaxially sparsely pubescent ................................................................................................................................. 9. *P. trilocularis*


秋子梨 *qiú zǐ lí*

*Pyrus simonii* Carrière; *P. sinensis* Lindley var. *ussurienensis* Makino.

Trees to 15 m tall. Branchlets yellowish gray to purplish brown when young, yellowish gray or yellowish brown when old, glabrous or sparingly pubescent, sparsely lenticellate; buds ovoid, apex obtuse; scales sparsely pubescent or subglabrous at margin. Stamens caducous, linear-lanceolate, 0.8–1.3 cm, membranous, margin glandular denticulate, apex acuminate; petiole 2–5 cm, tomentose when young, soon glabrescent; leaf blade ovate or narrowly ovate when young, soon glabrescent, base rounded or subcordate, margin long spinulose-serrate, apex shortly acuminate or caudate-acuminate. Corymb densely 5–7-flowered; peduncle tomentose when young, soon glabrescent; bracts caducous, membranous, linear-lanceolate, 1.2–1.8 cm, margin entire, apex acuminate. Pedicel 2–5 cm, tomentose, soon glabrescent. Flower 3–3.5 cm in diam. Hypanthium campanulate, abaxially glabrous or slightly tomentose. Sepals triangular-lanceolate, 5–8 mm, abaxially glabrous, adaxially tomentose, margin initially glandular denticulate, apex acuminate. Petals white, obovate or narrowly ovate, ca. 1.8 × 1.2 cm, glabrous. Stamens 20, shorter than petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, nearly as long as stamens, sparsely pubescent near base. Pome yellow, subglobose, 2–6 cm in diam., 5-loculed; fruiting pedicel 1–3 cm, glabrous; sepals persistent. Fl. May, fr. Aug–Oct. 2n = 34*, 51*.

Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shannxi, Shandong, Shanxi [Korea, Russia].

This species has many cultivated forms, the fruit of which are edible; it is commonly cultivated in N, NE, and NW China. It is often used as stock for grafting pear cultivars.

*Pyrus ussuriensis* var. *ovoidea* Rehder (J. Arnold Arbor. 2: 60. 1920) is, in fact, a cultivar of *P. ussuriensis*. It is characterized by its ovoid, subglobose, or ellipsoid fruit, longer fruiting pedicles (2–4 cm) and tomentose leaves and corymb.


河北梨 *hé bei lí*


Trees to 6–8 m tall. Branchlets dark purple or purplish brown, sparingly white lenticellate, apices often becoming thorn-like; buds oblong-ovoid or triangular-ovoid, glabrous or scales slightly tomentose at margin and apex, apex acute. Stamens caducous, linear-lanceolate, 7–11 mm, herbaceous, margin sparingly serrate, apex acuminulate; petiole 2–4.5 cm, sparsely pubescent or glabrous; leaf blade ovate, broadly ovate, or suborbicular, 4–7 × 4–5 cm, lateral veins 8–10 pairs, glabrous, base rounded or subcordate, margin shortly spinulose-serrate, apex long or shortly acuminate. Raceme umbel-like, 6–8-flowered; peduncle sparsely pubescent or subglabrous; bracts caducous,
linear-lanceolate, 6–9 mm, membranous, villous, margin serrate, apex acuminate. Pedicel 1.2–1.5 cm, subglabrous. Flower 2.5–3 cm in diam. Hypanthium cupular, subglabrous. Sepals triangular-ovate, abaxially sparsely pubescent, adaxially densely pubescent, margin denticulate, apex acuminate. Petals white, elliptic-obovate, ca. 8 × 6 mm, shortly clawed at base. Stamens 20, less than 1/2 as long as petals. Ovary 4(or 5)-loculed, with 2 ovules per locule; styles 4, nearly as long as stamens, glabrous. Pome brown, spotted, globose or ovoid, 1.5–2.5 cm in diam., 4(or 5)-loculed; fruiting pedicel 1.5–3 cm, glabrous; sepals persistent. Fl. Apr, fr. Aug–Sep. 2

- Thicket margins on slopes; 100–800 m. Hebei, Shandong.


新疆梨 xin jiang li

Trees to 6–9 m tall. Branchlets purplish brown or grayish brown, terete, glabrous, white lenticellate; buds ovoid, apex acute; scales white pubescent at margin. Stipules caducous, linear-lanceolate, 8–10 mm, membranous, white tomentose, margin sparsely glandular denticulate, apex acuminate; petiole 3–5 cm, white tomentose when young, soon glabrous; leaf blade ovate or broadly ovate, 6–8 × 3.5–5 cm, glabrous or white tomentose when young or when young, base rounded, rarely broadly cuneate, margin crenate or subentire basally, serrulate apically, apex shortly acuminate. Raceme umbel-like, 4–7-flowered; peduncle pubescent when young, glabrescent; bracts caducous, linear-lanceolate, 1–1.3 cm, membranous, margin sparsely glandular denticulate and long tomentose, apex acuminate. Pedicel 1.5–4 cm, when young, glabrescent. Flowers 1.5–2.5 cm in diam. Hypanthium cupular, abaxially glabrous. Sepals triangular-ovate, 6–7 mm, abaxially brown tomentose, margin glandular denticulate, apex acuminate. Petals white, obovate, 1.2–1.5 × 0.8–1 cm, shortly clawed at base, apex obtusely rounded. Stamens 20, less than or ca. 1/2 as long as petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, not exceeding stamens, pubescent basally. Pome yellowish green, ovoid or obovate, 2.5–5 cm in diam., 5-loculed; fruiting pedicel 4–5 cm, thickened distally, glabrescent; sepals persistent. Fl. Apr, fr. Aug–Sep. 2n = 34*, 51*.

- 200–1100 m. Native in Xinjiang; cultivated in Gansu, Qinghai, Shaanxi.

This species might be a natural hybrid between Pyrus communis and P. bretschneideri.

Trees to 8–12 m tall. Branchlets purplish brown when young, dark gray or reddish brown when old, terete, glabrous, sparsely lenticellate; buds narrowly ovoid, sparsely tomentose only at margin of scales, apex acuminate. Stipules caducous, linear-lanceolate, 5–8 mm, membranous, pilose, margin serrate, apex acuminate; petiole 2–3 cm, thick, glabrous; leaf blade broadly ovate or suborbicular, 4–5 × 4–5 cm, lateral veins 8–10 pairs, both surfaces glabrous, base rounded or truncate, margin obtusely serrate, apex acute or rounded-obtuse. Raceme umbel-like, 6–10-flowered; peduncle glabrous or subglabrous; bracts caducous, linear-lanceolate, 5–8 mm, membranous, margin sparsely glandular serrate when young, apex acuminate. Pedicel 2.3–3 cm, subglabrous. Flowers 2–3 cm. Hypanthium cupular, abaxially glabrous. Sepals ovate-lanceolate, ca. 6 mm, adaxially brown tomentose, margin entire, apex acuminate. Petals white, obovate or broadly obovate, 1–1.5 × 0.7–0.9 cm, base shortly clawed, apex rounded. Stamens 20–22, ca. 1/2 as long as petals. Ovary 3- or 4-loculed, with 2 ovules per locule; styles 4 or 5, clawed, apex rounded. Flowers not seen. Infructescence a corymb, 8–10-fruit ed. Fl. Apr, fr. Aug–Sep. 2n = 51*

- Cultivated in orchards. N Xinjiang (Tiaocheng Xian).

This species is characterized by its broadly ovate or suborbicular leaves, and might be allied to *Pyrus xerophila*, differing in its ovate or narrowly ovate leaf blade with serrate margin and acuminate apex, and ovoid or ellipsoid fruit.


Trees 5–10 m tall. Branchlets purplish brown when old, terete, sparsely yellow lanate when young, soon glabrescent, glabrous when old, sparsely pale lenticellate; buds ovoid, apex acuminate; scales pubescent at margin. Stipules caducous, not seen; petiole 1.5–3.5 cm, yellow lanate or subglabrous; leaf blade ovate or narrowly ovate, rarely lanceolate-ovate, 6–8 × 3.5–4.5 cm, lateral veins 7–12 conspicuous pairs, abaxially initially yellow lanate, glabrescent, adaxially glabrous, base rounded or broadly cuneate, margin obtusely serrate, apex acute or rounded-obtuse. Raceme umbel-like, 5–7-flowered; peduncle lanate when young, soon glabrescent; bracts caducous, not seen. Pedicel 2–3 cm, initially sparsely lanate. Flowers 9–12 in diam. Hypanthium campanulate, lanate when young, soon glabrescent. Sepals triangular-ovate, ca. 2–3 mm, abaxially sparsely lanate, adaxially densely, margin sparsely glandular denticulate, apex acute or obtuse. Petals white, broadly ovate, 5–8 mm, base shortly clawed, apex rounded. Stamens 25, ca. 1/2 as long as petals. Ovary 3- or 4-loculed, with 2 ovules per locule; styles 3 or 4, nearly as long as stamens, glabrous. Pome brown, with pale dots, subglobose, 1.5–2.5 cm in diam., 3- or 4-loculed; sepals persistent; fruiting pedicel 3–4.5 cm, thickened distally, glabrous. Fl. Apr, fr. Aug–Sep. 2n= 34*, 51*.

- Slopes, among shrubs, forests; 500–2000 m. Gansu, Henan, Shaanxi, Shanxi, Xingjiang, Xizang.

In NW China, this species is often used as stock for grafting pear cultivars.


Trees small, 4–6 m tall. Branchlets grayish brown to purplish brown, glabrous. Stipules not seen; petiole slender, slightly villous; leaf blade ovate-lanceolate, 10–15 × 3–5 cm, abaxially sparsely villous, adaxially glabrous, base broadly cuneate or rounded, margin obtusely serrate, apex acute or shortly acuminate. Flowers not seen. Inflorescence a corymb, 8–10-flowered. Pome purplish brown at maturity, subglobose, 1–1.5 cm in diam., 3-loculed; sepals persistent, revolute, adaxially glabrous, adaxially densely tomentose.

- 200–300 m. E Shandong (Lao Shan).

The present authors have seen no specimens of this species; the above description is based on the protologue.

**白梨** *bai li*

Trees to 5–8 m tall. Branchlets purplish brown when old, terete, robust, densely pubescent when young, glabrous when old, sparsely lenticillate; buds dark purple, ovoid, apex obtuse; scales pubescent at margin and apex. Stipules caducous, linear or linear-lanceolate, 1–1.3 cm, membranous, pubescent, margin glandular denticulate, apex acuminate; petiole 2.5–7 cm, densely tomentose when young, soon glabrescent; leaf blade ovate or elliptic-ovate, 5–11 × 3.5–6 cm, both surfaces tomentose when young, soon glabrescent, base broadly cuneate, rarely subrounded, margin spinulose-serrate, apex acuminate, rarely acute. Raceme umbell-like, 7–10-flowered; peduncle tomentose when young, soon glabrescent; bracts caducous, linear, 1–1.5 cm, membranous, adaxially brown tomentose, margin entire, apex acuminate. Pedicel 1.5–3 cm, pubescent when young. Sepals triangular, 3.5–5 mm, abaxially glabrous, adaxially brown tomentose, margin glandular denticulate, apex acuminate. Petals white, ovate, 1.2–1.4 × 1–1.2 cm, base shortly clawed, apex rounded. Stamens 20, ca. 1/2 as long as petals. Ovary 5- or 4-loculed, with 2 ovules per locule; styles 5 or 4, shortly clawed, apex rounded. Stamens 20, ca. 1/2 as long as petals.

- Slopes, dry cold regions; 100–2000 m. Gansu, Hebei, Henan, Shaanxi, Shandong, Shanxi, Xizang, Zhejiang [Laos].

This species is commonly cultivated in N China, preferring sunny, dry, loamy soils. It includes many important forms with excellent fruit.


**沙梨** *sha li*

_Ficus pyrifolia* N. L. Burman, Fl. Ind. 226. 1768; *Pyrus serotina* Rehder.

Trees to 7–15 m tall. Branchlets purplish brown or dark brown when old, terete, tawny villous or tawny tomentose when young, soon glabrescent, glabrous when old, sparsely lenticillate; buds narrowly ovoid, apex obtuse; scales tomentose at margin and apex. Stipules caducous, linear-lanceolate, 1–1.5 cm, membranous, margin villous and entire, apex acuminate; petiole 3–4.5 cm, initially pubescent, glabrescent; leaf blade ovate-elliptic or ovate, 7–12 × 4–6.5 cm, glabrous or brown lanate when young, base rounded or subcordate, rarely broadly cuneate, margin spinulose-serrate, apex acute. Raceme umbell-like, 6–9-flowered; peduncle sparsely pubescent when young; bracts caducous, linear, 1–1.4 cm, membranous, villous at margin, apex acuminate. Pedicel 3.5–5 cm, sparsely pubescent when young. Flowers 2.5–3.5 cm in diam. Hypanthium cupular, abaxially glabrous. Sepals triangular-ovate, 5 mm, abaxially glabrous, axially brown tomentose, margin glandular denticulate, apex acuminate. Petals white, ovate, 1.5–1.7 cm, base shortly clawed, apex rounded. Stamens 20, ca. 1/2 as long as petals. Ovary 5- or 4-loculed, with 2 ovules per locule; styles 5, rarely 4, nearly as long as stamens, glabrous. Pome brownish, with pale dots, subglobose, 2–2.5 cm in diam., (4- or)5-loculed; sepals caducous; fruiting pedicel 3.5–5.5 cm, subglauberous. Fl. Apr. fr. Aug. 2n = 34*, 51*.

Warm rainy regions; 100–1400 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Slechan, Yunnan, Zhejiang [Laos, Vietnam].

Many varieties of pear cultivated in the regions of the Chang Jiang and Zhu Jiang rivers belong to this species.


**杜梨** *du li*

Trees to 10 m tall, often spinescent. Branchlets purplish brown when old, terete, gray tomentose when young, sparsely tomentose or glabrous when old, sparsely lenticillate; buds ovoid, abaxially gray tomentose, apex acuminate. Stipules caducous, linear-lanceolate, ca. 2 mm, membranous, both surfaces tomentose, margin initially glandular serrate, apex acuminate; petiole 2–3 cm, gray tomentose; leaf blade rhomboidal-ovate or obloneg-ovate, 4–8 × 2.5–3.5 cm, abaxially sparsely tomentose or subglauberous, adaxially gray tomentose when young, glabrous and shiny when old, base broadly cuneate, rarely subrounded, margin serrate, apex acuminate. Raceme umbel-like, 10–15-flowered; peduncle gray tomentose; bracts caducous, linear, 5–8 mm, membranous, both surfaces slightly tomentose, margin entire, apex acuminate. Pedicel 2–2.5 cm, densely gray tomentose when young. Flowers 1.5–2 cm in diam. Hypanthium cupular, abaxially gray tomentose. Sepals triangular-ovate, ca. 3 mm, both surfaces tomentose, margin entire, apex acute. Petals white, broadly ovate, 5–8 × 3–4 mm, base shortly clawed, apex rounded. Stamens 20, ca. 1/2 as long as petals. Ovary 2- or 3-loculed, with 2 ovules per locule; styles 2 or 3, nearly as long as stamens, sparsely pubescent basally. Pome brown, with pale dots, subglobose, 5–10 mm in diam., 2- or 3-loculed; sepals caducous; fruiting pedicels 1.2–2.5 cm, gray tomentose when young, glabrescent. Fl. Apr. fr. Aug–Sep. 2n = 34*.

Open slopes, plains; sea level to 1800 m. Anhui, Gansu, Guizhou, Hebei, Henan, Jiangsu, Jiangxi, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Xizang, Zhejiang [Laos].

This species is a common tree in N China, and is often planted in gardens and parks for ornamental purposes, preferring sunny, dry, sandy, loamy soils. It is usually used as stock to graft various pear cultivars.


**褐梨** *he li*

Trees to 5–8 m tall. Branchlets purplish red when young, purplish brown when old, terete, white tomentose when young, glabrous when old, sparsely pale lenticillate; buds narrowly ovoid, apex obtuse; scales tomentose at margin. Stipules caducous, linear-lanceolate, 1–2 mm, membranous, adaxially sparsely tomentose, margin sparsely glandular denticulate, apex acuminate; petiole 2–6 cm, sparsely pubescent or subglauberous; leaf blade elliptic-ovate or narrowly ovate, 6–10 × 3.5–5 cm, sparsely tomentose when young, soon glabrescent, base broadly cuneate, margin serrate, apex long acuminate. Raceme umbel-
like, 5–8-flowered; peduncle tomentose when young, soon glabrescent; bracts caducous, linear-lanceolate, 8–11 mm, membranous, adaxially villous, margin entire, apex acuminated. Pedicel 2–2.5 cm, subglabrous. Flowers ca. 3 cm in diam. Hypanthium campanulate, abaxially white tomentose. Sepals triangular-lanceolate, 2–3 mm, adaxially tomentose, margin entire, apex acuminated. Petals white, ovate, 1–1.5 cm, base shortly clawed, apex rounded. Stamens 20, ca. 1/2 as long as petals. Ovary (2- or)3- or 4-loculed; sepals caducous; fruiting pedicel 2–4 cm, glabrous. Fl. Apr, fr. Aug–Sep. 2 or 4-loculed; sepals caducous; fruiting pedicel 2–4 cm, glabrous; bracts caducous, linear-lanceolate, 8–11 mm, membranous, 5–8-flowered; peduncle tomentose when young, soon glabrescent; bracts caducous, linear-lanceolate, 0.8–1.3 cm, membranous, adaxially tomentose, margin initially glandular pubescent, glabrescent; buds triangular-ovoid, sparsely tomentose when young, glabrescent when old; scales grayish brown, apex obtuse; scales 2( or)3, nearly as long as stamens, glabrous basally. Pome blackish brown with pale dots, globose, ca. 1 cm in diam., 2(or 3)-loculed; sepals caducous; fruiting pedicel 1.5–3 cm, glabrous. Flowers ca. 3 cm in diam. Hypanthium cupular, glabrous. Sepals lanceolate, ca. 5 mm, abaxially glabrous, adaxially tomentose, margin entire, apex acuminated. Petals white, ovate, ca. 1.3 × 1 cm, base shortly clawed, apex rounded. Stamens 20, slightly shorter than petals. Ovary 2(or 3)-loculed, with 2 ovules per locule; styles 2(or)3, nearly as long as stamens, glabrous basally. Pome blackish brown with pale dots, globose, ca. 1 cm in diam., 2(or 3)-loculed; sepals caducous; fruiting pedicel 1.5–3 cm, glabrous. Fl. Apr, fr. Aug–Sep. 2n = 34*.

- Slopes, mixed hillside forests of the Loess Plateau; 100–1200 m
- Gansu, Hebei, Shaanxi, Shandong, Shanxi, Xinjiang.

This species is often used as stock to graft pear cultivars.

14. Pyrus calleryana

Trees 5–8 m tall. Branchlets reddish brown when young, grayish brown when old, terete, initially tomentose, soon glabrescent, glabrous when old; buds triangular-ovoid, sparsely tomentose, apex shortly acuminated. Stipules caducous, linear-lanceolate, 4–7 cm, herbaceous, glabrous, margin entire, apex acuminate; petiole 2–4 cm, glabrous; leaf blade broadly ovate or ovate, rarely narrowly elliptic, 4–8×3.5–6 cm, glabrous, base rounded or broadly cuneate, margin obtusely serrate, apex acuminated, rarely acute. Raceme umbel-like, 6–12-flowered; peduncle pubescent; bracts caducous, linear-lanceolate, 0.8–1.3 cm, membranous, adaxially tomentose, margin initially glandular serrarate, apex acuminate. Pedicel 1.5–3 cm, glabrous. Flowers 2–2.5 cm in diam. Hypanthium cupular, glabrous. Sepals lanceolate, ca. 5 mm, abaxially glabrous, adaxially tomentose, margin entire, apex acuminated. Petals white, ovate, ca. 1.3 × 1 cm, base shortly clawed, apex rounded. Stamens 20, slightly shorter than petals. Ovary 2(or 3)-loculed, with 2 ovules per locule; styles 2(or)3, nearly as long as stamens, glabrous basally. Pome blackish brown with pale dots, globose, ca. 1 cm in diam., 2(or 3)-loculed; sepals caducous; fruiting pedicel 1.5–3 cm, glabrous. Fl. Apr, fr. Aug–Sep. 2n = 34*.

- Anhui, Fujian, Zhejiang.

This species is often used as stock to graft pear cultivars.

14a. Pyrus calleryana var. calleryana

Leaf blade ovate-lanceolate or oblong-lanceolate, margin shallowly serrate or nearly entire.

- Anhui, Fujian, Zhejiang.

14b. Pyrus calleryana var. koehnei

Leaf blade ovate-lanceolate or oblong-lanceolate, margin obtusely serrate, apex acuminated, rarely acute. Raceme umbel-like, 7–13-flowered; peduncle pubescent; bracts caducous, linear-lanceolate, 0.8–1.3 cm, membranous, adaxially tomentose, margin obtusely serrate, apex acuminated. Pedicel 1.5–3 cm, glabrous. Flowers 2–2.5 cm in diam. Hypanthium cupular, glabrous. Sepals lanceolate, ca. 5 mm, abaxially glabrous, adaxially tomentose, margin entire, apex acuminated. Petals white, ovate, ca. 1.3 × 1 cm, base shortly clawed, apex rounded. Stamens 20, slightly shorter than petals. Ovary 2(or 3)-loculed, with 2 ovules per locule; styles 2(or)3, nearly as long as stamens, glabrous basally. Pome blackish brown with pale dots, globose, ca. 1 cm in diam., 2(or 3)-loculed; sepals caducous; fruiting pedicel 1.5–3 cm, glabrous. Fl. Apr, fr. Aug–Sep. 2n = 34*.

- Fujian, Guangdong, Guangxi, Zhejiang.

14c. Pyrus calleryana var. integrifolia

Leaf blade ovate, margin entire, base obtusely rounded.

- Jiangsu, Zhejiang.

14d. Pyrus calleryana var. koehnei

Leaf blade ovate-lanceolate or oblong-lanceolate, margin obtusely serrate, apex acuminated, rarely acute. Raceme umbel-like, 7–13-flowered; peduncle pubescent; bracts caducous, linear-lanceolate, 0.8–1.3 cm, membranous, adaxially tomentose, margin obtusely serrate, apex acuminated. Pedicel 1.5–3 cm, glabrous. Flowers 2–2.5 cm in diam. Hypanthium cupular, glabrous. Sepals lanceolate, ca. 5 mm, abaxially glabrous, adaxially tomentose, margin entire, apex acuminated. Petals white, ovate, ca. 1.3 × 1 cm, base shortly clawed, apex rounded. Stamens 20, slightly shorter than petals. Ovary 2(or 3)-loculed, with 2 ovules per locule; styles 2(or)3, nearly as long as stamens, glabrous basally. Pome blackish brown with pale dots, globose, ca. 1 cm in diam., 2(or 3)-loculed; sepals caducous; fruiting pedicel 1.5–3 cm, glabrous. Fl. Apr, fr. Aug–Sep. 2n = 34*.

- Fujian, Guangdong, Guangxi, Zhejiang.

15. Pyrus pashia

Leaf blade ovate-lanceolate or oblong-lanceolate, margin obtusely serrate, apex acuminate. Raceme umbel-like, 7–13-flowered; peduncle pubescent; bracts caducous, linear-lanceolate, 0.8–1.3 cm, membranous, adaxially tomentose, margin obtusely serrate, apex acuminate. Pedicel 1.5–3 cm, glabrous. Flowers 2–2.5 cm in diam. Hypanthium cupular, glabrous. Sepals lanceolate, ca. 5 mm, abaxially glabrous, adaxially tomentose, margin entire, apex acuminated. Petals white, ovate, ca. 1.3 × 1 cm, base shortly clawed, apex rounded. Stamens 20, slightly shorter than petals. Ovary 2(or 3)-loculed, with 2 ovules per locule; styles 2(or)3, nearly as long as stamens, glabrous basally. Pome blackish brown with pale dots, globose, ca. 1 cm in diam., 2(or 3)-loculed; sepals caducous; fruiting pedicel 1.5–3 cm, glabrous. Fl. Apr, fr. Aug–Sep. 2n = 34*.

- Fujian, Guangdong, Guangxi, Zhejiang.

15a. Pyrus pashia

Leaf blade ovate-lanceolate or oblong-lanceolate, margin obtusely serrate, apex acuminate. Raceme umbel-like, 7–13-flowered; peduncle pubescent; bracts caducous, linear-lanceolate, 0.8–1.3 cm, membranous, adaxially tomentose, margin obtusely serrate, apex acuminate. Pedicel 1.5–3 cm, glabrous. Flowers 2–2.5 cm in diam. Hypanthium cupular, glabrous. Sepals lanceolate, ca. 5 mm, abaxially glabrous, adaxially tomentose, margin entire, apex acuminated. Petals white, ovate, ca. 1.3 × 1 cm, base shortly clawed, apex rounded. Stamens 20, slightly shorter than petals. Ovary 2(or 3)-loculed, with 2 ovules per locule; styles 2(or)3, nearly as long as stamens, glabrous basally. Pome blackish brown with pale dots, globose, ca. 1 cm in diam., 2(or 3)-loculed; sepals caducous; fruiting pedicel 1.5–3 cm, glabrous. Fl. Apr, fr. Aug–Sep. 2n = 34*.

- Fujian, Guangdong, Guangxi, Zhejiang.


This tree is cultivated in Yunnan, and is often used as stock for grafting pear cultivars.

1a. Leaves and inflorescence glabrous ....... 15c. var. kumaoni
1b. Leaves and inflorescence pubescent at least when young.
   2a. Flowers large, ca. 3 cm in diam., young leaves, petiole, pedicel, and sepals adaxially rusty tomentose
   15d. var. grandiflora
   2b. Flowers smaller, 2–2.5 cm in diam., sepals on both surfaces and leaves initially tomentose.
   3a. Sepals apically acute; branchlets and inflorescence lanose ....... 15a. var. pashia
   3b. Sepals apically obtuse, rarely acute or acuminate; branchlets and inflorescence tomentose ....... 15b. var. obtusata

15a. Pyrus pashia var. pashia

川梨(原变种) chuan li (yuan bian zhong)

Pyrus nepalensis Hortorum ex Decaisne; P. variolosa


钝叶川梨 dun ye chuan li

Branchlets and inflorescences tomentose. Sepals obtuse, rarely acute or acuminate at apex.

● Sichuan, Yunnan.


无毛川梨 wu mao chuan li

Leaf blades and inflorescences glabrous. Sepals ovate, apex obtuse.

Yunnan [N India].


大花川梨 da hua chuan li

Flowers large, ca. 3 cm in diam., leaf blade initially, petiole, pedicel, and sepals adaxially rusty tomentose.

● Guizhou, Yunnan.


苹果属 ping guo shu

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Stephen A. Spongberg

Sinomalus Koidzumi.

Trees or shrubs, deciduous or semievergreen, usually unarmed; buds ovoid, with several imbricate scales. Leaves alternate, simple, petiolate, stipulate, venation craspedodromous or camptodromous and merely toothed, margin serrate or lobed, folded or convolute in bud. Inflorescences corymbose-racemose. Flowers pedicellate. Hypanthium bowl-shaped. Sepals 5, persistent or caducous.

Petals 5, white, pink, or red, suborbicular or obovate. Stamens 15–50, with white filaments and yellow anthers. Ovary inferior, 3–5-loculed, with 2 ovules in each cell; styles 3–5, connate at base, glabrous or pubescent. Pome usually not containing stone cells or present in a few species, 3–5-loculed, 1- or 2-seeded in each cell, with cartilaginous endocarp (core). Seeds brown or black, cotyledons plano-convex.

About 55 species: widely distributed in N temperate zone; 26 species (16 endemic) in China.

1a. Leaf blade not lobed, convolute in bud; pome without stone cells.
   2a. Sepals caducous in fruit; styles 3–5; pome usually less than 1.5 cm in diam.
   3a. Sepals triangular-ovate, ca. as long as or slightly longer than hypanthium.
   4a. Hypanthium, sepals, branchlets, petiole, and pedicel tomentose ...................................................................... 9. M. daochengensis
   4b. Hypanthium and sepals abaxially glabrous; branchlets, petiole, and pedicel slightly pubescent when young, soon glabrescent.
   5a. Leaf blade ovate-lanceolate or broadly lanceolate, apex caudate-acuminate; pome cylindric ...................... 8. M. muliensis
   5b. Leaf blade ovate, ovate-elliptic, rarely narrowly elliptic, apex acuminate to long acuminate; pome ellipsoid, pyriform, or subglobose, rarely obovoid.
   6a. Leaf blade acutely serrulate; sepals apically acuminate or acute; styles 3, rarely 4; pome ellipsoid to subglobose ........................................................................................................... 6. M. hupehensis
6b. Leaf blade obtusely serrulate; sepals apically obtuse; styles 4 or 5; pome pyriform or obovoid .......... 7. M. halliana
3b. Sepals lanceolate, longer than hypanthium.
7a. Branchlets glabrous or puberulous; leaf blade initially puberulous, glabrescent or subglabrous later.
8a. Petiole, leaf veins, pedicel, and hypanthium often sparsely pubescent; pome ellipsoid or obovoid ...... 3. M. mandshurica
8b. Petiole, leaf veins, pedicel, and hypanthium glabrous; pome subglobose or obovoid.
9a. Sepals lanceolate, apex long acuminate; styles 5 or 4, basally densely villous, pome subglobose with an obscure small scar at apex ................................. 1. M. baccata
9b. Sepals ovate, apex caudate, rarely acuminate; styles (3 or)4, basally slightly pilose or glabrous, pome obovoid, with a large scar at apex ................................................................. 2. M. jinxianensis
7b. Branchlets and leaf blade abaxially often tomentose or pubescent.
10a. Styles basally glabrous, pome obovoid or pyriform, white punctate; leaf blade abaxially densely
tomentose ........................................................................................................................................... 4. M. sikkimensis
10b. Styles basally pubescent or glabrous, pome subglobose, not punctate; leaf blade abaxially pubescent.
11a. Leaf margin appressed serrate, blade abaxially densely puberulous, base rounded or broadly cuneate;
petals white but pink abaxially; pome ovoid or subglobose, slightly convex at apex; sepals caducous ...... 5. M. rockii
11b. Leaf margin acutely serrate, blade abaxially pubescent when young, glabrescent, base cuneate;
petals pink; pome subglobose, impressed at apex; pome caducous or persistent .................................. 15. M. ×micromalus
2b. Sepals persistent in fruit; styles (4 or)5; pome larger, usually more than 2 cm in diam.
12a. Sepals apically acute, shorter than or ca. as long as hypanthium.
13a. Leaf base broadly cuneate or subrounded; petiole 1.5–2 cm; pome yellow, without cavity at base;
sepals persistent ........................................................................................................................................ 14. M. spectabilis
13b. Leaf base cuneate; petiole 2–3.5 cm; pome red with cavity at base; sepals caducous or persistent .... 15. M. ×micromalus
12b. Sepals apically acuminate, longer than hypanthium.
14a. Leaf margin obtusely serrate; pome depressed-globose or globose, often projected at apex.
15a. Cultivated species; pome large, with short pedicel; leaf blade serrate; branchlets, buds, and leaves with many hairs ................................................................................................................................. 10. M. pumila
15b. Native species; pome small, with long pedicel; leaf blade serrulate; branchlets, buds, and leaves with
few hairs .................................................................................................................................................. 11. M. sieversii
14b. Leaf margin often acutely serrate; pome ovoid, attenuate at apex, or not slightly projected at apex.
16a. Pome large, 4–5 cm in diam., with 1.5–2 cm pedicel; leaf blade abaxially densely puberulous ............. 12. M. asiatica
16b. Pome smaller, 2–2.5 cm in diam., with 3.2–3.5 cm pedicel; leaf blade abaxially puberulous or
subglabrous only along veins .................................................................................................................. 13. M. prunifolia
1b. Leaf blade usually lobed, rarely not lobed, folded in bud; pome without or with few stone cells.
17a. Sepals caducous.
18a. Styles basally villous; pome subglobose .......................................................................................... 16. M. sieboldii
18b. Styles basally glabrous; pome ellipsoid or obovoid, rarely subglobose.
19a. Leaf blade often 3–5-lobed, doubly serrate at margin; pome with few stone cells.
20a. Lobes of leaf blade triangular-ovate; leaf blade rounded or truncate at base; fruiting pedicel 2–3.5
cm ..................................................................................................................................................... 17. M. kansuensis
20b. Lobes of leaf blade oblong-ovate; leaf blade cordate or subcordate at base; fruiting pedicel 1.2–1.5
cm ......................................................................................................................................................... 18. M. komarovii
19b. Leaf blade 3–5-parted, not doubly serrate at margin; pome without stone cells.
21a. Young branches puberulous, soon glabrescent; leaf blade undivided or sometimes parted, both
surfaces pubescent; flower 2–2.5 cm in diam. ........................................................................................ 19. M. toringoides
21b. Young branches tomentose; leaf blade parted, tomentose on both surfaces; flowers 1.5–2 cm in diam. .......................................................................................................................... 20. M. transitoria
17b. Sepals persistent.
22a. Pome projected at apex, core separated.
23a. Pedicel, hypanthium, and sepals abaxially tomentose .......................................................................... 25. M. doumeri
23b. Pedicel, hypanthium, and sepals abaxially glabrous ......................................................................... 26. M. leiocalyca
22b. Pome with cupular cavity at apex, core not separated.
24a. Leaf margin not lobed; inflorescence subcorymboform.
25a. Leaf margin serrulate, abaxially glabrous or sparsely puberulous; pome 1–1.5 cm in diam.; fruiting
pedicel glabrous ...................................................................................................................................... 21. M. pratii
25b. Leaf margin doubly serrate, abaxially tomentose; pome 1.5–2 cm in diam.; fruiting pedicel villous ........................................................................................................................................ 22. M. ombrophila
24b. Leaf margin 3–6-lobed, acutely doubly serrate; inflorescence subcorymboform.
26a. Styles 3 or 4; leaf blade abaxially puberulous; hypanthium and pedicel sparsely pubescent ........... 23. M. honanensis
26b. Styles 5; leaf blade abaxially tomentose; hypanthium and pedicel tomentose ................................. 24. M. yunnanensis

山荆子 shan jing zi

Trees to 10–14 m tall, with arching or pendulous branches. Branchlets reddish brown, terete, glabrous; buds reddish brown, ovoid, scales tomentose at margin. Stipules caducous, lanceolate, ca. 3 mm, membranous, margin entire or with sparse glandular teeth, apex acuminate; petiole 2–5 cm, puberulous, with few glands when young, glabrescent; leaf blade elliptic or ovate, 3–8 × 2–3.5 cm, glabrous or slightly puberulous when young, base cuneate or rounded, margin serrate, apex acuminate. Flowers 3–3.5 cm in diam. Hypanthium campanulate, glabrous. Sepals lanceolate, 5–7 mm, longer than hypanthium, abaxially pubescent, soon glabrous, base broadly cuneate or subrounded, margin serrulate, sometimes shortly curved-serrate, apex acuminate or caudate-acuminate. Corymbs clustered at ends of short shoots, 3–5 cm in diam., 3–6-flowered; bracts caducous, linear-lanceolate, adaxially pilose, margin sparsely glandular serrate, apex acuminate. Pedicel 2–3.3 cm, slender, glabrous. Flowers 1–2 cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals ovate, 3–4 mm, longer than ovary, base cuneate or subrounded, margin serrulate, apex acute or obtuse. Petals white, ovate, 2–2.5 cm, sparsely pubescent, apex obtuse-rounded. Stamens 15–20, unequal, ca. 1/2 as long as petals. Ovary 5- or 4-loculed, with 2 ovules per locule; styles 5 or 4, obtuse-rounded. Styles 3 or 4.

Branchlets reddish brown, terete, glabrous; buds reddish brown, ovoid, scales tomentose at margin. Stipules caducous, lanceolate, ca. 3 mm, membranous, margin entire or with sparse glandular teeth, apex acuminate; petiole 2–5 cm, puberulous, with few glands when young, glabrescent; leaf blade elliptic or ovate, 3–8 × 2–3.5 cm, glabrous or slightly puberulous when young, base cuneate or rounded, margin serrate, apex acuminate. Flowers 3–3.5 cm in diam. Hypanthium campanulate, glabrous. Sepals lanceolate, 5–7 mm, longer than hypanthium, abaxially glabrous, adaxially tomentose, margin entire, apex long acuminate. Petals white, obovate, 2–2.5 cm, base shortly clawed, apex obtuse-rounded. Stamens 15–20, unequal, ca. 1/2 as long as petals. Ovary 5- or 4-loculed, with 2 ovules per locule; styles 5 or 4, longer than stamens, densely villose basally. Pome red or yellow, subglobose, 8–10 mm in diam., with an obscure scar at apex; fruiting pedicel 3–4 cm, glabrous; sepal caducous. Fl. Apr-Jun, fr. Sep-Oct. 2n = 34.*

Mixed forests on slopes, among shrubs in valleys; sea level to 1500 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Xinnjiang, Xizang [Bhutan, India, Kazakhstan, Korea, Mongolia, Nepal, Russia (Siberia)].

This is a beautiful, ornamental tree grown for its showy flowers and red or yellow fruit. It is commonly used as stock to graft Malus pumila and M. asiatica in N and NE China.

1a. Trees to 10–14 m tall; branchlets slender, slightly curved, not pendulous; leaf margin obtusely serrate; flowers 3–3.5 cm in diam.; styles 5 or 4 .................. 1a. var. baccata

1b. Small trees, 4–6 m tall; branchlets pendulous; leaf margin obtusely serrate; flowers ca. 3 cm in diam.; styles 3 or 4 .................. 1b. var. gracilis

1a. Malus baccata var. baccata

山荆子(原变种) shan jing zi (yuanshian zhong)

Pyrus baccata Linnaeus, Mant. Pl. 75. 1767; M. baccata var. sibirica (Maximowicz) C. K. Schneider; M. sibirica Borkhausen.


Mixed forests on slopes, among shrubs in valleys; sea level to 1500 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi [Korea, Mongolia, Russia (Siberia)].

1b. Malus baccata var. gracilis (Rehder) T. C. Ku, comb. et stat. nov.

垂枝山荆子 chui zhi shan jing zi


Trees, small, 4–6 m tall. Branchlets pendulous. Leaf margin obtusely serrate. Flowers ca. 3 cm in diam. Styles 3 or 4.

● Gansu, Shaanxi.


金县山荆子 jin xian shan jing zi

Malus baccata (Linnaeus) Borkhausen var. jinxianensis (J. Q. Deng & J. Y. Hong) C. Y. Li.

Trees small. Branchlets dark brown, terete, slender, subglabrous; buds reddish brown, ovoid; scales slightly pubescent at margin. Stipules usually caducous, lanceolate, ca. 1 cm, membranous, margin serrulate, apex acuminate; petiole 1–1.5 cm, pubescent when young, glabrescent; leaf blade elliptic to ovate, rarely suborbicular, 4–8 × 2–5 cm, both surfaces initially pubescent, soon glabrous, base broadly cuneate or subrounded, margin serrulate, sometimes shortly curved-serrate, apex acuminate or caudate-acuminate. Corymbs clustered at ends of short shoots, 3–5 cm in diam., 3–6-flowered; bracts caducous, linear-lanceolate, adaxially pilose, margin sparsely glandular serrate, apex acuminate. Pedicel 2–3.3 cm, slender, glabrous. Flowers 1–2 cm in diam. Hypanthium campanulate, abaxially glabrous. Sepals oval, 3–4 mm, longer than hypanthium, tomentose adaxially, margin entire, apex caudate, rarely acuminate. Petals pink, ovate, 1–1.5 cm, base shortly clawed, apex rounded. Stamens 20–30, unequal, ca. 1/2 as long as petals. Ovary (3- or)4-loculed, with 2 ovules per locule; styles (3 or)4, slightly connate at base, longer than stamens, sparsely white pilose, rarely glabrous. Pome purplish red, obovoid, ca. 1 cm in diam., with a large scar at apex; fruiting pedicel 3–3.5 cm; sepals caducous. Fl. May, fr. Oct.

● Cultivated. S Liaoning (Jin Xian).


毛山荆子 mao shan jing zi

Pyrus baccata Linnaeus var. mandshurica Maximowicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg 19: 170. 1874; Malus baccata (Linnaeus) Borkhausen subsp. mandshurica (Komarov) Likhonos; M. baccata var. mandshurica (Maximowicz) C. K. Schneider.

Trees to 15 m tall. Branchlets purplish brown, terete, densely puberulous when young, glabrescent; buds reddish brown, ovoid, glabrous or scales slightly puberulous at margin. Stipules caducous, linear-lanceolate, 5–7 mm, herbaceous or membranous, adaxially sparsely puberulous, margin sparsely glandular denticulate, apex acuminate; petiole 3–4 cm, sparsely puberulous; leaf blade ovate, elliptic, or obovate, 5–8 × 3–4 cm, axially puberulous or subglabrous along midvein and lateral veins, base cuneate or subrounded, margin serrulate, apex acute or acuminate. Corymb sessile, at ends of branchlets, umbel-like, 6–8 cm in diam., 3–6-flowered; bracts caducous, linear-lanceolate, small, membranous, margin entire or glandular denticu-
late, apex acuminate. Pedicel 3–5 cm, sparsely puberulous. Flowers 3–3.5 cm in diam. Hypanthium campanulate, abaxially puberulent. Sepals lanceolate, 5–7 mm, slightly longer than hypanthium, adaxially tomentose, margin entire, apex acuminate. Petals white, narrowly obovate, 1.5–2 cm, base shortly clawed, apex rounded. Stamens 30, unequal, ca. 1/2 as long as petals or longer. Ovary 4–5-loculed, with 2 ovules per locule; styles 4(or 5), slightly longer than stamens, tomentose basally. Pome red, ellipsoid or obovoid, 0.8–1.2 cm in diam.; fruiting pedicel 3–5 cm, slightly puberulous; sepals caducous, with a small scar at apex. Fl. May–Jul, fr. Aug–Sep. 2n = 34*.

Mixed forests on slopes, mountain summits, valleys; 100–2000 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi, Shandong, and Shaanxi [Russia].

In NE China, this species is often used as stock for grafting Malus pumila and M. asiatica.

4. Malus sikkiensis (Wenzig) Koehne, Gatt.5 Pomac. 27. 1890.

锡金海棠 xi jin hai tang

Pyrus pashia Buchanan-Hamilton ex D. Don var. sikkiensis Wenzig, Linnaea 38: 49. 1874; Malus baccata subsp. sikkiensis (Wenzig) Likhonos; P. sikkiensis (Wenzig) J. D. Hooker.

Trees small, 6–8 m tall. Branchlets reddish brown when young, blackish brown when old, terete, gray tomentose when young, puberulous when old; buds reddish brown, ovoid; scales tomentose at margin. Stipules caducous, lanceolate, 6–8 mm, membranous, glandular at margin, apex acuminate; petiole 2–3 cm, initially densely tomentose, glabrescent; leaf blade elliptic, ovate, or ovate-lanceolate, 5–7 × 2–3 cm, abaxially gray tomentose, densely so along veins, later subglabrous, adaxially glabrous, base rounded or broadly cuneate, margin sharply serrate, apex acuminate or ciliate-acuminate. Corymbs 5–9 cm in diam., 6–10-flowered; bracts caducous, lanceolate, membranous, margin entire or serrate, apex acuminate. Pedicel 1.5–5 cm, tomentose, later subglabrous. Flowers 2.5–3 cm in diam. Hypanthium campanulate, adaxially tomentose, later subglabrous. Sepals ovate-lanceolate, 5–6 mm, longer than hypanthium, both surfaces tomentose, later subglabrous, margin entire, apex acuminate. Petals white adaxially, pink abaxially, suborbicular, 1.2–1.5 cm, base shortly clawed, apex rounded. Stamens 25–30, unequal, ca. 1/2 as long as petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, longer than stamens, connate at base, glabrous. Pome red, white, pink at apex, slightly tomentose or subglabrous; sepals caducous. Fl. May–Jul, fr. Sep–Oct. 2n = 34*, 51*, 68*.

Open forests on slopes, mixed forests in valleys; 2500–3000 m. W Sichuan, S and SE Xizang, NW Yunnan [Bhutan, NE India, Nepal, Sikkim].

This is a rare species with small, isolated populations threatened by forest clearing.

ed, apex rounded. Stamens 20 unequal, ca. 1/2 as long as petals. Ovary 3- or 4-loculed, with 2 ovules per locule; styles 3 (or 4), slightly longer than stamens, tomentose, pubescent. Pome yellowish green, tinged red, ellipsoid or subglobose, ca. 1 cm in diam.; fruiting pedicel 3–6 cm, glabrous; sepals caducous, with a small scar at apex. Fl. Apr–May, fr. Aug–Sep. 2n = 51*, 68*.

- Slopes, valley thickets; sea level to 2900 m. Anhui, Fujian, Gansu, Guangdong, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shanxi, Shandong, Shannxi, Zhejiang.

This species is used as a grafting stock for apple trees in Hubei and Sichuan. Its young leaves can be processed as a tea substitute. It has showy flowers in the spring and abundant, beautiful fruit in the autumn, and can be used as an ornamental tree.

7. Malus halliana Koehne, Gatt. Pomac. 27. 1890.

垂丝海棠 chui si hai tang

Malus domestica Borkhausen var. halliana (Koehne) Likhonos; M. floribunda Siebold ex Van Houtte var. parkmannii Koehne; Pyrus halliana (Koehne) Voss.

Trees to 5 m tall. Branchlets purple or purplish brown, terete, slender, puberulous when young, glabrous; buds purplish brown, ovoid, glabrous or scales ciliate at margin. Stipules caducous, lanceolate, small, 4–6 mm, membranous, puberulous adaxially, margin glandular denticate when young, apex acuminate; petiole 0.5–2.5 cm, sparsely pubescent when young, glabrescent; leaf blade dark green and often tinged purple adaxially, ovate, elliptic, or narrowly elliptic, 3.5–8 × 2.5–4.5 cm, glabrous except sometimes puberulous along midvein, base cuneate or subrounded, margin obtusely serrulate, apex long acuminate. Corymb 4–6 cm in diam., 4–6-flowered; bracts caducous, lanceolate, membranous, margin entire, apex acuminate. Pedicle pendulous, purple, 2–4 cm, slender, sparsely pubescent. Flowers 3–3.5 cm diam. Hypanthium glabrous abaxially. Sepals triangular-ovate, 3–5 mm, ca. as long as or slightly shorter than hypanthium, adaxially glabrous, adaxially tomentose, margin entire, apex obtuse. Petals often more than 5, pink, obovate, ca. 1.5 cm, base shortly clawed, apex rounded. Stamens 20–25, unequal, ca. 1/2 as long as petals. Ovary 4- or 5-loculed, with 2 ovules per locule; styles 4 or 5, slightly longer than stamens, long tomentose basally. Pome purplish, pyriform or obovoid, 6–8 mm in diam.; flowering pedicel 2–4 cm, subglabrous; sepals caducous, with a small scar at apex. Fl. Mar–Apr, fr. Sep–Oct. 2n = 34*, 51*.

- Thickets on slopes or by streams; sea level to 1200 m. Anhui, Guizhou, Hubei, Jiangsu, Shaanxi, Sichuan, Yunnan, Zhejiang.

This species has been used as an ornamental because of its purplish red young branches and leaves and pink, showy flowers in the spring.

According to Bean (Trees Shrubs Hardy Brit. Isles, ed. 8, 2: 699. 1981), this is a Japanese species and does not occur in China. Further study is required on Chinese specimens attributed to Malus halliana.

Malus halliana is similar to M. baccata, which differs by its serrulate leaves, white petals, and apically acuminate sepals larger than the hypanthium.


木里海棠 mu li hai tang

Trees small, 3–4 m tall. Branchlets black-gray, terete; buds purple-red, ellipsoid-ovoid, apex acute; scales several, exposed, abaxially pubescent. Stipules caducous, lanceolate, pubescent, apex acuminate; petiole 2–2.5 cm, densely pubescent; leaf blade pale green abaxially, deep green adaxially, ovate-lanceolate or broadly lanceolate, 4–6 × 1.5–2.3 cm, abaxially sparsely pubescent, densely so on midvein, adaxially glabrous, base broadly cuneate or rounded, margin shallowly obtusely serrate, apex ciliate-acuminate. Flowers not seen. Pome purplish red, cylindric, 6.5–7.5 × 4.5–5 cm; fruiting pedicel 3–3.5 cm, pilose or subglabrous; sepals deciduous. Fr. Aug–Sep.

- Picea forests; ca. 3200 m. SW Sichuan (Muli Xian).


稻城海棠 dao cheng hai tang

Trees to 5–7 m tall. Branchlets grayish brown when old, terete, densely grayish white tomentose when young, glabrous when old; buds purplish brown, long elliptic-ovoid; scales puberulous at margin, tomentose abaxially. Stipules caducous, linear-lanceolate, 4–6 mm, membranous, pubescent, margin sparsely glandular serrate, apex acuminate; petiole 1–3 cm, gray tomentose; leaf blade pale green abaxially, green adaxially, elliptic-lanceolate or elliptic, 4–9.5 × 2–4 cm, abaxially tomentose when young, glabrous, adaxially gray tomentose along veins when young, soon glabrescent, base cuneate or rounded, margin obtusely serrate, apex acuminate, acute, or obtuse. Corymb umbel-like, 3–5 cm in diam., 3–6-flowered; bracts caducous, linear-lanceolate, membranous, both surfaces tomentose, margin entire, apex acuminate. Pedicel 3.5–4 cm, densely grayish white tomentose. Flowers 3.5–4 cm in diam. Hypanthium densely grayish white tomentose. Sepals triangular-lanceolate, 4–6 mm, nearly as long as hypanthium, both surfaces grayish white tomentose, margin entire, apex acuminate. Pedal white or pinkish white, broadly elliptic, ca. 2 cm, base shortly clawed, apex rounded. Stamens 25, unequal, ca. 1/2 as long as petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, slightly longer than stamens, tomentose basally. Pome yellowish red, pyriform or obovoid, 1–1.5 cm in diam.; fruiting pedicel 3.5–4 cm, grayish white tomentose; sepals caducous, with a small scar at apex. Fl. Jun, fr. Aug.

- Thickets, field margins; ca. 2800 m. W Sichuan, NW Yunnan.

10. Malus pumila Miller, Gard. Dict., ed. 8, Malus no. 3. 1768.

苹果 ping guo

Malus communis Poiret; M. dasyphylla Borkhausen; M. dasyphylla var. domestica Koidzumi; M. domestica Borkhausen; M. domestica subsp. pumila (Miller) Likhonos; M. pumila var. domestica C. K. Schneider; M. niedzwetzkyana Dieck ex Koehne; M. sylvestris Miller subsp. mitis Mansfeld; Pyrus malus Linnaeus; P. malus var. pumila Henry.

Trees to 15 m tall. Branchlets purplish brown when old, terete, robust, short, densely tomentose when young, glabrous when old; buds purplish brown, ovoid, densely puberulous.
Stipules caducous, lanceolate, 3–5 mm, herbaceous, densely puberulous, margin entire, apex acuminate; petiole robust, 1.5–3 cm, puberulous; leaf blade elliptic, ovate, or broadly elliptic, 4.5–10 × 3–5.5 cm, both surfaces densely puberulous when young, adaxially glabrescent, base broadly cuneate or rounded, margin obtusely serrate, apex acute. Corymb at apices of branchlets, 4–6 cm in diam., 3–7-flowered; bracts caducous, linear-lanceolate, membranous, tomentose, margin entire, apex acuminate. Pedicel 1–2.5 cm, tomentose. Flowers 3–4 cm in diam. Hypanthium tomentose abaxially. Sepals triangular-lanceolate or triangular-ovate, 6–8 mm, longer than hypanthium, both surfaces tomentose, margin entire, apex acuminate. Petals white tomentose; sepals persistent, reflexed, with cavity at globose, 3–4.5(–7) cm in diam.; fruiting pedicel 3.5–4 cm, longer as or slightly longer than stamens, white tomentose. Ovary 5-loculed, with 2 ovules per locule; styles 5, ca. as clawed, apex rounded. Stamens 20, unequal, ca. 1/2 as long as petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, slightly longer than stamens, gray tomentose basally. Pome yellow or red, ovoid or subglobose, 4–5 cm in diam., impressed at base; fruiting pedicel 1.5–2.5 cm, pubescent. Ovary 5-loculed, with 2 ovules per locule; styles 4(or 5), longer than stamens, tomentose. Stamens 17–20, unequal, shorter than petals. Ovary 4- or 5-loculed, with 2 ovules per locule; styles 4(or 5), longer than stamens, tomentose. Petals pinkish, obovate or oblong-obovate, 0.8–1.3 cm, base shortly clawed, apex rounded. Stamens 17–20, unequal, shorter than petals. Ovary 4- or 5-loculed, with 2 ovules per locule; styles 4(or 5), longer than stamens, tomentose. Hypanthium densely pubescent abaxially. Sepals triangular-lanceolate, 4–5 mm, slightly longer than hypanthium, both surfaces densely pubescent, margin entire, apex acuminate. Petals pinkish, obovate or subglobose, 4–5 cm in diam., impressed at base; fruiting pedicel 1.5–2.5 cm, pubescent. Ovary 5-loculed, with 2 ovules per locule; styles 4(or 5), longer than stamens, tomentose. Petals pinkish, obovate or subglobose, 4–5 cm in diam., impressed at base; fruiting pedicel 1.5–2.5 cm, pubescent. Ovary 4- or 5-loculed, with 2 ovules per locule; styles 4(or 5), longer than stamens, tomentose. Petals pinkish, obovate or subglobose, 4–5 cm in diam., impressed at base; fruiting pedicel 1.5–2.5 cm, pubescent.

Commonly cultivated in N, NW, and SW China [Bhutan; Native to SW Asia and Europe].


新疆野苹果  xin jiang ye ping guo

Pyrus sieversii Ledebour, Fl. Altaic. 2: 222. 1830.

Trees 2–10(–14) m tall; branchlets dark grayish red when old, terete, short, robust, puberulous when young, slightly curved, glabrescent when old; buds dark red, ovoid, villous abaxially. Stipules caducous, lanceolate, 3–5 mm, membranous, margin white ciliate, apex acuminate; petiole 1.2–3.5 cm, sparsely pubescent; leaf blade ovate or broadly elliptic, rarely obovate, 6–11 × 3–5.5 cm, abaxially densely puberulous when young, sparsely pubescent when old, adaxially sparsely pubescent along veins, base cuneate, rarely rounded, margin obtusely serrate, apex acute. Corymb umbel-like, 4–6 cm in diam., 3–6-flowered; bracts caducous, lanceolate, membranous, margin glandular serrate when young, apex acuminate. Pedicel ca. 1.5 cm, white tomentose. Flowers 3–3.5 cm in diam. Hypanthium campanulate, abaxially tomentose. Sepals broadly lanceolate or triangular-lanceolate, ca. 6 mm, longer than hypanthium, both surfaces tomentose, margin entire, apex acuminate. Petals pinkish, tinged rose when in bud, obovate, 1.5–2 cm, base shortly clawed, apex rounded. Stamens 20, unequal, ca. 1/2 as long as petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, ca. as long as or slightly longer than stamens, white tomentose basally. Pome yellowish green, tinged red, globose or depressed-globose, 3–4.5(–7) cm in diam.; fruiting pedicel 3.5–4 cm, white tomentose; sepals persistent, reflexed, with cavity at apex. Fl. May, fr. Aug.–Oct. 2n = 34*, 51*, 68*.

Mountain summits, slopes, valleys, often the dominant tree of forests; 1200–1300 m. W Xinjiang [Kazakhstan, Russia].

This species is vulnerable to extinction because of its limited range and exploitation. It is believed to be the principal ancestor of commercially grown apples.


花红  hua hong

Malus domestica Borkhausen var. asiatica (Nakai) V. V. Ponomarenko; M. domestica var. rinki (Koidzumi) H. Ohle; M. dulcissima Koidzumi var. asiatica Koidzumi; M. dulcissima var. rinki (Koidzumi) Koidzumi; M. matsumurae Koidzumi; M. prunifolia Borkhausen var. rinki (Koidzumi) Rehdeler; M. pumila Miller var. rinki Koidzumi; Pyrus matsumurae (Koidzumi) Cardot; P. ringo Wenzig.

Trees small, 4–6 m tall. Branchlets purplish brown when old, terete, robust, densely pubescent when young, glabrous when old; buds grayish red, ovoid, initially densely pubescent, glabrescent. Stipules caducous, lanceolate, small, 3–5 mm, membranous, margin glandular serrate when young, apex acuminate; petiole 1.5–5 cm, puberulous; leaf blade ovate or elliptic, 5–11 × 4–5.5 cm, abaxially densely puberulous, adaxially initially puberulous, glabrescent, base rounded or broadly cuneate, margin serrulate, apex acute or acuminate. Corymb at apices of branchlets, umbel-like, 3–5 cm in diam., 4–7(–10)-flowered; bracts caducous, lanceolate, membranous, pubescent, apex acuminate. Pedicel 1.5–2 cm, densely pubescent. Flowers 3–4 cm in diam. Hypanthium densely pubescent abaxially. Sepals triangular-lanceolate, 4–5 mm, slightly longer than hypanthium, both surfaces densely pubescent, margin entire, apex acuminate. Petals pinkish, obovate or subglobose, 4–5 cm in diam., base shortly clawed, apex rounded. Stamens 17–20, unequal, shorter than petals. Ovary 4- or 5-loculed, with 2 ovules per locule; styles 4(or 5), longer than stamens, tomentose basally. Pome yellow or red, ovoid or subglobose, 4–5 cm in diam., impressed at base; fruiting pedicel 1.5–2.5 cm, pubescent. Ovary 4- or 5-loculed, with 2 ovules per locule; styles 4(or 5), longer than stamens, tomentose. Petals pinkish, obovate or subglobose, 0.8–1.3 cm, base shortly clawed, apex rounded. Stamens 17–20, unequal, shorter than petals. Ovary 4- or 5-loculed, with 2 ovules per locule; styles 4(or 5), longer than stamens, tomentose. Hypanthium campanulate, abaxially tomentose. Sepals broadly lanceolate or triangular-lanceolate, ca. 6 mm, longer than hypanthium, both surfaces tomentose, margin entire, apex acuminate. Petals pinkish, tinged rose when in bud, obovate, 1.5–2 cm, base shortly clawed, apex rounded. Stamens 20, unequal, ca. 1/2 as long as petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, ca. as long as or slightly longer than stamens, white tomentose basally. Pome yellowish green, tinged red, globose or depressed-globose, 3–4.5(–7) cm in diam.; fruiting pedicel 3.5–4 cm, white tomentose; sepals persistent, reflexed, with cavity at apex. Fl. May, fr. Aug.–Oct. 2n = 34*, 51*, 68*.

Open slopes, sandy soils of plains; sea level to 2800 m. Gansu, Guizhou, Hebei, Henan, Hubei, Jiangsu, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Yunnan, Zhejiang.

This species is a famous fruit tree in N and NE China. During its long cultivation, many cultivars have been bred, the fruit of which differ in shape, color, size, and ripening period.


秋子  qiu zi

Trees small, to 3–8 m tall. Branchlets grayish purple or grayish brown when old, terete, robust, densely puberulous when young, glabrous when old; buds purplish brown, ovoid, sparsely pubescent. Stipules caducous, lanceolate, small, 4–5 mm, membranous, margin glandular serrate when young, apex acuminate; petiole 1–5 cm, initially densely puberulous, glabrescent; leaf blade ovate or elliptid, 5–9 × 4–5 cm, pubescent along veins when young, pubescent only along midvein or subglabrous when old, base broadly cuneate, margin serrulate, apex acuminate or acute. Corymb umbel-like, 4–8 cm in diam., 4–10-flowered; bracts caducous, linear-lanceolate, membranous, sparsely pubescent, margin entire, apex acuminate. Pedicel 2–3.5 cm; puberulous. Flowers 4–5 cm in diam. Hypan-
thium campanulate, abaxially puberulous. Sepals lanceolate or triangular-lanceolate, 7–9 mm, slightly longer than hypanthium, both surfaces puberulous, margin entire, apex acuminate. Petals white, pink in bud, obovate or elliptic, 2.5–3 cm, base shortly clawed, apex rounded. Stamens 20, unequal, ca. 1/3 as long as petals. Ovary 4- or 5-loculed, with 2 ovules per locule; styles 4(or 5), longer than stamens, tomentose basally. Pome yellow, red, ovoid, 2–2.5 cm in diam., with cavity at base; fruiting pedicel 2–3.5 cm, puberulous, apex sometimes thickened and oblique; sepals persistent, partly so, or caducous. Fl. Apr–May, fr. Aug–Sep. 2n = 34*, 51*.

1a. Fruiting pedicel thickened and oblique at apex; sepals persistent or partly so ................. 13b. var. obliquipedicellata

1b. Fruiting pedicel neither thickened nor oblique at apex; sepals caducous ......................... 13a. var. prunifolia

13a. Malus prunifolia var. prunifolia

秋子(原变种) qiu zi (yuan bian zhong)

Pyrus prunifolia Willdenow, Phytorgr. 8. 1794; Malus domestica Borkhausen subsp. prunifolia (Willdenow) Likhonos.

Fruiting pedicel neither thickened nor oblique at apex; sepals caducous.

- Slopes, plains; sea level to 1300 m, Gansu, Guizhou, Hebei, Henan, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Xinjiang.

This variety is an excellent stock for grafting apple trees. Many varieties have already been bred as good fruit trees.


歪把海棠 wai ba hai tang

Fruiting pedicel thickened and oblique at apex; sepals persistent or partly so. Fl. May, fr. Aug.

- About 300 m. C Shandong (Tai Shan).


海棠花 hai tang hua


Trees to 8 m tall. Branchlets reddish brown or purplish brown when old, terete, puberulous when young, glabrous when old; buds purplish brown, ovoid, sparsely pubescent. Stipules caducous, narrowly lanceolate, 4–6 mm, membranous, adaxially villous, margin entire, apex acuminate; petiole 1.5–2 cm, puberulous; leaf blade elliptic or narrowly elliptic, 5–8 × 2–3 cm, both surfaces sparsely puberulous when young, glabrous, base broadly cuneate or subrounded, margin appressed serrulate, apex shortly acuminate or rounded-obtuse. Corymb subumbell-like, 4–6 cm in diam., 4–6-flowered; bracts caducous, lanceolate, membranous, margin entire, apex acuminate. Pedicel 2–3 cm, pubescent. Flowers 4–5 cm in diam. Hypanthium campanulate, abaxially glabrous or white tomentose. Sepals triangular-ovate, 2–4 mm, slightly shorter than hypanthium, abaxially glabrous or pubescent, adaxially white tomentose, margin entire, apex acute. Petals white, pink in bud, ovoid, 2–2.5 cm, base shortly clawed, apex rounded. Stamens 20–25, unequal, ca. 1/2 as long as petals. Ovary (4- or)5-loculed; with 2 ovules per locule; styles (4 or)5, slightly longer than stamens, white tomentose basally. Pome yellow, subglobose, ca. 2 cm in diam., not impressed at apex, convex at base; fruiting pedicel 3–3.5 cm, thickened distally, subglabrous; sepals persistent. Fl. Apr–May, fr. Aug–Sep. 2n = 34*, 51*.

- Plains, mountain regions; 500–2000 m. Hebei, Jiangsu, Liaoning, Qinghai, Shaanxi, Shandong, Yunnan, Zhejiang.

This species is one of the most famous ornamental trees in China, widely cultivated in the E and N regions. The cultivated var. riversis (G. Kirchner) Rehder has double, pink flowers, and var. albipena Schelle, also cultivated, has double, white flowers.


西府海棠 xi fu hai tang

Malus domestica Borkhausen var. micromalus (Makino) Likhonos; M. microcarpa A. Savatier var. kaido (Siebold) Carrière; M. spectabilis Borkhausen var. kaido Siebold; M. spectabilis var. micromalus (Makino) Koidzumi; Pyrus micromalus (Makino) Makino.

Trees small, to 2.5–5 m tall. Branchlets purplish brown or dark brown, terete, slender, puberulous when young, glabrescent; buds dark purple, ovoid, glabrous, or scales tomentose at margin. Stipules caducous, linear-lanceolate, 4–6 mm, membranous, subglabrous, margin sparsely glandular denticulate, apex acuminate; petiole 2–3.5 cm, pubescent when young, glabrescent; leaf blade narrowly elliptic or elliptic, 5–10 × 2.5–5 cm, puberulous when young, glabrescent, base cuneate, rarely subrounded, margin serrate, apex acute or acuminate. Corymb umbel-like, 4–6 cm in diam., 4–7-flowered; bracts caducous, linear-lanceolate, membranous, margin entire, apex acuminate. Pedicel 2–3 cm, villous when young, glabrescent. Flowers ca. 4 mm in diam. Hypanthium white tomentose abaxially. Sepals triangular-ovate or triangular-lanceolate, 5–8 mm, ca. as long as or slightly shorter than hypanthium, abaxially pubescent, adaxially white tomentose, margin entire, apex acute or slightly acuminate. Petals pink, suborbicular or narrowly elliptic, ca. 1.5 cm, base shortly clawed, apex rounded. Stamens ca. 20, unequal, slightly shorter than petals. Styles 5, ca. as long as stamens, tomentose basally. Pome red, subglobose, 1.5–1.5 cm in diam.; impressed at apex, with cavity at base; fruiting pedicel 2–3 cm, subglabrous; sepals caducous or a few persistent. Fl. Apr–May, fr. Aug–Sep. 2n = 34*, 51*.

According to Bean (Trees Shrubs Hardy Brit. Isles, ed. 8, 2: 710), this taxon is a hybrid between *Malus spectabilis* and probably *M. baccata*.

In N China, this taxon is usually planted in gardens and parks for ornamental purposes and for its edible fruit. It is used as stock to graft *Malus asiatica* and *M. pumila* in some regions.


Shrubs 2–6 m tall. Branchlets spreading, dark purple or purplish brown, terete, puberulous when young, glabrescent; buds purplish brown, ovoid, glabrous or only terminal scales puberulous at margin. Stipules narrowly lanceolate, 4–6 mm, herbaceous, slightly puberulous, margin entire, apex acuminate; petiole 1–2.5 cm, puberulous; leaf blade ovate, elliptic, or narrowly elliptic, 3–7.5 × 2–4 cm, both surfaces puberulous when young, abaxially puberulous along midvein and lateral veins when old, adaxially subglabrous, base rounded or broadly cuneate, margin serrate, often 3-lobed, rarely 5-lobed on new branches, apex acute. Corymb at apices of branchlets, 4–6 cm in diam., 4–8-flowered; bracts caducous, linear-lanceolate, membranous, adaxially pubescend, margin entire, apex acuminate. Pedicel 2–2.5 cm, pubescent or subglabrous. Flowers 2–3 cm in diam. Hypanthium campanulate, subglabrous or pubescent. Sepals caducous, linear-lanceolate, membranous, adaxially pubescent, margin entire, apex acuminate. Petal pinkish, elliptic-obovate, 1.5–1.8 cm, base shortly clawed, apex rounded. Stamens 20, unequal, ca. 1/2 as long as petals. Ovary 3–5-loculed, with 2 ovules per locule; styles 3–5, slightly longer than stamens, villous basally. Pome yellowish red, ellipsoid or obovoid, 1–1.5 cm in diam.; sepals caducous; fruiting pedicel 2–3.5 cm. Fl. May–Jun, fr. Jul–Aug. 2n = 34*.


This species is similar to *Malus kamtschatica*, which differs in its more lobed leaf margin, glabrous or sparsely villous corymb, and subglobose fruit often with a persistent calyx.

### 1a. Pedicel and leaves abaxially sparsely puberulous, hypanthium villous outside

*Malus kansuensis* var. *kansuensis*

1b. Pedicel, hypanthium, and leaves

- abaxially glabrous


Shrubs or small trees, 3–5 m tall; branchlets purplish brown or dark brown when old, terete, puberulous when young, glabrous when old; buds dark purple, ovoid; scales tomentose at margin. Stipules linear-lanceolate, 6–10 mm, herbaceous, sparsely pubescent, margin sparsely glandular denticulate, apex acuminate; petiole 1.5–4 cm, sparsely puberulous; leaf blade ovate or broadly ovate, 5–8 × 4–6 cm, abaxially sparsely puberulous or glabrous, base rounded or truncate, margin doubly serrulate, often 3-lobed, rarely irregularly or not lobed, apex acute or acuminate. Corymb 5–6.5 cm in diam., 4–10-flowered; bracts caducous, linear-lanceolate, membranous, margin entire, apex acuminate. Pedicel 2.5–3.5 cm, sparsely pubescent or glabrous. Flowers 1.5–2 cm in diam. Hypanthium campanulate, abaxially villous or glabrous. Sepals triangular-ovate or triangular-lanceolate, 5–6 mm, ca. as long as or slightly longer than hypanthium, abaxially glabrous, adaxially villous, margin entire, apex acuminate. Petals white, broadly obovate, 0.8–1 cm, base shortly clawed, apex rounded. Stamens 20, unequal, ca. 1/2 as long as petals. Styles (2 or)3(4 or)5, slightly longer than stamens, glabrous basally. Pome yellowish red, ellipsoid or obovoid, 1–1.5 cm in diam.; sepals caducous; fruiting pedicel 2–3.5 cm. Fl. May–Jun, fr. Jul–Aug. 2n = 34*.


This species is similar to *Malus kamtschatica*, which differs in its more lobed leaf margin, glabrous or sparsely villous corymb, and subglobose fruit often with a persistent calyx.

**17b. Malus kansuensis** var. *calva* (Rehder) T. C. Ku & Spongberg, comb. et stat. nov.

光叶陇东海棠 guang ye long dong hai tang


Pedicel, hypanthium outside and leaves abaxially glabrous.

- Mixed forests, scrub; 2300–3300 m. Hubei, Shaanxi, Sichuan.


山楂海棠 shan zha hai tang


Shrubs or small trees, to 3 m tall. Branchlets dark red when young, reddish brown or purplish brown when old, terete,
pubescent when young, glabrous when old; buds dark red, ovoid; scales pubescent at margin. Stipules caducous, linear-lanceolate, 4–6 mm, membranous, margin glandular denticulate, apex acuminate; petiole 1–3 cm, pubescent; leaf blade broadly ovate, rarely narrowly elliptic, 4–8 × 3–7 cm, abaxially densely pubescent along veins when young, adaxially sparsely pubescent, base cordate or subcordate, margin doubly serrate, usually 3-parted at middle, 1-lobed on each side near base, irregularly lobed or undivided apically, apex acuminate or acute. Corymb 4–6 cm in diam., 6–8-flowered; bracts caducous, linear-lanceolate, membranous, margin sparsely glandular serrate, apex acuminate. Pedicel ca. 2 cm, villous. Flowers ca. 3.5 cm in diam. Hypanthium campanulate, abaxially tomentose. Sepals triangular-lanceolate, 2–3 mm, slightly longer than hypanthium, abaxially subglabrous, adaxially tomentose, margin entire, apex acuminate. Flowers 2–2.5 cm in diam. Hypanthium campanulate, tomentose. Sepals triangular-lanceolate, 6–8 mm in diam., impressed at apex; sepals caducous; pedicel 1.5–2 cm, tomentose. Flowering pedicel 1.2–1.5 cm. Fl. May, fr. Sep. 2n = 34*.

Among shrubs; 1100–1300 m. S Jilin (Changbai Shan) [N Korea].

This species is resistant to cold temperatures. It is also endangered because of habitat loss.


变叶海棠 bian ye hai tang


Shrubs or small trees, 3–6 m tall. Branchlets purplish brown or dark brown when old, terete, puberulous when young, glabrous when old; buds purplish brown, ovoid, pubescent, apex acute. Stipules lanceolate, 4–6 mm, sparsely pubescent, margin entire, apex acuminate; petiole 1–3 cm, puberulous; leaf blade variable in shape, ovate or narrowly elliptic, 3–8 × ca. 1.5 cm, abaxially densely pubescent along midvein and lateral veins, adaxially sparsely pubescent, base broadly cuneate or subcordate, margin obtusely serrate, often 3–5-parted, sometimes undivided, apex acute. Corymb umbel-like, 3–5 cm in diam., 3–5-flowered; bracts caducous, linear, membranous, adaxially pubescent when young, margin sparsely glandular serrate, apex acuminate. Pedicel 1.8–2.5 cm, sparsely villous. Flowers 2–2.5 cm in diam. Hypanthium tomentose abaxially. Sepals triangular-lanceolate or narrowly triangular, 3–4 mm, nearly as long as hypanthium, both surfaces white tomentose, margin entire, apex acuminate. Petals white, ovate or elliptic-obovate, 8–11 cm, adaxially sparsely pubescent or glabrous, base shortly clawed, apex rounded. Fruit 20 cm, obovate. Stipules ca. 20; filaments unequal, shorter than petals. Styles 3(4 or 5), not exceeding stamens, glabrous. Pome yellow, tinged red, obovoid or narrowly ellipsoid, 1–1.3 cm; sepals caducous; fruiting pedicel 3–4 cm, glabrous. Fl. Apr–May, fr. Sep. 2n = 34*, 51*, 68*.

- Thickets on slopes; 2000–3000 m. SE Gansu, W Sichuan, SE Xizang.


花叶海棠 hua ye hai tang

Shrubs or small trees, to 8 m tall. Branchlets dark purple or purplish brown when old, terete, slender, tomentose when young; buds dark purple, ovoid, tomentose. Stipules ovate-lanceolate, 4–6 mm, herbaceous, tomentose, margin entire, apex acute; petiole 1.5–3.5 cm, tomentose; leaf blade ovate or broadly ovate, 2.5–5 × 2.4–4.5 cm, both surfaces tomentose or adaxially subglabrous, base rounded or broadly cuneate, margin irregularly serrate, usually irregularly 3–5-parted; lobes narrowly ovate or narrowly elliptic, apex acute. Corymb umbel-like, 3–5 cm in diam., 3–6-flowered; bracts caducous, linear-lanceolate, membranous, pubescent, margin entire, apex acuminate. Pedicel 1.5–2 cm, tomentose. Flowers 1–2 cm in diam. Hypanthium campanulate, tomentose. Sepals caducous, triangular-ovate, ca. 3 mm, slightly shorter than hypanthium, both surfaces tomentose, margin entire, apex rounded-obtuse or slightly acute. Petals white, ovate, 8–10 mm, base shortly clawed, apex rounded. Stamens 20–25, unequal, slightly shorter than petals. Styles 3–5, slightly longer than or nearly as long as stamens, glabrous. Pome yellowish red, subglobose or oblong-ellipsoid to oblong-ovoid, 6–8 mm in diam., impressed at apex; sepals caducous; fruiting pedicel 1.5–2 cm, tomentose. Fl. May, fr. Sep. 2n = 34*, 51*.

- Thickets, slopes, hills of the Loess Plateau, roadsides; 1500–3900 m. Gansu, NE Mongol, Qinghai, Shaanxi, Sichuan, E Xizang.

This species is resistant to drought and cold temperatures. It has been used as stock to graft apple trees in NE and NW Shaanxi.

_Malus setok_ Vassilczenko might be an allied species or an ecotype of _M. transitoria_.

1a. Pome oblong-elliptic or oblong-ovate, 10–12 × 6–8 mm ....................... 20c. var. _centralasiatica_

1b. Pome subglobose, 6–8 mm in diam.

2a. Leaf blade abaxially densely tomentose, adaxially sparsely tomentose or subglabrous; pedicel and hypanthium densely tomentose ..................... 20a. var. _transitoria_

2b. Leaf blade abaxially glabrous; pedicel and hypanthium abaxially sparsely pubescent .................... 20b. var. _glabrescens_

20a. *Malus transitoria* var. _transitoria_

花叶海棠(原变种) hua ye hai tang (yuan bian zhong)


Leaf blade densely tomentose abaxially, sparsely tomentose or subglabrous adaxially. Pedicel and hypanthium densely tomentose. Pome subglobose.

- Thickets, slopes, hills of the Loess Plateau; 1500–3900 m. Gansu, NE Mongol, Qinghai, Shaanxi, Sichuan.

Leaf blade glabrous abaxially. Pedicel and hypanthium abaxially sparsely pubescent.

- Roadsides; 3500–3700 m. E Xizang (Qamdo Xian).


Pome oblong-ellipsoid or oblong-ovoid, 10–12 × 6–8 mm.

- 3300–3900 m. Gansu, Qinghai, Shaanxi.


- Mixed stream side forests, valleys; 2000–3500 m. SW Sichuan, Xizang, NW Yunnan.


- Mixed forests on slopes; 1400–3500 m. W Sichuan, NW Yunnan.


- Thickets in valleys or on slopes; 800–2600 m. Gansu, Hebei, Henan, Hubei, Shaanxi, Shanxi.

In floral structure, this species is most similar to Malus kansuensis, which is distinguished by its leaves with fewer lobes and coarser serration, cedacous sepals, and ellipsoid fruit.
brown when old, terete, robust, tomentose when young, glabrous when old; buds dark purple, ovoid, glabrous or scales sparsely puberulous at margin. Stipules caduceous, linear–6–8 mm, membranous, white tomentose adaxially, margin sparsely glandular denticulate, apex acute; petiole 2–3.5 cm, tomentose; leaf blade ovate, broadly ovate, or narrowly obovate–elliptic, 6–12 × 4–7 cm, abaxially tomentose or subglabrous, adaxially subglabrous, base rounded or cordate, margin doubly serrate, each side 3–5-lobed, apex acute. Corymb umbel-like, 5–9 cm in diam., 8–12-flowered; bracts caduceous, linear-lanceolate, membranous, adaxially tomentose, margin sparsely glandular denticulate, apex acuminate. Pedicel 1.5–3 cm, tomentose. Flowers ca. 1.5 cm in diam. Hypanthium campanulate, abaxially tomentose. Sepals triangular-ovate, 3–4 mm, ca. as long as hypanthium, both surfaces tomentose, margin entire, apex acuminate. Petals white, suborbicular, ca. 8 mm, base shortly clawed, apex rounded. Stamens 20–25, unequal, slightly shorter than petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, nearly as long as stamens, glabrous basally. Pome red, globose, 1–1.5 cm in diam., white punctate; fruiting pedicel 2–3 cm; sepal persist. Fl. May, fr. Aug.–Sep. 2n = 34*.

Mixed forests on slopes or by streams in valleys; 1600–3800 m. Guizhou, Hubei, Shaanxi, Sichuan, Xizang, Yunnan [Myanmar].

In autumn, this is an ornamental tree with red leaves and abundant, red fruit. It is very adaptable to poor environmental conditions and can be used as stock for grafting apple trees in W China.

1a. Leaf blade ovate, broadly ovate, or narrowly elliptic-ovate, abaxially tomentose, base rounded or cordate, lobes apically shortly acuminate .................................. 24a. var. yunnanensis

1b. Leaf blade ovate, abaxially subglabrous, base usually cordate, lobes apically acute ........................................ 24b. var. veitchii

24a. Malus yunnanensis var. yunnanensis

滇池海棠 (原变种) dian chi hai tang (yuan bian zhong)

Pyrus yunnanensis Franchet, Pl. Delavay. 228. 1890; Corynus yunnanensis (Franchet) Koidzumi; Docyniopsis yunnanensis (Franchet) Koidzumi; Eriolobus yunnanensis (Franchet) C. K. Schneider.

Leaf blade ovate, broadly ovate, or elliptic-ovate, abaxially tomentose, base rounded or cordate, lobes short acuminate at apex.

Mixed forests on slopes or by streams in valleys; 1600–3800 m. Sichuan, Yunnan [Myanmar].


川鄂滇海棠 chuan e dian chi hai tang


Leaf blade ovate, abaxially subglabrous, base usually cordate, lobes acuminate at apex.

* Guizhou, Hubei, Shaanxi, Sichuan, Xizang.


台湾海棠 tai wan hai tang

Pyrus doumeri Bois, Bull. Soc. Bot. France 51: 113. 1904; Docynia doumeri (Bois) C. K. Schneider; D. indica (Wallich) Decaisne var. doumeri (Bois) A. Chevalier; D. indica var. laosensis (Cardot) A. Chevalier; Eriolobus doumeri (Bois) C. K. Schneider; Malus asiatica Nakai var. argutisserrata Hu & Chen; M. doumeri var. formosana (Kawakami & Koidzumi ex Hayata) S. S. Ying; M. formosana (Kawakami & Koidzumi ex Hayata) Kawakami & Koidzumi; M. laosensis (Cardot) A. Chevalier; M. melliana (Handel-Mazzetti) Rehder; Pyrus formosana Kawakami & Koidzumi ex Hayata; P. laosensis Cardot; P. melliana Handel-Mazzetti.

Trees to 15 m tall. Branchlets grayish brown or purplish brown when old, terete, villous when young, glabrous when old; buds reddish purple, ovoid, pubescent or only pubescent along margin of scales. Stipules caduceous, linear-lanceolate, membranous, glabrous, margin entire, apex acuminate; petiole 1.5–3 cm, tomentose when young, glabrescent; leaf blade narrowly elliptic-ovate or obovate-lanceolate, 9–15 × 4–6.5 cm, both surfaces white tomentose when young, glabrescent, base rounded or cuneate, margin irregularly serrate, apex acuminate, Corymb umbel-like, 3–5 cm in diam., 4– or 5-flowered; bracts caduceous, linear-lanceolate, membranous, glabrous, margin entire, apex obtuse. Pedicel 1.5–3 cm, white tomentose. Flowers 2.5–3 cm in diam. Hypanthium campanulate, abaxially tomentose, prolonged into short tube at apex. Sepals ovate or lanceolate, ca. 8 mm, ca. as long as or slightly longer than hypanthium, abaxially tomentose, axially densely tomentose, margin entire, apex acuminate. Petals yellowish white; obovate, 1–2 cm, base shortly clawed, apex rounded. Stamens unequal, slightly shorter than petals. Ovary 4– or 5-loculed, with 2 ovules per locule; styles 4 or 5, longer than stamens, long tomentose basally. Pome yellowish red, globose, 2.5–5.5 cm in diam.; distal part of hypanthium tubular, 5–8 mm, core free; fruiting pedicel 1–3 cm, glabrous; sepal persistent. Fl. May, fr. Aug.–Sep.

Forests; 1000–2000 m. Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang [Laos, Vietnam].

This species can be used as stock for grafting apple trees in subtropical regions. The fruit are edible.

In floral structure, this species is similar to Docynia, and some authors have placed it in that genus. However, in Malus, there are two ovules per locule, not many, as in Docynia. Consequently, it should be retained in the genus Malus.


光萼海棠 guang e hai tang

Shrubs or small trees, 4–10 m tall. Branchlets dark gray when old, slightly curved, terete, sparsely pubescent when young, glabrous when old; buds reddish purple, ovoid, glabrous, rarely scales sparsely pubescent at margin. Stipules caduceous, linear-lanceolate, membranous, adaxially sparsely pubescent, margin entire, apex acuminate; petiole 1.5–2.5 cm; leaf blade elliptic or ovate-elliptic, 5–10 × 2.5–4 cm, sparsely pubescent when young, glabrescent, base rounded or broadly
cuneate, margin obtusely serrate, apex acute or acuminate. Corymb umbel-like, 4–5.5 cm in diam., 5–7-flowered; bracts caducous, lanceolate, membranous, glabrous, margin entire, apex acuminate. Pedicel 3–5 cm, glabrous. Flowers ca. 2.5 cm in diam. Hypanthium obconical, glabrous, prolonged into short tube at apex. Sepals triangular-lanceolate, ca. 8 mm, ca. as long as or slightly longer than hypanthium, abaxially glabrous, adaxially tomentose, margin entire, apex acuminate. Petals purplish white, obovate, 1–2 cm, base shortly clawed, apex rounded. Stamens ca. 30, unequal, slightly shorter than petals. Ovary 5-loculed, with 2 ovules per locule; styles 5, slightly longer than stamens, white tomentose basally. Pome yellowish red, globose, 1.5–2.5 cm in diam., core free; fruiting pedicel 1–3 cm, glabrous; distal part of hypanthium tubular, 5–8 mm; sepals persistent. Fl. May, fr. Aug–Sep.

- Mixed mountain forests, stream sides in valleys; 700–2400 m. Anhui, Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Yunnan, Zhejiang.

The protologue appears to indicate two types. However, rather than regard the name as invalid, we consider the first-cited, flowering type (*Exped. Wayi 2414, IBSC, as “Typus fl”) to be the holotype because it is immediately followed by an explicit citation of two isotypes (IBK, PE, as “Isotypus”). We consider the second-cited, fruiting type (*Exped. Wayi 60585, IBSC, as “Typus fr”) to be a paratype.

### 24. AMELANCHIER Medikus, Philos. Bot. 1: 155. 1789

**唐棣属 tang di shu**

Gu Cuizhi (谷梓芝 谷粹芝); Stephen A. Spongberg

Shrubs or trees, deciduous; buds conspicuous, narrowly conical, with several scales. Leaves simple, petiolate, stipulate, venation camptodromous, margin entire or serrate. Racemes terminal; bracts caducous. Hypanthium campanulate. Sepals 5, margin entire. Petals 5, white, oblong or lanceolate, slender. Stamens 10–20. Ovary inferior or semi-inferior, 2–5-loculed, with 2 ovules per locule, separated by a false partition from back of locule; styles 2–5, partly connate or free. Fruit a small berrylike pome, bluish black to dark purple, usually juicy and sweet, incompletely 4–10-loculed, with one seed in each locule, crowned by persistent, usually recurved sepals.

About 25 species: Asia, Europe, North America; two species (one endemic) in China.

1a. Leaf margin serrate apically, entire basally, abaxially pubescent only along midvein when young; peduncle and pedicels glabrous ................................................................. 1. *A. sinica*

1b. Leaf margin wholly serrate, densely tomentose abaxially; peduncle and pedicels densely tomentose ........................................... 2. *A. asiatica*


唐棣 sinica


Trees 3–5 m tall, rarely to 15 m tall, with loose branches. Branchlets purplish brown or blackish brown, terete, slender, glabrous or subglabrous, sparsely lenticellate; buds purplish brown, narrowly conical, margin of scales pubescent. Stipules caducous, lanceolate, membranous; petiole 1–2.1 cm, sometimes sparsely pubescent; leaf blade ovate or narrowly elliptic, 4–7 × 2.5–3.5 cm, abaxially pubescent along midvein when young, glabrescent, base rounded, rarely subcordate or broadly cuneate, margin entire basally, minutely serrate apically, apex acute. Raceme 4–5 × 3–5 cm, many flowered; peduncle initially sparsely pubescent, glabrescent; bracts caducous, linear-lanceolate. Pedicel 0.8–2.8 cm, slender, initially sparsely pubescent, glabrescent. Flowers 3.4–5.5 cm in diam. Hypanthium cupular, abaxially initially pubescent, glabrescent. Sepals lanceolate or triangular-lanceolate, ca. 5 mm, nearly as long as hypanthium. Petals white, oblong, lanceolate, or elliptic-lanceolate, ca. 1.5 cm × 5 mm, slender, apex acute. Stamens 20, 1/7–1/5 as long as petals, 2–4 mm. Styles 5, shorter than stamens, densely yellowish white tomentose basally. Pome bluish black, subglobose or depressed-globose, ca. 1 cm in diam.; sepals reflexed. Fl. May, fr. Sep-Oct.

- Slopes, among shrubs; 1000–2000 m. Henan, Gansu, Shaanxi, Hubei, Sichuan.


东亚asiatica


Trees or shrubs, to 12 m tall, with loose branches. Branchlets blackish brown when old, terete, initially grayish white lanose, glabrate, sparsely pale lenticellate; buds conspicuous, pale brown, narrowly conical, margin of scales pubescent. Stipules caducous, lanceolate, membranous; petiole 1–1.5 cm, grayish white tomentose when young, glabrescent; leaf blade ovate to elliptic, rarely ovate-lanceolate, 4–6 × 2.5–3.5 cm, abaxially initially densely grayish white or yellowish brown tomentose, subglobose, base rounded or subcordate, margin minutely sharply serrate along entire length, apex acute. Raceme 4–7 × 3–5 cm, many flowered; peduncle white tomentose when young, glabrescent; bracts linear-lanceolate. Pedicel 1.5–2.5 cm long, white tomentose, 1.5–2.5 cm in diam., core free; fruiting pedicel 1–3 cm, glabrous; distal part of hypanthium tubular, 5–8 mm; sepals persistent. Fl. May, fr. Aug–Sep.

- Mixed mountain forests, stream sides in valleys; 700–2400 m. Anhui, Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Yunnan, Zhejiang.

The protologue appears to indicate two types. However, rather than regard the name as invalid, we consider the first-cited, flowering type (*Exped. Wayi 2414, IBSC, as “Typus fl”) to be the holotype because it is immediately followed by an explicit citation of two isotypes (IBK, PE, as “Isotypus”). We consider the second-cited, fruiting type (*Exped. Wayi 60585, IBSC, as “Typus fr”) to be a paratype.
cm, slender, white tomentose when young, glabrescent. Flowers 3–3.5 cm in diam. Hypanthium campanulate, axially tomentose. Sepals lanceolate, ca. 8 mm, ca. 2 × as long as hypanthium. Petals white, oblong-lanceolate or ovate-lanceolate, 1.5–2 cm × 5–7 mm, slender, apex acute. Stamens 15–20, 1/7–1/5 as long as petals. Styles 5, mostly connate, tomentose basally. Pome bluish black, subglobose or depressed-globose, 1–1.5 cm in diam.; sepals reflexed. Fl. Apr–May, fr. Aug–Sep.

On slopes by streams, mixed forests; 1000–2000 m. S Anhui (Huang Shan), NW Jiangxi (Mufu Shan), S Shaanxi (Qin Ling), NW Zhejiang (Tianmu Shan) [Japan, Korea].

3. Subfam. **ROSOIDEAE**

蔷薇亚科 qiang wei ya ke

Shrubs or herbs. Leaves stipulate; leaf blade compound, rarely simple, margin usually serrate. Carpels many, free; ovary superior, rarely inferior; ovules 1 or 2, pendulous or erect, anatropous. Fruit an achene (torus sometimes fleshy and berrylike), rarely a drupelet. x = 7, 8, 9.

About 35 genera and 1500 species: nearly cosmopolitan, especially in temperate and subarctic regions of N hemisphere; 22 genera (one endemic) and 459 species (242 endemic) in China.

1a. Achenes enclosed in cupular or urn-shaped torus.

2a. Carpels numerous; torus fleshy at maturity; shrubs; stems usually prickly .......................................................... 41. **Rosa**

2b. Carpels 1–4; torus dry and hard at maturity; herbs perennial or shrublets; stems not prickly.

3a. Flowers 3-merous; style basal; shrublets .......................................................................................................... 42. **Potaninia**

3b. Flowers (4 or)5-merous; style terminal, rarely basal or sub-basal; herbs perennial.

4a. Petals present.

5a. Hypanthium with hooklike spines abaxially; epicalyx segments absent; stamens 5–15 .................. 43. **Agrimonia**

5b. Hypanthium without hooklike spines abaxially; epicalyx segments present; stamens 35–40 ........... 44. **Spenceria**

4b. Petals absent.

6a. Leaves pinnate; sepals imbricate, epicalyx segments absent; stamens 4–15; style terminal; flowers usually in spicate or capitate inflorescences, bisexual, rarely unisexual (when plants monoeccious) ................................................................. 45. **Sanguisorba**

6b. Leaves simple, mostly palmately lobed or parted; sepals valvate, epicalyx segments present; stamens 1–5; style basal or sub-basal; flowers usually in corymbose cymes, always bisexual ...... 46. **Alchemilla**

1b. Achenes or drupelets borne on flat or convex torus.

7a. Carpels 4–15, borne at base of flat or slightly concave torus; stipules not adnate to petiole.

8a. Herbs perennial; leaves pinnate or pinnately or palmately lobed; flowers numerous in a terminal panicle or corymb, small ............................................................................................................................................. 27. **Filipendula**

8b. Shrubs; leaves simple; flowers solitary, large.

9a. Leaves alternate; flowers 5-merous; petals yellow; epicalyx segments absent; carpels 5–8 ............... 25. **Kerria**

9b. Leaves opposite; flowers 4-merous; petals white; epicalyx segments present; carpels 4 ...................... 26. **Rhodotypos**

7b. Carpels several to numerous, borne on globose or conic torus; stipules adnate to petiole or not.

10a. Fruit drupelets or drupaceous achenes; stems prickly, rarely unarmeed ............................................. 28. **Rubus**

10b. Fruit achenes; stems unarmed.

11a. Style terminal or subterminal.

12a. Style deciduous.

13a. Herbs low; basal leaves pinnate, with many leaflets; carpels many; stamens persistent ..... 33. **Coluria**

13b. Herbs creeping; basal leaves 3–5-foliolate or 3–5-parted; carpels 2–6; stamens deciduous ................................................................. 34. **Waldsteinia**

12b. Style persistent.

14a. Shrubs dwarf; leaves entire or lobed; flowers (6–)8–10-merous ................................................. 29. **Dryas**

14b. Herbs perennial; basal leaves pinnate, rarely simple; flowers 5-merous.

15a. Style jointed, distal part separating from joint at fruit maturity, proximal part persistent and apically hooked ................................................................. 30. **Geum**

15b. Style not jointed, wholly persistent at fruit maturity.

16a. Basal leaves pinnate, with many leaflets; plants hermaphroditic; petals yellow; style not or slightly elongated at fruiting ................................................................. 31. **Acomastylis**

16b. Basal leaves simple; plants polygamo-monoeccious or polygamo-dioecious; petals white; style distinctly elongated at fruiting ............................................. 32. **Taihangia**

11b. Style basal, lateral, or subterminal.

17a. Torus inflated and fleshy when ripe.

18a. Petals white; epicalyx segments smaller than sepals ................................................................. 39. **Fragaria**
18b. Petals yellow; epicalyx segments larger than sepals ......................................................... 40. Duchesnea

17b. Torus dry when ripe.

19a. Petals yellow or white, longer than sepals .............................................................. 35. Potentilla

20a. Petals yellow or white, shorter than or subequaling sepals ........................................ 36. Comarum

19b. Stamens 4 or 5; carpels 4–20.

21a. Stamens alternate with petals; basal leaves palmately or pinnately compound; epicalyx segments present ......................................................... 37. Sibbaldia

21b. Stamens opposite to petals; leaves 3-parted or 2 or 3 × compound; epicalyx segments absent ......................................................... 38. Chamaerhodos


棣棠花属 di tang hua shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Shrubs deciduous. Branchlets virgate, arising from scaly buds, slender. Leaves alternate; stipules linear-subulate, caducous; leaf blade simple, margin doubly serrate. Flowers terminal on lateral branchlets, solitary, large, bisexual. Hypanthium shortly saucer-shaped, flat. Sepals 5, valvate. Petals 5, yellow, base shortly clawed. Stamens numerous, in several series. Carpels 5, free, included in hypanthium; ovules 2, laterally attached to middle of suture, 1 abortive; style apical, erect, filiform, apex truncate. Fruit an achene, laterally compressed, glabrous. \(x = 9\).

One species: China, Japan.


棣棠花 di tang hua


Shrubs 1–2(–3) m tall. Branchlets green, usually arcuate, terete when young, glabrous. Stipules deciduous after flowering, oblong-lanceolate, membranous, margin ciliate; petiole 5–15 mm, glabrous or pilose; leaf blade triangular-ovate or ovate, 3–10 × 2–4 cm, abaxially pilose on veins or in vein axils, adaxially glabrous or sparsely pilose, base subcordate, rounded, or truncate, margin sharply doubly serrate, apex acuminate. Flowers 2.5–6 cm in diam.; pedicel 8–15 mm, glabrous. Sepals persistent in fruit, ovate-elliptic, glabrous, margin serrulate or entire, apex rounded to acute. Petals broadly elliptic, 1.5–2 × 1–1.8 cm, 1–4 as long as sepals, apex emarginate. Achenes brownish black, obovoid or hemispheric, 4.4–5 × 3.5–4 mm, rugose. Fl. Apr–Jun, fr. Jun–Aug. \(2n = 18\).

Thickets on mountain slopes; 200–3000 m. Anhui, Fujian, Gansu, Guizhou, Henan, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Yunnan, Zhejiang [Japan].

This species is used medicinally and cultivated for ornament.


鸡麻属 ji ma shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Shrubs deciduous. Buds with imbricate scales. Leaves opposite; stipules free, linear, membranous, caducous; leaf blade simple, ovate, margin sharply doubly serrate. Flowers terminal on branchlets, solitary, bisexual. Hypanthium saucer-shaped, flat. Sepals 4, in 2 pairs, imbricate, leaflike, with 4 epicalyx segments in-between. Petals 4, opposite sepals, white, base shortly clawed. Stamens numerous, in several series. Disk crowning hypanthium, large, thick, dissected into 4 lobes. Carpels usually 4, ovary covered by 4 lobes of disk at flowering; ovules 2, pendulous, 1 abortive; style terminal, exserted, filiform; stigma capitate. Fruit a drupe; epicarp smooth, dry. Seed 1, obovoid; cotyledons plano-convex, adaxially 3-veined. \(x = 9\).

One species: China, Japan, Korea.


鸡麻 ji ma


Shrubs 0.5–2(3) m tall. Branchlets green when young, later brown, glabrous. Stipules pilose; petiole 2–5 mm, pilose; leaf blade 4–11 × 3–6 cm, abaxially sericeous when young, sparsely pilose on veins when old, adaxially pilose when young, glabrescent later, base rounded to subcordate, apex acuminate. Flowers 3–5 cm in diam. Sepals ovate-elliptic, sparsely sericeous distally, apex acute; epicalyx segments linear, 1/5–1/4 as long as sepals. Petals obovate, 1/4–1/3 as long as sepals. Drupes 1–4, brownish black, obliquely ellipsoid, ca. 8 mm. Fl. Apr–May, fr. Jun–Sep. \(2n = 18\).
ROSACEAE

Forests on mountain slopes or in valleys; 100–800 m. Anhui, Gansu, Henan, Jiangsu, Liaoning, Shaanxi, Shandong, Zhejiang [Japan, Korea].

This species is used medicinally and cultivated for ornament.


蚊子草属 wen zi cao shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial, rhizomatous. Rhizome short, oblique, here and there thickened into tubers, clothed with fibers. Stipules large or small, subcordate to ovate-lanceolate; leaf blade pinnate; leaflets pinnately or palmately lobed. Inflorescence corymbose-cymose or paniculate-cymose; central branch shortened and flowering first. Flowers bisexual, rarely unisexual (when plants dioecious). Sepals 5, reflexed after flowering. Petals 5, imbricate, white, pink, or red, base clawed. Stamens 20–40. Carpels 5–15, inserted on plane or slightly elevated receptacle, free; ovules 1 or 2; style terminal; stigma capitate. Fruit an achene, free, compressed, crowned by base of style. Seed pendulous, terete, with very little endosperm. x = 7, 8.

More than ten species; mainly in N temperate zone; seven species (one endemic) in China.

The fruit of Filipendula has been described as an indehiscent follicle. It is described here as an achene because it is indehiscent, as opposed to a typical, dehiscent follicle. In fact, it may be intermediate between an achene and a follicle.

1a. Achenes attached to receptacle adaxially near base, spirally contorted and appearing united; terminal leaflets 3–5-lobed ........................................................... 7. F. ulmaria

1b. Achenes attached to receptacle at base, not contorted, obviously free; terminal leaflets 5–9-lobed.

2a. Terminal leaflets with linear to lanceolate lobes.

3a. Leaf blades abaxially white tomentose; pedicels distally densely pubescent; sepals distally densely pubescent; achenes shortly stipitate, bristly-hairy at margin ........................................... 5. F. ×intermedia

3b. Leaf blades abaxially glabrous; pedicels glabrescent or pilose; sepals distally glabrous; achenes sessile.

4a. Lateral leaflets of radical and lower cauline leaves 3–5-parted, terminal leaflet with lanceolate lobes .......................................................... 1. F. palmata

4b. Lateral leaflets of radical and lower cauline leaves entire or only slightly lobed, terminal leaflet with ovate to rhombic-ovate lobes.

5a. Leaf blade abaxially densely white or brownish tomentose, appressed ferrugineous pilose on veins ...... 2. F. vestita

5b. Leaf blade abaxially glabrous or sparsely pilose on veins.

6a. Lateral leaflets of radical leaves in 6–8 pairs; stipules of cauline leaves oblong to ovate, large,

margin serrate ........................................................................................................ 3. F. kiraishiensis

6b. Lateral leaflets of radical leaves in 1–3 pairs; stipules of cauline leaves ovate-lanceolate, small,

margin entire or few serrate .................................................................................. 4. F. glaberrima


蚊子草 wen zi cao

Plants 0.6–1.5 m tall. Stems sulcate, pubescent or glabrescent. Stipules semicordate, large, herbaceous, margin sharply doubly serrate; petiole pubescent or subglabrous; leaf blade pinnate, with 2 pairs of lateral leaflets, abaxially densely white tomentose, sparsely pubescent, or glabrous, adaxially sparsely pubescent or glabrous; terminal leaflet palmately 5–9-parted, rather large, segments lanceolate to rhombic-lanceolate, margin lobed or sharply doubly serrate; lateral leaflets 3–5-parted, smaller than terminal one. Inflorescence terminal, panicle, many flowered. Flowers bisexual, 5–7 mm in diam.; pedicel sparsely pubescent, glabrescent when old. Sepals ovate, glabrous abaxially. Petals white, obovate, base long clawed. Achenes basally attached to receptacle, shortly stipitate, erect, long ciliate along abaxial and adaxial sides. Fl. and fr. Jul.–Sep. 2n = 28, 42–44.

Forest margins, sunny mountain slopes, valleys, grassy areas, shady and moist places; 200–2300 m. Hebei, Heilongjiang, Jilin, Liaoning, Ning, Nei Mongol, Shaanxi [N Korea, Mongolia, E Russia].

1a. Stems pubescent; leaf blades abaxially densely white tomentose .......... 1a. var. palmata

1b. Stems glabrescent; leaf blades abaxially glabrous or sparsely pubescent .......... 1b. var. glabra

1a. Filipendula palmata var. palmata

蚊子草(原变种) wen zi cao (yuan bian zhong)

Spiraea palmata Pallas, Reise Russ. Reich. 3: 735. 1776; Filipendula amurensis (Baranov) Baranov; F. palmata var. amurensis Baranov; F. palmata var. stenoloba Baranov ex Liou et al.; S. digitata Willdenow.


Forest margins, valleys, grassy areas; 200–2000 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi [N Korea, Mongolia, E Russia].

1b. Filipendula palmata var. glabra Ledebour ex Komarov &
Filipendula nuda Grubov; *F. palmata f. nuda* (Grubov) T. Shimizu.

Stems glabrescent. Leaf blades on both surfaces glabrous or sparsely pubescent. Fl. and fr. Jul–Sep.

Sunny mountain slopes, valleys, shady and moist places; 400–2300 m. Hebei, Jilin, Nei Mongol, Shaanxi [E Russia].


Plants 0.5–1.5 m tall. Stems erect, sulcate, glabrous. Stipules usually tinged brown-green, small, ovate-lanceolate, herbaceous or semimembranous, margin entire or few serrate; petiole 3–10 cm, glabrous; leaf blade pinnate, with 1–3 pairs of leaflets and intercalary segments, glabrous or abaxially sparsely pilose on veins; terminal leaflet orbicular to broadly ovate, usually palmately 5–7-lobed, 7–15 × 8–16 cm, base shallowly cordate, lobes ovate, margin doubly serrate or somewhat lobed, apex caudate-acuminate; lateral leaflets oblong-ovate or ovate-lanceolate, small, margin doubly serrate. Inflorescence terminal or from axils of upper cauline leaves, paniculate. Flowers bisexual, 4–5 mm in diam.; pedicel densely glabrous. Sepals 4 or 5, ovate, 1–1.5 × 0.8–1.5 mm, glabrous abaxially, apex obtuse or acute. Petals 4 or 5, pink to white, obovate, base shortly clawed. Achenes erect, stipitate, long ciliate along abaxial and adaxial sides. Fl. and fr. Jun–Aug.

Forests, forest and mountain stream banks; 700–1500 m. Heilongjiang, Jilin, Liaoning [Japan, Korea, Russia].

This species was treated in FRPS as *Filipendula purpurea* Maximowicz, but true × *F. purpurea* is a cultivated hybrid in Japan.

Filipendula ×intermedia (Glehn) Juzepczuk in Komarov, Fl. URSS 10: 284. 1941.


Plants 0.5–1.5 m tall. Stems erect, sulcate, glabrous. Stipules usually tinged brown-green, small, ovate-lanceolate, herbaceous or semimembranous, margin entire or few serrate; petiole 3–10 cm, glabrous; leaf blade pinnate, with 1–3 pairs of leaflets and intercalary segments, glabrous or abaxially sparsely pilose on veins; terminal leaflet orbicular to broadly ovate, usually palmately 5–7-lobed, 7–15 × 8–16 cm, base shallowly cordate, lobes ovate, margin doubly serrate or somewhat lobed, apex caudate-acuminate; lateral leaflets oblong-ovate or ovate-lanceolate, small, margin doubly serrate. Inflorescence terminal or from axils of upper cauline leaves, paniculate. Flowers bisexual, 4–5 mm in diam.; pedicel densely glabrous. Sepals 4 or 5, ovate, 1–1.5 × 0.8–1.5 mm, glabrous abaxially, apex obtuse or acute. Petals 4 or 5, pink to white, obovate, base shortly clawed. Achenes erect, stipitate, long ciliate along abaxial and adaxial sides. Fl. and fr. Jun–Aug.

Plants 80–100 cm tall. Stems sulcate, subglabrous. Stipules semicordate, enlarged, herbaceous, margin serrate; petiole subglabrous; leaf blade pinnate, with 2–5 pairs of leaflets, abaxially white tomentose and pilose on veins, adaxially glabrous; terminal leaflet usually palmately 5–7-lobed, rather large, lobes ovate, margin doubly serrate or inconspicuously lobed, apex acute to acuminate; lateral leaflets small. Inflorescence terminal, paniculate. Flowers bisexual, 5–6 mm in diam.; pedicel densely glabrous. Sepals 4 or 5, ovate, 1–1.5 × 0.8–1.5 mm, glabrous abaxially, apex obtuse or acute. Petals 4 or 5, pink to white, obovate, base shortly clawed. Achenes erect, stipitate, long ciliate along abaxial and adaxial sides. Fl. and fr. Jun–Aug.

Alpine meadows, river banks; 3000–3200 m. Yunnan [Afghanistan, Kashmir, Nepal].

Filipendula ×intermedia is a putative, natural hybrid between *F. angustiloba* and *F. palmata*.

Filipendula ×intermedia is a putative, natural hybrid between *F. angustiloba* and *F. palmata*.


Plants 80–100 cm tall. Stems sulcate, subglabrous. Stipules semicordate, enlarged, herbaceous, margin serrate; petiole subglabrous; leaf blade pinnate, with 2–5 pairs of leaflets, abaxially white tomentose and pilose on veins, adaxially glabrous; terminal leaflet usually palmately 5–7-lobed, equaling or slightly larger than lateral ones, lobes linear or lanceolate, margin regularly serrate or not, apex acuminate; lateral leaflets resembling terminal one, becoming smaller and less lobed toward base of leaf. Inflorescence terminal, paniculate. Flowers bisexual; pedicel usually pubescent. Sepals ovate, densely pubescent abaxially, apex obtuse or acute. Petals white, obovate. Achenes erect, shortly stipitate, hirsute-ciliate along abaxial and adaxial sides. Fl. and fr. Jun–Aug.

Mountain thickets, meadows, river banks. Heilongjiang, Jilin [Mongolia, Russia].

*Filipendula ×intermedia* is a putative, natural hybrid between *F. angustiloba* and *F. palmata*.

Filipendula ×intermedia is a putative, natural hybrid between *F. angustiloba* and *F. palmata*.


Achenes erect, sessile, glabrous or hairy along ridge. Fl. and fr. Jun–Aug.

Damp places in forests, meadows, river banks; 600–1300 m. Heilongjiang, Nei Mongol [Mongolia, E Russia].

7. **Filipendula ulmaria** (Linnaeus) Maximowicz


Achenes erect, sessile, glabrous or hairy along ridge. Fl. and fr. Jun–Aug.

Damp places in forests, meadows, river banks; 600–1300 m. Heilongjiang, Nei Mongol [Mongolia, E Russia].


*Rubus* biflora (Bunge) Handel-Mazzetti (Tiliaceae).

About 700 species: worldwide, particularly abundant in temperate regions of N hemisphere, a few species extending into S hemisphere; 208 species (139 endemic) in China.


The Chinese species of *Rubus* are mostly native and rare in cultivation. The fruit of many species are eaten raw or used for making jam, jelly, juice, candy, various drinks, wine, and vinegar. The dried fruits, seeds, and leaves are used in traditional Chinese medicine and the leaves are also used for tea. Some species are suitable for ornamental use, for hedges, or as ground covers. The stems and roots of some species are a source of tannin.

1a. Herbs, prostrate or creeping, rarely subshrubs, unarmed or sometimes with needle-like prickles or bristles; stipules free.

2a. Flowers unisexual (plants dioecious); leaves simple .......................................................... 8. **R. sect. Chamaemorus**

2b. Flowers bisexual; leaves simple or compound.

3a. Plants with needle-like prickles or bristles; leaves simple; calyx usually with needle-like prickles or bristles abaxially; carpels more than 20, rarely less ................................................................. 6. **R. sect. Chamaebatus**

3b. Plants unarmed, rarely with needle-like prickles; leaves compound, 3–5-foliolate; calyx unarmed
abaxially or sometimes with soft bristles; carpels fewer than 20, rarely more ............................................. 7. R. sect. Cylacits

1b. Shrubs, rarely subshrubs or herbs, usually with robust or needle-like prickles; stipules free or adnate to base of petiole.

4a. Stipules free, usually dissected, persistent or caducous; leaves simple or palmately compound ................................................................. 4. R. sect. Malachobatus

5a. Plants prickly; stipules caducous or persistent; leaves simple, rarely palmately or pedately compound .................................................. 4. R. sect. Malachobatus

5b. Plants densely bristly, bristles rarely with intermixed sparse, needle-like or small prickles; stipules persistent, rarely caducous; leaves simple .................................................. 5. R. sect. Dalibardastrum

4b. Stipules adnate to base of petiole, rarely free, undivided, occasionally lobed, persistent.

6a. Leaves pinnately or palmately compound, (3–)5–11(–15)-foliolate, or simple; aggregate fruit separating from torus at maturity, hollow ................................................................. 1. R. sect. Idaeobatus

6b. Leaves usually ternate, sometimes pedately or palmately compound, rarely simple; aggregate fruit separating from or adnate to torus, hollow or not.

7a. Evergreen shrubs; leaves leathery; aggregate fruit separating from or adnate to torus at maturity, hollow or not ............................. 2. R. sect. Lampobatus

7b. Deciduous shrubs; leaves papery; aggregate fruit adnate to, rarely separating from torus at maturity, rarely hollow .............................................. 3. R. sect. Rubus


空心莓组 kong xin mei zu

Shrubs, rarely subshrubs or herbs, usually with robust or needle-like prickles. Leaves pinnately or palmately compound, (3–)5–11(–15)-foliolate, or simple; stipules persistent, mostly adnate to base of petiole, narrower than petiole, rarely broader, undivided, sometimes lobed. Flowers bisexual, in cymose panicles, subracemes, or corymb, rarely several in clusters or solitary. Aggregate fruit separating from torus at maturity, hollow.

Eighty-eight species (55 endemic) in China.

1a. Leaves simple.

2a. Carpels ca. 100 or slightly more; aggregate fruit terete or cylindrical; leaves peltate .................................................. 79. R. peltatus

2b. Carpels ca. 10–60, rarely slightly more; aggregate fruit subglobose or ovoid-globose; leaves not peltate.

3a. Leaves palmately compound; terminal leaflet sessile or nearly so.

4a. Leaves ovate to narrowly ovate, 3–5-lobed; flowers 1–1.5 cm, several in clusters or in short terminal racemes; aggregate fruit ca. 1 cm in diam., glabrous ................................................................. 87. R. crataegifolius

4b. Leaves suborbicular, palmately (3–)5(–7)-parted; flowers 2.5–4 cm in diam., solitary; aggregate fruit 1.5–2 cm in diam., densely hairy .............................................. 88. R. chingii

5a. Plants glabrous, without glandular hairs.

6a. Flowers 3 or more, in short racemes; pistils ca. 10–50, glabrous .................................................. 84. R. trianthus

6b. Flowers solitary; pistils 50–100, glabrous or tomentose.

7a. Leaf margin coarsely sharply serrate or doubly serrate; flowers red; pistils glabrous .................................................. 85. R. grayanus

7b. Leaf margin simply serrate; flowers white; pistils densely gray tomentose .................................................. 86. R. yanyunii

5b. Plants softly hairy, rarely pubescent only along veins.

8a. Plants with glandular hairs; flowers ca. 1.5 cm in diam.; aggregate fruit glabrous .................................................. 80. R. glabricarpus

8b. Plants without glandular hairs; flowers 2–3 cm in diam.; aggregate fruit pubescent.

9b. Leaves ovate to ovate-lanceolate, undivided, rarely those of sterile branchlets 3-lobed; abaxial surface of calyx unarmed; flowers solitary or in clusters of 2 or 3 ............................................. 83. R. taitoensis

9b. Leaves ovate to ovate-lanceolate, undivided, rarely those of sterile branchlets 3-lobed; abaxial surface of calyx unarmed; flowers solitary or several in a cluster.

10a. Plants pubescent throughout; sepal ovate to triangular-ovate, 5–8 mm, acute to shortly acuminate; petals white, longer than sepals .................................................. 81. R. corchorifolius

10b. Plants glabrous or slightly pubescent only on leaf veins; sepals triangular-lanceolate, 10–15 mm, acuminate to caudate; petals red, shorter than sepals ............................................. 82. R. kwangsiensis

1b. Leaves compound (only R. impressinervus with simple leaves).

11a. Leaves palmately 3-foliolate; leaflets pilose on both surfaces; branchlets, petioles, pedicel, and abaxial surface of calyx with glandular hairs; abaxial surface of calyx with needle-like prickles; aggregate fruit glabrous ................................................................. 77. R. pentagonus

12b. Leaves palmately 5-foliolate; leaflets pilose only along veins on both surfaces; branchlets, petioles, pedicel, and abaxial surface of calyx without glandular hairs; abaxial surface of calyx unarmed;
11b. Leaves imparipinnate, terminal leaflet prominently petiolulate.
13a. Stipules and bracts ovate-lanceolate, ovate, or suborbicular.
14a. Stipules and bracts ovate-lanceolate to ovate; leaves 3(–5)-foliolate, terminal leaflet broadly ovate, 2- or 3-lobed, lateral leaflets coarsely doubly serrate; pedicel with minute prickles 75. *R. lasiostylus*
14b. Stipules and bracts broadly ovate or suborbicular; leaves 5(–7)-foliolate, terminal leaflet elliptic, undivided, lateral leaflets coarsely serrate; pedicel unarmad 76. *R. washanensis*
13b. Stipules and bracts linear, linear-lanceolate, or lanceolate, occasionally subulate.
15a. Leaves 3-foliolate, rarely 5-foliolate, sometimes simple, leathery; carpels 70–100, rarely more.
16a. Leaves simple; herbs; flowers solitary 74. *R. impressinervus*
16b. Leaves 3-foliolate, rarely 5-foliolate; shrubs or subshrubs; flowers several, in terminal corymbs, in clusters of 2 or 3, or solitary.
17a. Abaxial surface of calyx with hooklike prickles; petiolule of terminal leaflet 0.5–0.8 cm; leaflets lanceolate to narrowly lanceolate, coarsely serrate; flowers solitary or in clusters of 2 or 3 69. *R. delavayi*
17b. Abaxial surface of calyx unarmed; petiolule of terminal leaflet 1–2 cm; leaflets ovate to elliptic-lanceolate; flowers 1–8.
18a. Terminal leaflet nearly as long as or slightly longer than lateral leaflets; pistils 70–80, rarely to 100 or more; torus nearly sessile.
19a. Leaflets ovate to ovate-elliptic, base rounded, coarsely sharply serrate; sepals ovate, apically acute; flowers 3–8 in terminal corymbs 70. *R. leucanthus*
19b. Leaflets narrowly elliptic to elliptic-lanceolate, base cuneate, densely sharply serrulate to incised-doubly serrate; sepals ovate-lanceolate, long caudate; flowers 1–3(–5) 71. *R. zhaogoshanensis*
18b. Terminal leaflet much longer than lateral leaflets; pistils more than 100; torus shortly stipitate.
20a. Leaflets elliptic or ovate-lanceolate, terminal one ca. 2 × as long as lateral leaflets, margin densely unevenly coarsely serrate; flowers 3–4 cm in diam., in terminal corymbs 3–7-flowered, rarely flowers solitary; ovary glabrous 72. *R. columellaris*
20b. Leaflets narrowly lanceolate, terminal leaflet ca. 4 × as long as lateral leaflets, margin remotely and shallowly serrulate; flowers 1.5–2 cm, solitary or in clusters of 2 or 3; apex of ovary pubescent 73. *R. paucidentatus*
15b. Leaves (3–)5–11(–15)-foliolate, not leathery; carpels 10–70 or ca. 100 or more.
21a. Carpels ca. 100 or more, usually inserted on stipitate torus; terminal inflorescences corymbs, rarely short racemes, or flowers several in clusters or solitary.
22a. Plants without glandular hairs, but with glands, sometimes with sparse, short glandular hairs only on flowering branchlets or pedicel; flowers solitary or several in cluster, occasionally in short racemes.
23a. Plants eglandular.
24a. Leaflets ovate or elliptic, rarely ovate-lanceolate, sharply incised-doubly serrate; pedicel 2.5–5 cm; aggregate fruit subglobose, 0.9–1.1 cm in diam. 67. *R. eustephanos*
24b. Leaflets ovate-lanceolate or lanceolate, irregularly and doubly serrate; pedicel 1.5–2.5 cm; aggregate fruit globose to ellipsoid, to 1.5 cm in diam. 68. *R. fraxinifoliolus*
23b. Plants glandular.
25a. Plants glabrous; ovary with few hairs apically 66. *R. lanyuensis*
25b. Plants pubescent; ovary glabrous or pubescent.
26a. Shrubs, erect or scandent; flowers 2–3 cm in diam.; ovary glabrous; aggregate fruit ovoid-globose or narrowly obovoid to oblong, 8–12 mm in diam. 64. *R. rosifolius*
26b. Subshrubs; flowers less than 2 cm in diam.; ovary pubescent; aggregate fruit globose, 5–7 mm in diam. 65. *R. pararosifolius*
22b. Plants with glandular hairs; terminal corymbs several flowered or sometimes flowers solitary.
27a. Plants pubescent, with longer glandular hairs; aggregate fruit oblong or subglobose.
28a. Aggregate fruit oblong; flowers 1–2 cm in diam. 58. *R. sumatranus*
28b. Aggregate fruit subglobose; flowers 2–4 cm in diam.
29a. Flowers 2–3 cm in diam.; pedicel 2–3 cm 59. *R. croceacanthus*
29b. Flowers 3–4 cm in diam.; pedicel (2–)3–6 cm 60. *R. hirsutus*
27b. Plants glabrous, rarely partly pilose, with shorter glandular hairs; aggregate fruit subglobose.
30a. Flowers 2–3 cm in diam., solitary, rarely 2–5 in terminal corymbs; sepals narrowly triangular or triangular-lanceolate 61. *R. glandulosocalycinus*
30b. Flowers 3–4 cm in diam., 2–5 in terminal corymbs, rarely solitary; sepals lanceolate, ovate-lanceolate, oblong-lanceolate, or narrowly ovate-lanceolate.
31a. Leaves 7–9(–11)-foliolate; leaflets lanceolate or ovate-lanceolate; carpels more than 100; torus sessile; ovary and aggregate fruit without glandular hairs 62. *R. tsangii*
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31b. Leaves 5–7-foliolate; leaflets ovate to ovate-oblong; carpels less than 100; torus stipitate, stipe ca. 3 mm; ovary and aggregate fruit with sparse, glandular hairs ......................... 63. R. glandulosocarpus

21b. Carpels 10–70 or slightly more, inserted on sessile torus.
32a. Terminal inflorescences cymose-panicles or subracemes.
33a. Abaxial surface of leaflets pubescent or subglabrous.
34a. Plants without glandular hairs; flowers white.
35a. Branchlets with sparse prickles; leaflets ovate-lanceolate to elliptic-lanceolate; sepals ovate-lanceolate, sparsely glandular abaxially; petals pilose abaxially .............................. 11. R. alnifoliolatus
35b. Branchlets unarmed; leaflets elliptic or oblong; sepals triangular-ovate, not glandular abaxially; petals glabrous ......................................................................................... 12. R. fraxinifolius
34b. Plants with glandular hairs; flowers white or purple.
36a. Leaflets ovate to ovate-lanceolate, margin coarsely and sharply serrate; pedicel 1–2 cm; petals white, glabrous; aggregate fruit 7–9 mm in diam. ................................................. 8. R. chiladienus
36b. Leaflets broadly ovate to suborbicular, margin coarsely and sharply doubly serrate; pedicel 0.5–1 cm; petals purple, glabrous or pubescent; aggregate fruit 8–15 mm in diam.
37a. Petals glabrous; aggregate fruit 8–10 mm in diam. ............................................................................. 9. R. adenophorus
37b. Petals hirsute basally on both surfaces; aggregate fruit 10–15 mm in diam. ............................. 10. R. parviaraliifolius
33b. Abaxial surface of leaflets densely tomentose.
38a. Plants without glandular hairs.
39a. Inflorescences subracemes; branchlets, petioles, pedicel, and abaxial surface of calyx minutely pubescent; sepals acute .............................................................................. 7. R. lshuienis
39b. Inflorescences cymose panicles or subracemes; branchlets, petioles, pedicel, and abaxial surface of calyx tomentose or glabrous; sepals acute or long acuminate.
40a. Branchlets, petioles, and pedicels pubescent; abaxial surface of calyx tomentose; sepals acute .................................................................................................................. 5. R. floscosus
40b. Branchlets, petioles, and pedicels glabrous; abaxial surface of calyx glabrous; sepals long acuminate ................................................................. 6. R. cockburnianus
38b. Plants with glandular hairs.
41a. Leaves 5–7-foliolate.
42a. Plants with unequal long glandular hairs; terminal inflorescences large cymose panicles; sepals ovate-lanceolate, apex acuminate; leaflets ovate to ovate-lanceolate .................. 1. R. grandipaniculatus
42b. Plants with 1–2 mm glandular hairs; terminal inflorescences narrow cymose panicles; sepals acute, peticels usually elliptic to ovate-lanceolate ............. 2. R. idaeopsis
41b. Leaves 3-, rarely 5-foliolate.
43a. Leaflets coarsely serrate or doubly serrate; terminal inflorescences subracemes or narrow panicles; pedicel 0.4–1 cm; sepals ovate, apically acute ............................................................................. 3. R. innominatus
43b. Leaflets coarsely obtusely serrate; terminal inflorescences large cymose panicles; pedicel 1.5–2.5 cm; sepals lanceolate or ovate-lanceolate, apically caudate .......... 4. R. spinulosoides
32b. Terminal inflorescences corymbs, rarely short racemes, or flowers several in a cluster or solitary.
44a. Aggregate fruit densely tomentose.
45a. Abaxial surface of leaflets densely tomentose.
46a. Leaves 5–9-, rarely 3- or 11-foliolate.
47a. Flowers solitary, white; sepals caudate ..................................................................................... 16. R. bonatianus
47b. Flowers in terminal corymbs or several in a cluster; sepals acute, acuminate, or caudate.
48a. Flowers white; leaflets incised to doubly serrate; sepals caudate; inflorescences corymb ................................. 15. R. trijugus
48b. Flowers red; leaflets coarsely sharply serrate or coarsely incised to doubly serrate; sepals acute or acuminate; inflorescences corymb, rarely short thyrses.
49a. Leaves (5–)7–9(–11)-foliolate, coarsely sharply serrate; sepals acute; carpels 55–70; aggregate fruit 8–12 mm in diam. ...................................................................................... 13. R. niveus
49b. Leaves 3–5-foliolate, coarsely incised-doubly serrate; sepals acuminate; carpels 20–40; aggregate fruit 5–8 mm in diam. ................................................................. 14. R. pilaliferus
46b. Leaves 3–5(–7)-foliolate.
50a. Plants with needle-like prickles and glandular hairs.
51a. Leaves 5–7-foliolate; flowers solitary or in clusters of 2 or 3; abaxial surface of calyx tomentose ...................................................................................... 17. R. wawushanensis
51b. Leaves 3-foliolate, rarely 5-foliolate; flowers in terminal corymbs or solitary; abaxial surface of calyx pubescent.
52a. Low shrubs; flowers ca. 1 cm in diam., 5–9 or more in terminal corymbs  
52b. Subshrubs or herblike; flowers 1.5–2 cm in diam., 1–3 terminal on branchlets  
50b. Plants unarmed, glandular hairs absent or rarely with sparse, needle-like prickles or 
glandular hairs on some parts.
53a. Aggregate fruit yellow at maturity, with caducous hairs.
54a. Plants villous; leaflets rhombic or ovate to elliptic; abaxial surface of calyx villous, 
with dense, needle-like prickles; sepals ovate-lanceolate or lanceolate, apex caudate .... 40. R. alexeterius
54b. Plants glabrous; leaflets broadly ovate, suborbicular, or elliptic; abaxial surface of 
calyx glabrous, unarmed; sepals broadly ovate or orbicular-ovate, apex acute ............... 39. R. biflorus
53b. Aggregate fruit red or orange-red at maturity, persistently tomentose.
55a. Aggregate fruit subglobose, 12–20 mm in diam., densely long tomentose; petiole 
and pedicel with sparse, glandular hairs; abaxial surface of calyx with sparse, 
glandular hairs, prickly ...................................................................................................... 20. R. eucalyptus
55b. Aggregate fruit subglobose or narrowly ovoid, 10–14 mm in diam., shortly tomentose; 
petiole, pedicel, and abaxial surface of calyx without glandular hairs; abaxial surface 
of calyx unarmed or prickly.
56a. Leaves (3–)5–7-foliolate; abaxial surface of calyx ± with needle-like prickles; 
flowers white ......................................................................................................................... 21. R. idaeus
56b. Leaves usually 3-foliolate; abaxial surface of calyx unarmed; flowers white, pinkish, or 
purple.
57a. Leaflets ovate or elliptic; flowers white or pinkish; aggregate fruit semiglobose, 
less than 10 mm, orange, yellow, or orange-red ...................................................... 22. R. aurantiacus
57b. Leaflets broadly ovate to ovate-lanceolate; flowers purple; aggregate fruit 
narrowly ovoid, 10–15 mm, red ........................................................................ 23. R. austrotibetanus
45b. Abaxial surface of leaflets pubescent.
58a. Flowers usually solitary; pedicel 4–6 cm; leaflets, branchlets, pedicel, and abaxial surface 
of calyx pubescent, without glandular hairs ............................................................................. 28. R. gyamdaensis
58b. Flowers 3–10 or more in terminal corymbs; pedicel (0.7–1–3.5 cm; abaxial surface of 
leaflets pubescent only along veins.
59a. Plants with sparse, glandular hairs; branchlets, petioles, and abaxial surface of calyx 
pubescent; flowers ca. 1 cm in diam.; abaxial surface of calyx with needle-like prickles 
and soft hairs ............................................................................................................................. 24. R. komarovii
59b. Plants without glandular hairs; flowers 1–3 cm in diam.; abaxial surface of calyx unarmed 
or rarely prickly, puberulous, finely pubescent or glabrous.
60a. Branchlets, pedicel, and abaxial surface of calyx glabrous; flowers 1–1.5(–2) cm in diam.; 
abaxial surface of calyx unarmed; aggregate fruit 8–12 mm in diam., densely tomentose .... 25. R. pileatus
60b. Branchlets, pedicel, and abaxial surface of calyx pubescent, rarely glabrous; flowers 2–3 
mm in diam.; abaxial surface of calyx sometimes with minute prickles; aggregate fruit 8–20 
mm in diam., densely long tomentose, shortly tomentose, or pubescent.
61a. Flowers 2–3 cm in diam.; aggregate fruit 13–20 mm in diam., densely long 
tomentose; leaves (3–)5–7-foliolate .............................................................. 26. R. pseudopileatus
61b. Flowers 1–1.5 cm in diam.; aggregate fruit 8–12 mm in diam., shortly tomentose 
or pubescent; leaves (5–)7–11-foliolate.
62a. Branchlets and inflorescences minutely pubescent; terminal corymbs or short 
racemes more than 10-flowered; ovary and base of style tomentose; aggregate 
fruit yellowish red to purplish red, densely shortly tomentose .................................... 27. R. subinopertus
62b. Branchlets and inflorescences glabrous; short terminal corymbs several flowered; 
ovary and base of style pubescent; aggregate fruit purplish black, thinly pubescent ...... 42. R. inopertus
44b. Aggregate fruit pubescent or glabrous.
63a. Abaxial surface of leaflets tomentose.
64a. Leaves (5–)7–11(–13)-foliolate, terminal leaflet more than 2 × as long as lateral leaflets; 
aggregate fruit densely pubescent ...................................................................................... 29. R. thibetanus
64b. Leaves 3–7-foliolate, terminal leaflet slightly longer than lateral leaflets; aggregate fruit 
glabrous or pubescent.
65a. Plants densely bristly or with glandular hairs.
66a. Plants with glandular hairs; leaflets coarsely serrate or incised; apex of sepals caudate; 
aggregate fruit red ............................................................................................................. 30. R. phoenicolasi
aggregate fruit golden yellow.

67a. Leaflets elliptic, apex acute or abruptly pointed, abaxially tomentose .......................... 31. *R. ellipticus*

67b. Leaflets elliptic or ovate, rarely obovate, apex caudate or acute, rarely obtuse, abaxially glabrous, sparsely pubescent and bristly only along veins ............................................ 48. *R. wallichianus*

65b. Plants without bristles and glandular hairs, rarely sparsely stipitate glandular on some parts.

68a. Leaves 5–7-foliolate; leaflets pinnatifid-lanceolate; branchlets, petioles, and pedicels sometimes sparsely stipitate glandular; abaxial surface of calyx pubescent, with needle-like prickles or sparsely stipitate glandular; aggregate fruit red, glabrous ......................................................... 32. *R. stimulans*

68b. Leaves 3–5-foliolate; branchlets, petioles, and pedicel not stipitate glandular; abaxial surface of calyx glabrous, pubescent or with needle-like prickles; aggregate fruit red, dark red, purplish red, yellow, or black.

69a. Aggregate fruit yellow.

70a. Branchlets, rachis, pedicels, and abaxial surface of calyx glabrous; sepals broadly ovate or orbicular-ovate, apically acute .............................................................. 39. *R. biflorus*

70b. Branchlets, rachis, pedicels, and abaxial surface of calyx pubescent; sepals narrowly ovate, ovate-lanceolate, or lanceolate, apically long acuminate to caudate.

71a. Leaflets rhombic, ovate, narrowly ovate, or elliptic; calyx 1.5–2 cm, with dense, needle-like prickles; flowers white; ovary glabrous, or tomentose only at apex, style tomentose basally .......................................................... 40. *R. alexeterius*

71b. Leaflets ovate to ovate-lanceolate; calyx to 1.5 cm, unarmed; flowers pink; ovary sericeous-villous, style glabrous ............................................................. 41. *R. pedunculosus*

69b. Aggregate fruit red, blue-black, or black.

72a. Aggregate fruit black or blue-black.

73a. Pedicel 1.5–3.5 cm; apex of calyx lobes long acuminate to caudate; leaflets coarsely incised-doubly serrate; terminal corymbs several flowered ............... 41. *R. pedunculosus*

73b. Pedicel 0.6–1.2 cm; apex of calyx lobes acute to acuminate; leaflets large- or incised-serrate; terminal corymbs several to more than 20-flowered.

74a. Leaflets lobed, coarsely serrate; branchlets, petioles, and pedicels with sparse, needle-like prickles; aggregate fruit glabrous ......................................................... 37. *R. mesogaeus*

74b. Leaflets coarsely incised-serrate; branchlets, petioles, and pedicels with dense, needle-like prickles; aggregate fruit puberulous ........................................ 38. *R. subtibetanus*

72b. Aggregate fruit red.

75a. Apex of leaflets obtuse, rarely acute; abaxial surface of calyx with needle-like prickles ............................................................... 33. *R. parvifolius*

75b. Apex of leaflets shortly acuminate to acuminate, rarely acute; abaxial surface of calyx usually unarmed.

76a. Leaflets lanceolate or oblanceolate; abaxial surface of calyx tomentose; branchlets, petioles, and pedicel pubescent .................................................. 36. *R. kulinganus*

76b. Leaflets ovate or narrowly ovate to ovate-lanceolate; abaxial surface of calyx glabrous or hairy; branchlets, petioles, and pedicel glabrous or tomentose.

77a. Branchlets, petioles, pedicel, and abaxial surface of calyx glabrous; terminal corymbs 3–4-flowered .................................................. 34. *R. erythrocarpus*

77b. Branchlets, petioles, and pedicel pubescent; abaxial surface of calyx pubescent, intermixed tomentose; terminal corymbs 6–10-flowered ................. 35. *R. subornatus*

63b. Abaxial surface of leaflets pubescent or glabrous.

78a. Leaves (5–)7–15-foliolate.

79a. Flowers several in clusters or in short terminal corymbs; rachis, pedicels, and abaxial surface of calyx glabrous.

80a. Leaves (5–)7–11-foliolate; leaflets puberulent on both surfaces; flowers 10–12 mm in diam.; calyx brown; petals obovate, 4–6 mm in diam. ........................................ 42. *R. inopertus*

80b. Leaves 5-foliolate; leaflets glabrous on both surfaces, or abaxially puberulent only along veins; flowers 12–14 mm in diam.; calyx dark brownish purple; petals suborbicular, 8–9 mm in diam. ......................................................... 43. *R. wilsonii*

79b. Flowers solitary or in clusters of 2 or 3, terminal or axillary; rachis, pedicels, and abaxial surface of calyx pubescent.

81a. Aggregate fruit oblong, rarely ellipsoid, red; flowers 3–4 cm in diam.; branchlets, petioles, and leaflets glabrous or subglabrous ................................................. 44. *R. amabilis*

81b. Aggregate fruit subglobose, blackish red, yellowish red or red; flowers 2–3 cm in diam.;
plants glabrous or with glandular hairs.

82a. Plants glabrous, without glandular hairs; aggregate fruit red .............................................. 47. *R. taiwanicola*

82b. Plants with glandular hairs or not; aggregate fruit blackish red or yellowish red.

83a. Shrubs 1–2 m tall, with glandular hairs; leaflets ovate, ovate-lanceolate, or rhombic-ovate; aggregate fruit blackish red, 1–1.2 cm in diam. ......................................................... 45. *R. ptilocarpus*

83b. Subshrubs, 10–50 cm tall, without glandular hairs, rarely petioles or pedicels with sparse, glandular hairs; leaflets broadly ovate or rhombic-ovate, rarely oblong; aggregate fruit yellowish red, 1.4–2 cm in diam. .......................................................... 46. *R. lutescens*

78b. Leaves 3–7(–9)-foliolate.

84a. Plants with reddish brown bristles; flowers white; aggregate fruit golden yellow or reddish yellow; leaves 3-foliolate .................................................. 48. *R. wallichianus*

84b. Plants without bristles; flowers red or white; aggregate fruit red, dark red, or purplish black; leaves 3–7-foliolate.

85a. Terminal inflorescences corymbs or short racemes, several to more than 30-flowered.

85b. Terminal inflorescences corymbs or short racemes; apex of sepals acuminate to caudate; abaxial surface of calyx villous.

86a. Terminal inflorescences corymbs; apex of sepals obtuse, acute, or acuminate; abaxial surface of calyx pubescent ............................................................... 49. *R. coreanus*

86b. Terminal inflorescences short racemes; apex of sepals obtuse, acute, or acuminate; abaxial surface of calyx villous.

87a. Leaves 5-foliolate; leaflets ovate, broadly ovate, or rhombic-ovate, apex acute; sepals ovate or broadly ovate, apex obtuse or acute ....................................................... 50. *R. subcoreanus*

87b. Leaves 3-foliolate; leaflets narrowly ovate or ovate-lanceolate, apex acuminate; sepals ovate-lanceolate, apex subulate-acuminate ....................................................... 51. *R. spananthus*

88a. Plants stipitate glandular; leaves 3-foliolate.

88b. Plants not stipitate glandular, rarely with stipitate glands on some parts; leaves 3–7(–9)-foliolate.

89a. Leaflets 2–4 cm, coarsely sharply serrate; petioles 2–3.5 cm; flowers 1–1.5 cm in diam.; ovary sparsely pilose ............................................................... 52. *R. stans*

89b. Leaflets 4–8 cm, irregularly obtusely dentate; petioles 4–8(–10) cm; flowers 2–3 cm in diam.; ovary glabrous .................................................. 53. *R. sikkimensis*

90a. Leaves (3–)5–7(–9)-foliolate; branchlets and abaxial surface of calyx with dense, straight needle-like prickles ............................................................... 54. *R. pungens*

90b. Leaves 3-foliolate, rarely 5-foliolate; branchlets and abaxial surface of calyx with sparse, curved or straight minute prickles, or abaxial surface of calyx unarmed.

91a. Subshrubs, 40–60 cm tall; terminal leaflet slightly longer than lateral leaflets; abaxial surface of calyx with sparse, curved minute prickles ........................................ 57. *R. simplex*

91b. Shrubs or subshrubs, 15–200 cm tall; terminal leaflet much longer than lateral leaflets; abaxial surface of calyx with straight needle-like prickles or unarmed.

92a. Shrubs 1–2 m tall; leaflets lanceolate, ovate-lanceolate, or ovate; petiolo of terminal leaflet 0.5–1 cm; abaxial surface of calyx unarmed ................................ 55. *R. macilentus*

92b. Subshrubs, 15–50 cm tall; leaflets oblong or elliptic-oblong, rarely ovate-lanceolate; petiolo of terminal leaflet 1–2.5 cm; abaxial surface of calyx with straight needle-like prickles .................................................. 56. *R. xanthocarpus*


大序悬钩子 da xu xuan gou zi

Shrubs 1–3 m tall, with arching branches. Branchlets with sparse, curved minute prickles, densely villous, with intermixed glandular hairs of unequal length. Leaves imparipinnate, 5–7-foliolate, rarely 3-foliolate at base of inflorescence; petiole 3.5–6 cm, petiolo of terminal leaflet 1–2 cm, lateral leaflets shorty petioloate or subsessile, petiolo and rachis pubescent, with intermixed unequal glandular hairs, with sparse, minute prickles; stipules brownish, linear, pubescent, with intermixed glandular hairs; blade of leaflets ovate to ovate-lanceolate, 2.5–5 × 1.5–3 cm, abaxially densely gray tomentose, with purple stalked glands along veins, adaxially pilose, base broadly cuneate or subrounded, sometimes shallowly cordate on terminal leaflet, margin irregularly coarsely serrate, often lobed on terminal leaflet, apex acuminate. Inflorescences terminal or axillary, large broad cymose panicles, numerous flowered; rachis and pedicels with dense, unequal stalked glands and soft hairs; bracts brownish, lanceolate or ovate-lanceolate, not or 2- or 3-laciniate at apex. Pedicel 5–10 mm. Flowers not more than 1 cm in diam. Calyx abaxially with dense soft hairs and glandular hairs; sepals erect at anthesis, sometimes reflexed in fruit, ovate-lanceolate, 6–10 mm, apex long acuminate. Petals pink-white to purple, suborbicular, base broadly clawed and soft hairy. Stamens many, in 1 whorl; filaments linear. Ovary hairy; style glabrous. Aggregate fruit red, subglobose, 7–10 mm in.

- Sparse forests on mountain slopes, rock crevices along river banks and sides of ravines; 800–1100 m. Chongqing (Fengjie Xian), S Shaanxi (Pingli Xian).


拟覆盆子  

Shrubs 1–3 m tall. Branchlets brown, purplish brown, or grayish brown, slightly angular, with broad purplish brown prickles, densely tomentose, with intermixed 1–2 mm glandular hairs or not. Leaves imparipinnate, 5–7-foliolate, rarely at base of inflorescence reduced to 3-foliolate; petiole 3–5 cm, peti-olule of terminal leaflet 1–2 cm, lateral leaflets subsessile, peti-olule and rachis densely tomentose, with intermixed short glandular hairs, rarely glandular hairs absent, usually with sparse prickles; stipules linear, 5–9 × 1.5–2.5 mm, pubescent, with intermixed sparse, short glandular hairs; blade of leaflets 3–7 × 2–4 cm, terminal one elliptic to ovate-lanceolate, rarely ovate, lateral leaflets obliquely elliptic to ovate-lanceolate, abaxially densely gray tomentose, adaxially pilose, base cuneate to rounded, margin irregularly coarsely simple-serrate, apex acute to shortly acuminate. Inflorescences terminal or axillary, subracemes or narrow cymose panicles, many flowered, 5–10 cm; rachis and pedicels tomentose, rarely with sparse, short glandular hairs; bracts linear, 4–6 mm, pubescent, rarely with sparse, glandular hairs, Pedicel 7–12 mm. Flowers 1–1.5 cm in diam. Calyx abaxially densely tomentose, sometimes with shortly stalked glands; sepals erect, ovate, 5–7 mm, gray tomentose at margin, apex acute. Petals purple, suborbicular, nearly as long as sepals, margin premorse, base clawed. Stamens many, shorter than petals. Pistils numerous, slightly shorter than stamens; ovary softly hairy; styles glabrous. Aggregate fruit orange-red, subglobose, ca. 1 cm in diam., initially sparsely soft hairy, glabrous at maturity; pyrenes minutely rugose. Fl. May–Jun, fr. Jul–Aug. 2n = 14*.

- Dense or sparse forests, thickets, slopes, river sides; 400–2500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

3a. Rubus innominatus var. innominatus

Shrubs 1–3 m tall, with arching branches. Branchlets brown or reddish brown, densely tomentose, with sparse, curved prickles. Leaves imparipinnate compound, 3-foliolate, rarely 5-foliolate on sterile branches; petiole 2–4 cm, peti-olule of terminal leaflet 1–2 cm, lateral leaflets nearly sessile, peti-olule and rachis densely tomentose; stipules linear, 6–8 mm, pubescent; blade of leaflets variable in shape, 4–10 × 2.5–5(–7) cm, terminal one ovate or suborbicular, rarely ovate-lanceolate, base rounded to shallowly cordate, margin 3-lobed or incised-doubly serrate, apex acute to shortly acuminate. Inflorescences terminal or axillary, subracemes or narrow cymose panicles, 6–13(–18) cm; rachis, pedicels, and abaxial surface of calyx densely yellowish gray or gray tomentose-villosus and stipitate glandular; bracts linear-lanceolate, tomentose-villosus. Pedicel 4–10 mm. Flowers 6–10 mm in diam. Sepals erect, ovate, 5–9(–12) × 3–5 mm, inner sepals gray tomentose-villosus at margin, apex acute. Petals purple, suborbicular, nearly as long as sepals, margin premorse, base clawed. Stamens many, shorter than petals. Pistils numerous, slightly shorter than stamens; ovary softly hairy; styles glabrous. Aggregate fruit orange-red, subglobose, ca. 1 cm in diam., initially sparsely soft hairy, glabrous at maturity; pyrenes minutely rugose. Fl. May–Jun, fr. Jul–Aug. 2n = 14*.

- Dense or sparse forests, thickets, slopes, road sides, stream sides, river sides; 400–2500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

3b. Rubus innominatus var. kuntzeanus (Hemsley) L. H. Bailey, Gentes Herb. 1: 30. 1920.

无腺白叶莓 wu xian bai ye mei

ROSACEAE


白叶莓 bai ye mei

Shrubs 1–3 m tall. Branchlets brown or reddish brown, densely tomentose, with sparse, curved prickles. Leaves imparipinnate compound, 3-foliolate, rarely 5-foliolate on sterile branches; petiole 2–4 cm, peti-olule of terminal leaflet 1–2 cm, lateral leaflets nearly sessile, peti-olule and rachis densely tomentose; stipules linear, 6–8 mm, pubescent; blade of leaflets variable in shape, 4–10 × 2.5–5(–7) cm, terminal one ovate or suborbicular, rarely ovate-lanceolate, base rounded to shallowly cordate, margin 3-lobed or incised-doubly serrate, apex acute to shortly acuminate. Inflorescences terminal or axillary, subracemes or narrow cymose panicles, 6–13(–18) cm; rachis, pedicels, and abaxial surface of calyx densely yellowish gray or gray tomentose-villosus and stipitate glandular; bracts linear-lanceolate, tomentose-villosus. Pedicel 4–10 mm. Flowers 6–10 mm in diam. Sepals erect, ovate, 5–9(–12) × 3–5 mm, inner sepals gray tomentose-villosus at margin, apex acute. Petals purple, obovate or suborbicular, nearly as long as sepals, margin premorse, base clawed. Stamens many, shorter than petals. Pistils purple, suborbicular, nearly as long as sepals; ovary softly hairy; styles glabrous. Aggregate fruit orange-red, subglobose, ca. 1 cm in diam., initially sparsely soft hairy, glabrous at maturity; pyrenes minutely rugose. Fl. May–Jun, fr. Jul–Aug. 2n = 14*.

- Dense or sparse forests, thickets, slopes, road sides, stream sides, river sides; 400–2500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

3a. Rubus innominatus var. innominatus

白叶莓(原变种) bai ye mei (yuan bian zhong)

Rubus kuntzeanus Hemsley var. glandulosus Cardot; R. xanthacanthus var. glandulosus L. H. Focke; R. kuntzeanus var. xanthacanthus H. Léveillé; R. xanthoacanthus H. Léveillé (1907), not R. Keller (1906), nor R. xanthoacanthus Gandoger (1884).

Plants with few glandular hairs only on rachis, pedicel, and abaxial surface of calyx ...

3b. Rubus innominatus var. kuntzeanus

无腺白叶莓 wu xian bai ye mei

Plants without glandular hairs. Inflorescences long subracemes or narrow cymose panicles. Sepals ovate, 5–8 mm.


宽萼白叶莓 kuan e bai ye mei

Plants without glandular hairs. Inflorescences compact short subracemes. Sepals broadly ovate, 0.8–1.2 cm.

- Slopes; below 2000 m. Anhui, Zhejiang.


五叶白叶莓 wu ye bai ye mei

Leaves 5-foliolate; leaflets lanceolate-ovate, sometimes ovate, relatively narrow, apex long acuminate.

- Slopes. Jiangxi.


密腺白叶莓 mi xian bai ye mei


Plants with dense, glandular hairs throughout. Leaflets abaxially sometimes deciduously tomentose.

- Dense forests, stream sides, slopes, river sides; 400–900 m. Fujian, Guangdong, Guizhou, Jiangxi, Zhejiang.


刺毛白叶莓 ci mao bai ye mei

Rubus spinulosus S. Moore subsp. plebejus Focke; R. teleleapos Focke; R. triphylus Thunberg var. internuntius Hance.

Shrubs. Branchlets yellow villous, with reddish glandular hairs and sparse, curved prickles. Leaves imparipinnately compound, usually 3-foliolate; petiole 5–9 cm, petiolule of terminal leaflet 1–2 cm, lateral leaflets nearly sessile, petiolute and rachis pubescent, with curved prickles; stipules linear, 5–6 mm, margin entire, pubescent; blade of leaflets ovate, ovate-lanceolate, or ovate-oblong, terminal leaflet sometimes rhombic-lanceolate, 3–7 × 1.5–4 cm, abaxially gray tomentose, axially glabrous or subglabrous, base broadly cuneate to rounded, margin coarsely doubly serrate, rarely lobed, apex acuminate. Inflorescences terminal or axillary, terminal ones narrow cymose panicles, 7–12 cm, axillary ones subracemes; rachis and pedicels pubescent; bracts linear, small, 3–5 mm. Pedicel 5–8 mm, slender. Flowers 5–8 mm in diam. Calyx abaxially gray tomentose, sometimes glabrescent; sepals erect, ovate to narrowly ovate, 4–6 × 1.5–2.5 mm, apex acute, abruptly pointed. Petals pink, suborbicular, nearly as long as or slightly longer than sepals, base shortly clawed. Stamens many; filaments filiform; anthers purple. Pistils numerous; ovary pubescent; styles glabrous. Aggregate fruit red to reddish black, globose, 5–8 mm in diam., pubescent, glabrescent; pyrenes ovoid-globose, rugose. Fl. Jun–Jul, fr. Aug–Sep.

- River banks, montane valleys, forested slopes, thickets, roadsides; 900–2800 m. Fujian, Gansu, Henan, Hubei, Shaanxi, Sichuan, Xizang, Zhejiang.


弓茎悬钩子 gong jing xuan gou zi

Shrubs 1.5–2.5 m tall. Branchlets arching, reddish brown, sometimes glaucescent, with sparse, compressed purplish red curved prickles, pubescent when young, glabrescent. Leaves imparipinnate, 5–7-foliolate; petiole 3–5 cm, petiolule of terminal leaflet 1–2 cm, lateral leaflets nearly sessile, petiolute and rachis pubescent, with curved prickles; stipules linear, 5–6 mm, margin entire, pubescent; blade of leaflets ovate, ovate-lanceolate, or ovate-oblong, terminal leaflet sometimes rhombic-lanceolate, 3–7 × 1.5–4 cm, abaxially gray tomentose, axially glabrous or subglabrous, base broadly cuneate to rounded, margin coarsely doubly serrate, rarely lobed, apex acuminate. Inflorescences terminal or axillary, terminal ones narrow cymose panicles, 7–12 cm, axillary ones subracemes; rachis and pedicels pubescent; bracts linear, small, 3–5 mm. Pedicel 5–8 mm, slender. Flowers 5–8 mm in diam. Calyx abaxially gray tomentose, sometimes glabrescent; sepals erect, ovate to narrowly ovate, 4–6 × 1.5–2.5 mm, apex acute, abruptly pointed. Petals pink, suborbicular, nearly as long as or slightly longer than sepals, base shortly clawed. Stamens many; filaments filiform; anthers purple. Pistils numerous; ovary pubescent; styles glabrous. Aggregate fruit red to reddish black, globose, 5–8 mm in diam., pubescent, glabrescent; pyrenes ovoid-globose, rugose. Fl. Jun–Jul, fr. Aug–Sep.

- River banks, montane valleys, forested slopes, thickets, roadsides; 900–2800 m. Fujian, Gansu, Henan, Hubei, Shaanxi, Sichuan, Xizang, Zhejiang.

5a. Rubus flosculosus var. flosculosus

弓茎悬钩子(原变种) gong jing xuan gou zi (yuan bian zhong)

Rubus eriocalyx Cardot.

Calyx densely gray tomentose abaxially.

- River banks, montane valleys, mixed forests on slopes, thickets; 900–2600 m. Gansu, Henan, Hubei, Shaanxi, Shanxi, Sichuan, Xizang.


脱毛弓茎悬钩子 tuo mao gong jing xuan gou zi

Calyx tomentose abaxially when young, glabrescent.

- Forested slopes, roadsides; below 2800 m. Fujian, Sichuan.

华中悬钩子 hua zhong xuan gou zi

*Rubus giralddanus* Focke.

Shrubs 1.5–3 m tall. Branchlets brownish to reddish brown, glabrous, glaucous, with sparse, curved prickles. Leaves imparipinnate, 7–9-foliolate, rarely 5-foliolate; petiole 3–5 cm, petiolo of terminal leaflet 1–2 cm, lateral leaflets subsessile, petiolo and rachis glabrous, with sparse, curved minute prickles; stipules linear or linear-lanceolate, 5–7 mm, glabrous; blade of leaflets oblong-lanceolate or ovate-lanceolate, terminal leaflet sometimes nearly rhombic and minutely lobed, 5–10 × 1.5–4 (–5) cm, abaxially gray tomentose, adaxially glabrous or sparsely pilose, base broadly cuneate or rounded, margin irregularly coarsely serrate or incised-doubly serrate, usually lobed on terminal leaflet, apex acuminate. Inflorescences terminal or axillary, terminal ones cymose panicles, 10–16 (–18) cm, lateral ones often subracemes, rarely subcorymbose; rachis and pedicels glabrous; bracts linear, 2–5 mm, glabrous. Pedicel somewhat reddish when young, 7–12 mm, slender. Flowers to 1 cm in diam. Calyx abaxially glabrous; sepals erect at anthesis, reflexed in fruit, ovate-lanceolate, 5–8 × 2–4 mm, margin gray tomentose and entire, apex long acuminate. Petals pink, subbicular or obovate, 5–7 × 4–5 mm, margin premorse or coarsely serrate above middle, base shortly clawed. Stamens many, bicular or obovate, 5–7 × 4–5 mm, margin premorse or coarsely serrate or incised-doubly serrate, usually lobed on terminal leaflet, apex acuminate. Calyx tube slightly longer than petals; filaments linear, broader toward base. Styles slightly shorter than stamens; ovary soft hairy; styles glabrous. Aggregate fruit enclosed in calyx, red, subglobose, 7–9 mm in diam., pubescent; pyrenes distinctly rugose. Fl. May–Jul, fr. Aug–Sep.

- Thickets on sunny slopes, dense forests in montane valleys, river sides; 900–4000 m. Henan, Shaanxi, Sichuan, Xizang, Yunnan.


丽水悬钩子 li shui xuan gou zi

Shrubs lianoid or scandent. Branchlets brown or reddish brown, terete, puberulous when young, gradually glabrescent, with sparse prickles broader at base. Leaves compound, usually 5–7-foliolate; petiole 5–7 cm, petiolo of terminal leaflet 1.5–2 cm, lateral leaflets subsessile, petiolo and rachis minutely pubescent, gradually glabrescent, with sparse, curved prickles; stipules linear-lanceolate, pubescent; blade of leaflets ovate-lanceolate or narrowly ovate, 5–7 × 2–3.5 cm, abaxially gray tomentose, with sparse, minute prickles along midvein, adaxial veins glabrous or pilose, base broadly cuneate to rounded, margin unevenly sharply serrate or incised-doubly serrate, apex acuminate. Inflorescences terminal or axillary, short, subracemes; rachis and pedicels minutely pubescent, gradually glabrescent; bracts lanceolate or linear-lanceolate, minutely pubescent. Pedicel 6–11 mm. Calyx abaxially densely minute pubescent; sepals erect in fruit, ovate, 4–6 × 3–4 mm, apex acute and abruptly pointed. Stamens many; filaments linear. Pistils numerous. Aggregate fruit red, subglobose, ca. 1 cm in diam., glabrous; pyrenes ovoid-globose, prominently small-punctate. Fl. Jul, fr. Aug–Sep.

- Forest margins, slopes; low elevations. Zhejiang (Lishui Xian).


长序莓 chang xu mei

Shrubs 1–2 m tall. Branchlets brownish to reddish brown, pubescent, with purple glandular hairs and sparse prickles flattened and broadened basally. Leaves imparipinnate, often 5-foliolate, sometimes 3-foliolate at base of inflorescence; petiole 3–5 cm, petiolo of terminal leaflet 1–2 cm, lateral leaflets subsessile, petiolo and rachis pubescent, with intermixed stalked purple glands; stipules linear, 7–10 mm, pubescent, with glandular hairs; blade of leaflets ovate to ovate-lanceolate, 3–8 × 1–4 cm, both surfaces pubescent and with glandular hairs, abaxially more densely so, base cuneate to subrounded or subcordate on terminal leaflet, margin irregularly coarsely sharply serrate, apex acuminate. Inflorescences terminal, cymose panicles, 15–20 cm, axillary inflorescences subracemes, many flowered; rachis, pedicels, and abaxial surface of calyx pubescent and with stalked glands; bracts linear-lanceolate, 5–8 mm, pubescent, with intermixed glandular hairs. Pedicel 1–2 cm. Flowers ca. 1 cm in diam. Calyx tube ovate, short; sepals usually erect, lanceolate, 5–8 × 3–4 mm, apex acute to acuminate. Petals white or with reddish spots at apex, subbicular or broadly obovate, 4–6 mm in diam., slightly shorter than sepals, glabrous, base prominently clawed, margin premorse or minutely obtusely serrate. Stamens numerous; filaments linear. Pistils many, nearly as long as or slightly longer than stamens; ovary pubescent; style glabrous. Aggregate fruit enclosed in calyx, red, subglobose, 7–9 mm in diam., pubescent; pyrenes distinctly rugose. Fl. May–Jul, fr. Aug–Sep.

- Forests, wastelands, shaded rocky places, trail- and roadsides; 600–2000 m. Guizhou, Hubei, Sichuan.


腺毛莓 xian mao mei

*Rubus sagatus* Focke.

Shrubs scandent, 0.5–2 m tall. Branchlets brownish to brownish red, villous, with intermixed stalked purple glands and sparse, basally broadened and flattened prickles. Leaves imparipinnate, often 3-foliolate; petiole 5–8 cm, petiolo of terminal leaflet 2.5–4 cm, lateral leaflets subsessile, petiolo and rachis villous, with glandular hairs, sparsely prickly; stipules linear-lanceolate, 0.9–1.4 cm, villous, with sparse, stalked glands; blade of leaflets ovate to broadly ovate, 4–11 × 2–8 cm, both surfaces sparsely villous, abaxially with few stalked glands along veins, base rounded to subcordate, margin coarsely sharp doubly serrate, apex acuminate. Inflorescences terminal or axillary, subracemes, 8–20 (–25) cm; rachis, pedicels, and bracts yellow villous, with intermixed stalked purple glands; bracts lanceolate, 0.8–1.2 cm. Pedicel 6–9 mm. Flowers 6–8 mm in diam. Calyx abaxially with long yellow hairs and stipitate purple glands; sepals usually erect after anthesis, lanceolate or ovate-lanceolate, 6–9 × 2.5–5 mm, apex acuminate. Petals purple, obovate or subbicular, 5–8 × 5–7 mm, glabrous, base...
long clawed, margin premorse or dentate. Stamens many, nearly as long as petals; filaments linear. Pistils numerous, slightly shorter than stamens; styles glabrous or pilose at base; apex of ovary pilose when young. Aggregate fruit red, globose, 8–10 mm in diam., glabrous or slightly pilose; pyrenes distinctly rugose. Fl. Apr–Jun, fr. Jul–Aug.

- Mountainous regions, valleys, sparse forests, forest margins, thickets; low to medium elevations. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Zhejiang.


樵叶悬钩子  long ye xuan gou zi


Subshrubs or small shrubs, suberect. Branchlets fulvous-red, villous, with glandular hairs, with sparse prickles; prickles few, recurved, to 3 mm. Leaves imparipinnate, 3–5(–7)-foliolate; petioles 3–5 mm, petiolar of terminal leaflet 2–3 mm, lateral leaflets subsessile, petiolar and rachis hairy, stipitate glandular, with sparse prickles; stipules linear; stipules linear, to 1 cm, hairy, stipitate glandular; blade of leaflets variable in size, terminal leaflet orbicular, 5–10 × 5–8 cm, base rounded to slightly cordate, apex acuminate to cuspidate, lateral leaflets ovate, 3–5 × 2–4 cm, abaxially densely pale villous, adaxially sparsely hairy, base rounded, margin irregularly doubly serrate, apex acute. Inflorescences terminal, subacuminate or cymose panicles, 7–10 × 5–6 cm; rachis, pedicels, and bracts hairy, with stalked glands; bracts linear, 6–8 mm. Pedicel 5–10 mm. Calyx abaxially hairy, with stalked glands; sepals narrowly oblong-triangular, 5–6 mm, apex ciliate. Pedicels orbicular, 3–4 mm, both surfaces hirsute at base, base clawed, margin crenate. Stamens many; filaments ca. 3 mm. Pistils many; ovary ca. 1 mm, hairy; styles to 2 mm, hairy at base. Aggregate fruit globose, 1–1.5 cm in diam. Fl. May–Jun, fr. Jun–Aug. 2n = 14*.

- 1000–3000 m. Taiwan.


 DJs tui xuan gou zi

Shrubs erect. Branchlets unarmed. Leaves imparipinnate, 5–7-foliolate, rarely 3-foliolate; petiole 2–5 cm, grooved, petiolar of terminal leaflet much longer than those of lateral leaflets, petiolar of lateral leaflets to 5 mm, petiolar and rachis softly hairy; stipules linear, to 1.2 cm; blade of leaflets elliptic to oblong, 3–10 × 2–4 cm, terminal leaflet usually larger than lateral leaflets, lateral veins 10–15 pairs, midvein and lateral veins prominent abaxially, impressed adaxially, abaxially sparsely hairy along veins, adaxially sparsely hairy along midvein, base rounded to slightly cordate, of lateral leaflets often oblique, margin serrate, apex acute to acuminate. Inflorescences usually terminal, cymose panicles, to 14 cm; rachis, pedicels, and bracts often glabrous; bracts lanceolate to oblong, divided at apex. Pedicel 1–3 cm. Sepals triangular-ovate, 6–10 mm, abaxially glabrous except margin tomentose, apex narrowly acute. Petals white, orbicular, 7–12 mm, glabrous. Stamens and pistils many, glabrous. Aggregate fruit red at maturity, globose to ellipsoid, 0.8–1.4 cm. 2n = 14*.

- Thickets; near sea level. Taiwan (Lan Yu) [Indonesia, Malaysia, Philippines; N Africa, Pacific Islands].


红泡刺藤 hong pao ci teng

*Rubus bonatii* H. Léveillé; *R. baudieri* H. Léveillé; *R. distans* D. Don; *R. foliolosus* D. Don; *R. godogensis* Y. Gu & W. L. Li; *R. incanus* Sasaki ex Y. C. Liu & Yang; *R. lasiocarpus* Smith; *R. lasiocarpus* var. *ectenothyrsus* Cardot; *R. lasiocarpus* var. *micranthus* (D. Don) J. D. Hooker; *R. longistylus* H. Léveillé; *R. mairei* H. Léveillé; *R. micranthus* D. Don; *R. mysoensis* F. Heyne; *R. niveus* var. *micranthus* (D. Don) H. Harms; *R. pinnatus* D. Don; *R. pyi* H. Léveillé; *R. tongchouanensis* H. Léveillé.

Shrubs 1–2.5 m tall. Branchlets purple or green, tomentose when young, soon glabrous, with whitish bloom, with sparse prickles. Leaves imparipinnate, 5–7–9(–11)-foliolate; petiole 1.5–4 cm, petiolar of terminal leaflet 0.5–1.5 cm, lateral leaflets subsessile, petiolar and rachis tomentose, with sparse, curved minute prickles; stipules linear-lanceolate, 5–8 mm, soft hairy; blade of leaflets elliptic, ovate-elliptic, or rhombic-elliptic, terminal leaflet ovate to elliptic, slightly longer than lateral leaflets, 2.5–6(–8) × 1–3(–4) cm, abaxially gray tomentose, adaxially soft hairy along veins or glabrate, base cuneate to rounded, margin coarsely serrate or doubly serrate, sometimes terminal leaflet 3-lobed, apex acute, rarely obtuse, terminal
leaflet sometimes acuminate. Inflorescences terminal or axillary, corymbs, rarely short thyrses, 4–6 cm; rachis and pedicels tomentose; bracts lanceolate or linear, pubescent. Pedicel 5–10 mm. Flowers to 1 cm in diam. Calyx abaxially densely tomentose, with intermixed soft hairs; sepals erect, triangular-ovate or triangular-lanceolate, 5–8 × 2–3 mm, apex acute or abruptly pointed, rarely shortly acuminate. Petals red, suborbicular, 3–5 mm in diam, shorter than sepals, base shortly clawed. Stamens many, nearly as long as petals; filaments broadened basally. Pistils ca. 55–70, nearly as long as stamens; ovary gray tomentose; styles purplish red, base densely gray tomentose. Aggregate fruit dark red when immature, black at maturity, semiglobose, 0.8–1.2 cm in diam., densely tomentose. Aggregate fruit subglobose, 5–8 mm in diam., densely shortly whitish tomentose; pyrenes rugulose. Fl. May–Jul, fr. Aug–Sep. 2n = 14*.

Thickets on slopes, sparse forests, montane valleys, stream sides, flood plains; 500–2800 m. Gansu, Guangxi, Guizhou, Shaanxi, Sichuan, Taiwan, Xizang, Yunnan [Afghanistan, Bhutan, India, Indonesia, Kashmir, Laos, Malaysia, Myanmar, Nepal, Philippines, Sikkim, Sri Lanka, Thailand, Vietnam].


陕西悬钩子 shan xi xuan gou zi

*Rubus lachnocarpus* Focke.

Shrubs to 2 m tall, with arcuate branches. Branchlets terete, soft hairy, glabrescent, with sparse, needle-like prickles or nearly unarmored, rarely with dense, minute prickles. Leaves imparipinnate, 3–5-foliolate; petiole 2–4 cm, petiolo of terminal leaflet 1–2 cm, lateral leaflets subsessile, petiolo and rachis with soft hairs and sparse, minute prickles; stipules linear, 5–10 mm, soft hairy; blade of leaflets ovate, rhombic-ovate, or ovate-lanceolate, 3–8 × 1.5–5.5 cm, lateral veins 5 or 6 pairs, abaxially densely whitish tomentose, adaxially sparsely pubescent or subglabrous, base broadly cuneate or rounded, margin often pinnate-lobed, coarsely incised-doubly serrate, apex variable, ciliate-acuminate on terminal leaflet, acute to shortly acuminate on lateral leaflets. Inflorescences terminal on short branchlets, corymbose, 5–10-flowered; rachis and pedicels yellow pubescent; bracts linear, 5–7 mm, pubescent. Pedicel 0.7–1.5 cm. Flowers 1–1.5 cm in diam. Calyx abaxially pubescent; sepals lanceolate or ovate-lanceolate, 5–7 mm, apex acuminate. Petals pink, suborbicular, slightly shorter than sepals, base long clawed. Stamens many, shorter than petals; filaments linear, basally broadened and flattened. Pistils 20–40; ovary and base of style densely whitish tomentose. Aggregate fruit subglobose, 5–8 mm in diam., densely shortly whitish tomentose; pyrenes rugulose or slightly smooth. Fl. May–Jun, fr. Jul–Aug.

• Slopes, forests, montane valleys; 1100–2000 m. Gansu, Hubei, Shaanxi, Sichuan.


三对叶悬钩子 san dui ye xuan gou zi

Shrubs to 2 m tall. Branches purplish red or purplish brown, cylindric, soft hairy when young, gradually glabrescent, glaucous, with sparse prickles. Leaves imparipinnate, (5–)7–9-foliolate; petiole 5–11 cm, petiolo of terminal leaflet 1–2 cm, lateral leaflets subsessile, petiolo and rachis with soft hairs and needle-like prickles; stipules linear, 4–7 mm, soft hairy; blade of leaflets ovate or ovate-elliptic, 2–5 × 1.5–4 cm, abaxially gray tomentose, adaxially appressed pubescent, base broadly cuneate or rounded, sometimes truncate on terminal leaflet, margin usually incised-doubly serrate, apex acute, sometimes acuminate on terminal leaflet. Inflorescences terminal corymbs or flowers in clusters of 3 or 4 at apex of branchlets, rarely flowers solitary in leaf axils; bracts linear, 3–6 mm, soft hairy. Pedicel 1–2(–3) cm, pubescent, with sparse, minute prickles. Flowers 1.5–2 cm in diam. Calyx abaxially pubescent; sepals erect, spreading, rarely reflexed in fruit, triangular-lanceolate or ovate-lanceolate, 1–1.4 cm × 4–6 mm, margin tomentose, apex caudate. Petals nearly erect, white, elliptic or oblong, shorter than or rarely as long as sepals, base clawed and pubescent. Stamens numerous, shorter than petals; base of filaments slightly broadened, flattened. Pistils many, slightly longer than stamens; ovary and base of style densely gray tomentose. Aggregate fruit red, subglobose, ca. 1 cm in diam., densely gray tomentose. Fl. May–Jun, fr. Jul–Aug.

• Low slopes, mixed forests and forest margins in mountainous regions, grasslands, stream sides; 2500–3500 m. Sichuan, Xizang, Yunnan.


滇北悬钩子 dian bei xuan gou zi

Shrubs nearly erect or prostrate. Branches dark brown or brownish, soft hairy when young, gradually glabrescent, with sparse prickles. Leaves imparipinnate, (5–)7–9-foliolate; petiole 3–8 cm, petiolo of terminal leaflet 0.5–1 cm, lateral leaflets subsessile, petiolo and rachis with soft hairs and minute prickles, sometimes with sparse, stalked glands; stipules linear, to 1 cm, soft hairy; blade of leaflets rhombic, ovate-lanceolate, or oblong, 2–5 × 1–2.5 cm, abaxially densely gray tomentose, adaxially minutely appressed pubescent, base broadly cuneate to rounded, margin incised, sharply doubly serrate, apex acuminate. Inflorescence 1-flowered. Pedicel 1–2 cm, with soft hairs or sparse, stalked glands. Flowers 2–3 cm in diam. Calyx abaxially pubescent; sepals ovate-lanceolate or triangular-lanceolate, to 1.7 cm, apex long caudate, inner sepals gray tomentose marginally. Petals white, together with calyx turning red upon withering, spatulate, ca. 1.5 cm × 8–9 mm, slightly shorter than sepals, both surfaces minutely pubescent, base broadly clawed. Stamens numerous, shorter than petals; filaments linear, with somewhat broadened base. Pistils many, slightly longer than stamens; ovary and basal part of style long white tomentose. Fruit unknown. Fl. summer.

• Montane valleys, grassy places, stream sides, moist slopes; 3200–3500 m. Sichuan, N Yunnan.


瓦屋山悬钩子 wa wu shan xuan gou zi

Shrubs upright, spreading. Branchlets purplish brown, pi-
lose, with dense needle-like prickles, with intermixed sparse, long stalked glands. Leaves imparipinnate, 5–7-foliolate; petiole 3–6 cm, petiolule of terminal leaflet 1–2 cm, lateral leaflets sessile or nearly so, petiolules and rachis minutely pubescent, with needle-like prickles; stipules linear or narrowly lanceolate, soft hairy; blade of leaflets ovate, rhombic-ovate, or oblong, 2.5–7 × 2–(5–6) cm, abaxially densely gray tomentose, with sparse, small needle-like prickles along veins, adaxially minutely appressed pubescent, base often truncate, base of lateral leaflets rounded, margin unevenly coarsely incised or sharply doubly serrate, terminal leaflet sometimes 2- or 3-lobed, apex acute, often acuminate on terminal leaflet. Inflorescences usually terminal on short lateral branchlets, 1-flowered or flowers in clusters of 2 or 3; bracts linear, pubescent, minutely pubescent, with needle-like prickles and with glandular hairs. Calyx abaxially gray tomentose, with needle-like prickles, ± with intermixed longer stalked glands; sepals erect, narrowly ovate-lanceolate, 1.2–1.7 cm × 5–7 mm, apex long caudate. Flowers to 2.5 cm in diam. Petals white, elliptic or spatulate, shorter than sepals, base clawed. Pistils many; filaments linear, or basally slightly broader. Pistils shorter than stamens; ovary and base of style densely long gray tomentose. Aggregate fruit subglobose, ca. 1 cm or more in diam., long gray tomentose; styles persistent; pyrenes rugulose. Fl. Jun–Jul, fr. Aug–Sep. 2n = 14*, 24, 28*

1a. Pedicel and abaxial surface of calyx without glandular hairs; flowers and fruit less than 1 cm in diam. .......... 18c. var. eglandulatus

1b. Pedicel and abaxial surface of calyx with glandular hairs; flowers and fruit 0.9–1.5 cm in diam.

2a. Flowers and fruit ca. 1 cm in diam.; aggregate fruit densely tomentose .......... 18a. var. sachalinensis

2b. Flowers and fruit more than 1 cm, to 1.5 cm in diam.; aggregate fruit sparsely hairy or subglabrous ............. 18b. var. przewalskii

18a. Rubus sachalinensis var. sachalinensis

库页悬钩子（原变种）ku ye xuan gou zi (yuan bian zhong)

Rubus idaeus Linnaeus var. aculeatissimus Regel & Tilting; R. idaeus var. matsunuranus (H. Léveillé & Vaniot) Koidzumi; R. idaeus var. microphyllus Turczaninow; R. idaeus subsp. sachalinensis (H. Léveillé) Focke; R. idaeus var. strigosus Maximowicz; Rubus matsunuranus H. Léveillé & Vaniot; R. melanolasius Focke var. discolor Komarov.

Pedicel and abaxial surface of calyx with glandular hairs. Flowers and fruit ca. 1 cm in diam. Aggregate fruit densely tomentose.

Forest understories. Sichuan (Hongya Xian, Wawu Shan).


甘肃悬钩子 gan su xuan gou zi


Pedicel and abaxial surface of calyx with glandular hairs. Flowers and fruit 1–1.5 cm in diam. Aggregate fruit sparsely hairy or subglabrous.

● Forests; 2100–3100 m. Gansu.


无腺里白悬钩子 wu xian li bai xuan gou zi


Pedicel and abaxial surface of calyx without glandular hairs. Flowers and fruit less than 1 cm in diam. Indumentum of aggregate fruit unknown.

● Forests, slopes; 400–500 m. Heilongjiang (Yichuan), S Jilin (Fusong Xian).


紫色悬钩子 zi se xuan gou zi

Rubus purpureus Bunge ex J. D. Hooker.

Subshrubs or herblike, 10–60 cm tall. Branchlets brown or
reddish brown to purplish red, with purple needle-like prickles, soft hairs, and stipitate glands. Leaves imparipinnate, 3-foliate, rarely 5-foliate; petiole 3–5 cm, petiolo of terminal leaflet 1–2 cm, lateral leaflets subbefore, with purple needle-like prickles, soft hairs, and glandular hairs; stipules greenish brown, linear or linear-lanceolate, 7–9 mm, pubescent, with intermixed glandular hairs; blade of leaflets ovate or elliptic, 3–5 × 2–3.5 cm, abaxially densely gray tomentose, adaxially puberulous, base broadly cuneate to subrounded, subtruncate on terminal leaflet, margin unevenly coarsely serrate or doubly serrate, apex acute to shortly acuminate. Inflorescences terminal, nutant, 1–3-flowered; bracts linear, 5–7 mm, pubescent, with intermixed glandular hairs. Pedicel 1.5–3 cm, prickly, pubescent, with stalked glands. Flowers 1.5–2 cm in diam. Calyx tinged purplish red, with purple needle-like prickles, soft hairs, and stalked glands. Flowers 1.5–2 cm in diam. Calyx abaxially ± puberulous, base shallowly cupular; sepals eec, narrowly ovate or ovate-lanceolate, 1–1.5 cm × 3–5 mm, apex acuminate to caudate. Petals white, broadly elliptic or spatulate, 8–11 × 5–7 mm, shorter than sepals, pubescent, base shortly clawed. Stamens numerous, slightly shorter than petals; filaments linear. Pistils nearly as long as or slightly shorter than stamens; ovary gray tomentose. Aggregate fruit red, subglobose, 1–1.5 cm in diam., tomentose; pyrenes smooth or somewhat reticulate. Fl. Jun–Jul, fr. Aug–Sep.

Slopes, forest margins, thickets; 2000–4500 m. Gansu, Qinghai, Sichuan, SE Xizang [Afghanistan, Bhutan, NW India, Kashmir, Pakistan].


桜叶悬钩子 an ye xuan gou zi

Shrubs 1.5–4 m tall. Branchlets dark purplish brown or brown, glabrous, with sparse, curved robust prickles; flowering shoots short, pubescent, stipitate glandular, with curved prickles. Leaves imparipinnate, 3–5(or 7)-foliate; petiole 5–8 cm, petiolo of terminal leaflet 1–2.5 cm, lateral leaflets subbefore, petiolo and rachis sparsely pubescent, stipitate glandular, with needle-like prickles; stipules linear. Petiolules nearly as long as or slightly shorter than stipules; ovary gray tomentose. Aggregate fruit red, subglobose, 1–1.5 cm in diam., tomentose; pyrenes smooth or somewhat reticulate. Fl. Apr–May, fr. Jun–Jul.

● Mixed forests, thickets, bamboo thickets, grasslands, ravines, valleys; 1000–3400 m. Gansu, Guizhou, Hubei, Shaanxi, Sichuan, NE Yunnan.

1a. Leaflets at first tomentose, glabrescent abaxially, subglandular when old; branchlets, petioles, pedicels, and abaxial surface of calyx with sparse, glandular hairs; leaves 3–5-foliate ........................................ 20d. var. etomentosus

1b. Leaflet persistently tomentose abaxially; branchlets, petioles, pedicels, and abaxial surface of calyx with sparse, glandular hairs or not; leaves 3–7-foliate.

2a. Branchlets, petioles, pedicel, and abaxial surface of calyx without glandular hairs ............... 20c. var. trullisatus

2b. Branchlets, petioles, pedicel, and abaxial surface of calyx with glandular hairs.

3a. Leaves 3–5-foliate; sepals 1–1.5 cm .......... 20a. var. eucalyptus

3b. Leaves 7-foliate; sepals 1.5–2 cm .......... 20b. var. yunnanensis

20a. Rubus eucalyptus var. eucalyptus

桜叶悬钩子(原变种) an ye xuan gou zi (yuan bian zhong)

Rubus lasiostylus Focke f. glandulosus Focke.

Leaves 3–5-foliate. Branchlets, petioles, pedicel, and abaxial surface of calyx with glandular hairs. Sepals narrower, 1–1.5 cm wide. Aggregate fruit 1.2–2 cm in diam.

● Mixed forests, thickets, grassy wastelands; 1000–2500 m. Gansu, Guizhou, Hubei, Shaanxi, Sichuan.


云南桜叶悬钩子 yun nan an ye xuan gou zi

Leaves 7-foliate. Branchlets, petioles, pedicel, and abaxial surface of calyx with glandular hairs. Sepals broader, 1.5–2 cm wide. Aggregate fruit to 2 cm in diam.

● Grasslands, bamboo thickets; ca. 3400 m. NE Yunnan (Huize Xian).


无腺桜叶悬钩子 wu xian an ye xuan gou zi

Rubus trullisatus Focke, Bibliothe. Bot. 17(Heft 72): 169. 1911; R. eriococcus Cardot; R. lasiostylus Focke var. villosus Cardot.

Leaves 3-foliate, rarely 5-foliate. Branchlets, petioles, pedicel, and abaxial surface of calyx with soft hairs, without glandular hairs. Calyx abaxially with sparse, needle-like prickles.

21a. Rubus idaeus var. idaeus

21b. Rubus idaeus var. glabratus Arrhenius.


ROSACEAE

*Thickets, ravines, valleys; 1000–2500 m. W Hubei, SE Shanxi, Sichuan.*


The leaves are eaten raw and are used for making jam, jelly, juice, wine, and vinegar. The dried fruit are used in medicine. The stems and roots are a source of tannin.

1. Inflorescence rachis, pedicels, and abaxial surface of calyx with glandular hairs; branchlets, petioles, and pedicel with sparse prickles
   - or nearly unarmed .......................... 21c. var. borealisinensis

2. Branchlets, petioles, and pedicel
   - tomentose, ± prickly ........................ 21a. var. idaeus

2a. Branchlets, petioles, and pedicel
tomentose, ± prickly .......................... 21a. var. idaeus

2b. Branchlets, petioles, and pedicel
glabrous, with sparse prickles .... 21b. var. glabratus

覆盆子(原变种) fu pen zi (yuán biàn zhòng)

*Rubus idaeus* subsp. *vulgatus* Arrhenius.

Inflorescence rachis, pedicels, and abaxial surface of calyx without glandular hairs. Branchlets, petioles, and pedicels tomentose, ± prickly.

Mixed forests and forest margins in mountainous regions, thickets, waste places; 500–2500 m. Hebei, Jilin, Liaoqing, Shaxi, Xinjiang [Japan, Russia; Europe, North America].

华北覆盆子 hua bei fu pen zi

Inflorescence rachis, pedicels, and abaxial surface of calyx with glandular hairs. Branchlets, petioles, and pedicels glabrous, with sparse prickles.

- Mixed forests, roadsides. S Heilongjiang.


橘红悬钩子 ju hong xuan gou zi

Shrubs 1–3 m tall. Branchlets brown or reddish brown, with sparse curved prickles, pubescent, gradually glabrescent, subglabrous or glabrous when old. Leaves imparipinnate, usually 3-foliolate; petiole 2–5(–7) cm, petiole of terminal leaflet 1–2 cm, lateral leaflets sessile, petiolar and rachis with soft hairs and sparse, curved prickles; stipules linear, 4–7 mm, pubescent; blade of leaflets ovate, elliptic, or suborbicular, 2–6 (–9) × 1.5–6 cm, abaxially densely gray tomentose, adaxially puberulous or subglabrous, base variable in shape, rounded to shallowly cordate on terminal leaflet, cuneate on lateral leaflets, margin irregularly coarsely serrate or incised doubly serrate, apex acute, shortly acuminate, or obtuse. Inflorescences terminal, corymbose or short racemes, 6–8 cm, ca. 5–10-flowered, or axillary and 1–3-flowered; rachis and pedicels densely tomentose, with sparse, minute prickles; bracts linear, 4–6 mm, pubescent. Pedicel 1–2.5 cm. Flowers 1–2 cm in diam. Calyx abaxially densely tomentose, unarmed, rarely with sparse, minute prickles; tube pubelliform; sepal erect, broadly ovate or triangular-lanceolate, 7–9 × 3–4 mm, abaxially densely tomentose, apex acuminate to cuneate. Petals white, rarely pink, obovate or suborbicular, 4–6 mm in diam., slightly shorter than sepals, base shortly clawed, soft hairy. Stamens many, shorter than petals; filaments broadened and flattened. Pistils nearly as long as stamens; ovary and base of style densely gray tomentose. Aggregate fruit orange or orange-red, semiglobose, less than 1 cm, ca. 1 cm or more in diam., densely tomentose; dru-

- Valleys, wet places, stream sides, slopes, forests, thickets; 1500–3300 m. W Guizhou, W Sichuan, SE Xizang, Yunnan.

1a. Leaflets ovate to elliptic, apex acute or shortly acuminate ............................ 22a. var. aurantiacus

1b. Leaflets suborbicular to ovate, apex obtuse, rarely acute ................................ 22b. var. obtusifolius

22a. Rubus aurantiacus var. aurantiacus

橘红悬钩子(原变种)  ju hong xuan gou zi (yuan bian zhong)

Leaflets ovate or elliptic, apex acute or shortly acuminate.

- Valleys, stream sides, slopes, forests, thickets; 1500–3300 m. W Sichuan, SE Xizang, Yunnan.

22b. Rubus aurantiacus var. obtusifolius


钝叶橘红悬钩子 dun ye ju hong xuan gou zi

Leaflets suborbicular or ovate, apex obtuse, rarely acute.

- Valleys, stream sides, grassy slopes, wet places; below 1600 m. W Guizhou, S and W Yunnan.


藏南悬钩子 zang nan xuan gou zi

Shrubs 1–2 m tall. Branchlets brownish to purplish brown, cylindrical, soft hairy, gradually glabrescent, with sparse prickles. Leaves imparipinnate, usually 3-foliolate, those below inflorescence sometimes 3-lobed; petiole 5–8 cm, petiolo of terminal leaflet 1–2.5 cm, lateral leaflets shortly petioloulate or subsessile, pubescent when young, glabrescent, with sparse, minute prickles; stipules linear, 1–1.3 cm, pubescent; blade of leaflets closely ovate, terminal leaflet sometimes ovate-lanceolate, 4–8 × 3–6 cm, abaxially densely gray tomentose, adaxially glabrous, base broadly cuneate to rounded, margin unevenly coarsely serrate or doubly serrate, apex shortly acuminate to caudate. Inflorescences terminal or axillary, corymbose or short racemes, 5–10-flowered, sometimes axillary and 1–3-flowered; rachis and pedicels pubescent, with sparse, minute prickles; bracts linear, smaller than stipules. Pedicel 1–2 cm. Flowers 1.5–2 cm in diam. Calyx tube purple, abaxially pubescent, sometimes with sparse, minute prickles; sepals obtuse after anthesis, broadly ovate or ovate-lanceolate, 0.8–1.4 cm, gray tomentose, apex abruptly pointed to acuminate. Petals purple, broadly obovate or elliptic, 5–8 mm, both surfaces soft hairy, base shortly clawed. Stamens many, shorter than petals; filaments linear. Pistils numerous, shorter than stamens; ovary and basal part of style gray tomentose. Aggregate fruit red, narrowly ovoid, 1–1.5 cm, ca. 1 cm in diam., gray tomentose; drupelets many; pyrenes reticulate. Fl. Jun–Jul, fr. Aug–Sep.

- Mixed forests, broad-leaved evergreen forests, valleys, slopes on roadsides, thickets; 2600–3800 m. S Xizang, W Yunnan.


绿叶悬钩子 lu ye xuan gou zi

Rubus idaeus Linnaeus f. concolor (Komarov) Ohwi; R. idaeus subsp. komarovii (Nakai) V. N. Voroschilov; R. idaeus var. concolor (Komarov) Nakai; R. kanayamensis H. Léveillé & Vaniot; R. melanolactus Focke; R. melanolactus var. concolor Komarov; R. sachalinensis H. Léveillé var. concolor (Komarov) Lauener & D. K. Ferguson.

Shrubs to 1 m tall. Annotinous shoots green or greenish brown, without or with white bloom, prickly, occasionally sparsely stipitate glandular; prickles green. Leaves imparipinnate, 3-foliolate, rarely 5-foliolate; petiole 2–4 cm, petiolo of terminal leaflet 1–1.5 cm, lateral leaflets subsessile, petiolo and rachis thinly pubescent, prickly; stipules linear, 4–6 mm, thinly pubescent, with stalked glands; blade of leaflets ovate, rarely ovate-lanceolate, 3–6 × 1.5–4.5 cm, abaxially thinly pubescent, with sparse, needle-like prickles only along veins, adaxially glabrous or subglabrous, base cuneate to rounded, margin unevenly coarsely sharply serrate, apex acute, sometimes shortly acuminate. Inflorescences terminal, corymbs or flowers several in clusters in leaf axils; rachis and pedicels puberulous, with sparse, stalked glands; bracts linear-lanceolate, 3–5 mm, with soft hairs and stalked glands. Pedicel 1–2 cm. Flowers ca. 1 cm in diam. Calyx abaxially with soft hairs, needle-like prickles, and sparse, stalked glands; tube puberulous; sepals often erect after anthesis, triangular to triangular-lanceolate, 8–12 × 2–3.5 cm, apex acuminate to caudate. Petals white, oblong or spatulate, nearly as long as or somewhat shorter than sepals, base clawed. Stamens numerous, shorter than petals; filaments linear. Pistils many; ovary and base of style shortly gray tomentose. Aggregate fruit red, ovoid, ca. 1 cm in diam., shortly tomentose, aromatic; pyrenes rugulose. Fl. May–Jun, fr. Jul–Aug, 2n = 28*.

Forest margins, logged forests, rocky slopes; 500–1500 m. N Heilongjiang (Da Hinggan Ling), S Jilin (Changbai Shan), Liaoning [Korea, E Russia].


茎帽悬钩子 gu mao xuan gou zi

Shrubs scendent, 1–3 m tall. Branchlets purple when young, brownish or grayish brown in age, glabrous, with sparse prickles, with white bloom. Leaves imparipinnate, usually 5–7-foliolate; petiole 3–10 cm, petiolo of terminal leaflet 1–2 cm, lateral leaflets subsessile, petioloules and rachis sparsely pubescent with sparse, minute prickles; bracts linear-lanceolate, 2.5–6(–8) × 1.5–4(–6) cm, both surfaces pubescent along veins, base subrounded or broadly cuneate, margin coarsely doubly serrate, sometimes slightly lobed on terminal leaflet, apex acute to acuminate. Inflorescences terminal, corymbose, 2–4 cm, 3–5-flowered, rarely flowers solitary; bracts linear, 6–7 mm, pilose when young, glabrescent. Pedicel (1.5–)2–3.5 cm, slender, glabrous, with sparse, minute prickles or unarmed. Flowers 1–1.5(–2) cm in diam. Calyx purple, abaxially glabrous; sepals reflexed in fruit, ovate-lanceolate, 7–10 × 2–4 mm, long caudate, margin tomentose. Petals white, obovate, slightly shorter than or nearly as long as sepals, base sparsely pubescent and shortly clawed.

**假帽莓 jia mao mei**

Shrubs scandent, 1–2 m tall. Branchlets purple, with soft hairs and ± slender prickles. Leaves imparipinnate, 5–7-foliolate, rarely 3-foliolate; petiole 4–9 cm, petiolule of terminal leaflet 1–2 cm, lateral leaflets subsessile, petiololes and rachis with soft hairs and minute prickles; stipules linear or linear-lanceolate, soft hairy; blade of leaflets ovate or ovate-lanceolate, 4–8 × 2.5–5 cm, abaxially glabrous except pilose along veins, adaxially glabrous, base broadly cuneate to subrounded, margin irregularly incised-doubly serrate, apex acuminate, rarely acute. Inflorescences terminal, corymbose, 3–5-flowered, or flowers solitary in leaf axils; bracts linear or linear-lanceolate, soft hairy. Pedicel 1–2 cm, soft hairy, unarmed or prickly. Flowers 2–3 cm in diam. Calyx purple, abaxially puberulous to subglabrous, sometimes prickly; sepals erect after anthesis, triangular-lanceolate or triangular-ovate, 1–1.5 cm × 5–8 mm, apex acuminate, inner sepals with gray tomentose margin. Petals pink or white turning red, broadly obovate, slightly longer than or nearly as long as sepals, soft hairy basally, base shortly clawed. Stamens many in several whorls, unequal in length; filaments glabrous or slightly pubescent. Pistils numerous, slightly longer or shorter than stamens; ovary and base of style densely long gray tomentose. Aggregate fruit purple, ovoid-globose, 1.3–2 cm in diam., densely long gray tomentose; pyrenes shallowly rugose or ± smooth. Fl. Jun–Jul, fr. Aug–Sep.

- Sparse forests on roadsides, dense forests in montane valleys, river sides, ravines; 1400–2800 m. Gansu, Henan, Hubei, Qinghai, Shaanxi, Sichuan.

26a. **Rubus pseudopileatus** var. **pseudopileatus**


**康定假帽莓 kang ding jia mao mei**

Pedicel glabrous, with dense needle-like prickles and sparse, stalked glands. Calyx abaxially glabrous.

- Sichuan (Kangding Xian).


**光梗假帽莓 guang geng jia mao mei**

Pedicel unarmed or nearly so, usually without stalked glands. Calyx abaxially glabrous margin.

- Shaded montane valleys, sparsely forested slopes; 2100–2900 m. W Sichuan.


**紫红悬钩子 zi hong xuan gou zi**

Shrubs 1–3 m tall. Branchlets brownish to purplish brown, terete, densely slender pubescent, glabrescent, with sparse, curved prickles. Leaves imparipinnate, (5–)7–9(–11)-foliolate; petiole 3–6 cm, petiolule of terminal leaflet 1–2 cm, lateral leaflets subsessile, petiololes and rachis slender pubescent, with sparse, curved minute prickles; stipules linear or linear-lanceolate, 5–7 mm, slender pubescent; blade of leaflets ovate to ovate-lanceolate, 4–7 × 2–4 cm, abaxially pubescent only along veins, adaxially soft hairy when young, glabrescent, base broadly cuneate to rounded, margin coarsely sharp doubly serrate or incised-doubly serrate, often pinnate-lobed on terminal leaflet, apex acuminate. Inflorescences terminal or axillary, corymbose or short racemes, 3–4.5 cm, terminal ones more than 10-flowered, axillary ones 3–5-flowered, rarely flowers solitary in leaf axils; rachis and pedicels finely pubescent; bracts linear or linear-lanceolate, 4–6 mm, puberulous. Pedicel 0.7–1.5 cm. Flowers 1–1.5 cm in diam. Calyx brownish purple, abaxially finely pubescent; sepals reflexed in fruit, ovate or triangular-lanceolate, 4–7 mm, margin tomentose, apex acute to acuminate. Petals pink or purplish red, obovate or suborbicular, 4–6 × 3–4(–5) mm, base shortly clawed and finely pubescent. Stamens many, shorter than petals; filaments linear. Pistils numerous, somewhat shorter than or nearly as long as stamens; ovary and base of style densely long gray tomentose. Aggregate fruit yellowish red when immature, purplish red at maturity, semiglobose, 0.8–1.2 cm in diam., densely shorty gray tomentose; pyrenes rugulose. Fl. Jun–Jul, fr. Aug–Sep.

- Thickets on slopes, forests, forest margins; 1300–2500 m. W Sichuan, SE Xizang, N Yunnan.

28. **Rubus gyamdaensis** L. T. Lu & Boufford, nom. nov.

**柔毛悬钩子 rou mao xuan gou zi**


Shrubs. Branchlets purplish red, cylindric, pubescent, with
slender prickles. Leaves imparipinnate, 5–7-foliolate, rarely 3-foliolate on flower bearing branchlets; petiole 4–7 cm, petiolule of terminal leaflet 1–2 cm, lateral leaflets subsessile, petiololes and rachis pubescent, with slender prickles; stipules linear or linear-lanceolate, pubescent; blade of leaflets variable in shape, terminal leaflet ovate or ovate-lanceolate, sometimes 3-lobed, lateral leaflets elliptic or ovate, 4–7 × 2–4.5 cm, both surfaces pubescent, more densely so abaxially, base broadly cuneate to rounded, margin irregularly slenderly sharply serrate, coarsely serratate, or doubly serratate, apex acute to shortly acuminate. Inflorescences often 1-flowered. Pedicel 4–6 cm, pubescent, with sparse, intermixed short glandular hairs, with needle-like prickles. Flowers to 2 cm in diam. Calyx abaxially pubescent, unarmed or with sparse, needle-like prickles; sepals spreading after anthesis, ovate or ovate-lanceolate, 1–1.8(–2.5) cm, apex caudate. Petals white. Stamens many, in 2 or 3 whorls, much shorter than sepals; filaments linear, somewhat broadened and flattened basally. Pistils numerous; ovary densely tomentose. Fruit unknown. Fl. Jul–Aug.

- Roadside in mountains, forest margins, river sides; below 2400–4200 m. W Sichuan, Xizang.

1a. Leaflets pubescent on both surfaces, more densely so abaxially, margin sharply slenderly serratate or doubly serratate; sepals to 1.8 cm. ................. 28a. var. gyamdaensis

1b. Leaflets sparsely pilose or pilose only along veins on both surfaces, margin coarsely serratate; sepals to 2.5 cm. ................. 28b. var. glabriusculus

28a. Rubus gyamdaensis var. gyamdaensis

柔毛悬钩子(原变种) rou mao xuan gou zi (yuan bian zhong)

Leaflets pubescent on both surfaces, more densely so abaxially, margin sharply slenderly serratate or doubly serratate. Sepals to 1.8 cm.

- Roadside in mountains; ca. 4200 m. Xizang (Gongbo’gyamda Xian).

28b. Rubus gyamdaensis var. glabriusculus (T. T. Yu & L. T. Lu) L. T. Lu & Boufford, comb. nov.

川西柔毛悬钩子 chuan xi rou mao xuan gou zi


Leaflets sparsely pilose or pilose only along veins on both surfaces, margin coarsely serratate. Sepals to 2.5 cm.

- Forest margins, river sides; below 2400 m. W Sichuan.


西藏悬钩子 xi zang xuan gou zi

Rabus veitchii Rolfe.

Shrubs 2–3 m tall. Branchlets reddish brown, cylindric, initially densely soft hairy, glabrescent, with sparse prickles, with white bloom. Leaves imparipinnate, (5–)7–11(–13)-foliolate; petiole 1–2 cm, petiolule of terminal leaflet 0.7–1.5 cm, lateral leaflets sessile, petiololes and rachis with dense soft hairs and sparse, slender prickles; stipules linear-lanceolate, 4–8 mm, pubescent; blade of leaflets variable, terminal leaflet ovate-lanceolate, 2.5–6.5 × 1.5–2.5 cm, more than 2 × as long as lateral leaflet, margin often pinnately lobed, deeply incised or coarsely sharply serratate, apex long acuminate, lateral leaflets obliquely ovate or ovate-orbicular, 1–3 × 0.6–1.5 cm, margin with several large sharp teeth above middle, abaxially densely gray tomentose, adaxially pubescent. Inflorescences terminal, corymbose, 2–4 cm, 3–8-flowered, rarely flowers solitary in leaf axils; rachis and pedicels densely pubescent; bracts linear, 4–6 mm, pubescent. Pedicel 1–1.5 cm. Flowers 1–1.2 cm in diam. Calyx abaxially densely pubescent; sepals spreading at anthesis, reflexed in fruit, triangular-lanceolate, 5–7 × 2–4 mm, apex acuminate. Petals pink or purplish red, orbicular-orbivale, 3–4.5 × 3–4 mm. Stamens numerous, purplish red; filaments linear. Pistils nearly as long as stamens; ovary densely pubescent; styles ca. 3 mm, glabrous. Aggregate fruit purplish black or dark red, subglobose, 8–10 mm in diam., densely grey pubescent; pyrenes densely rugulose. Fl. Jun, fr. Aug.

- Thickets, forest margins, road sides, slopes, ravines, dry places; 900–2100 m. Gansu, Shaanxi, Sichuan, Xizang.


多腺悬钩子 duo xian xuan gou zi

Shrubs 1–3 m tall. Branches upright at first, finally scrambling, densely pubescent, with intermixed reddish brown bristles, stalked glands, and sparse prickles. Leaves imparipinnate, 3-foliolate, rarely 5-foliolate; petiole 3–6 cm, petiolule of terminal leaflet 2–3 cm, lateral leaflets subsessile, petiololes and rachis pubescent, with intermixed reddish brown bristles, stalked glands, and sparse prickles; stipules linear, 5–8 mm, pubescent, with intermixed glandular hairs; blade of leaflets ovate, broadly ovate, or rhombic, rarely elliptic, 4–8(–10) × 2–5(–7) cm, abaxially densely gray tomentose, bristly, stipitate glandular, with sparse, minute needle-like prickles, adaxially appressed pubescent or pubescent only along veins, base rounded to subcordate, margin irregularly roughly serratate, usually incised, terminal leaflet often lobed, apex acute to acuminate. Inflorescences terminal or axillary, short racemes, few flowered, terminal racemes 6–10 cm, lateral ones shorter; rachis, pedicels, and abaxial surface of calyx densely pubescent, bristly, stipitate glandular; bracts lanceolate, 5–8 mm, pubescent, stipitate glandular, margin entire or apically 2-lobed. Pedicel 0.5–1.5 cm. Flowers 6–10 mm in diam. Sepals erect, lanceolate, 1–1.5 cm × 4–7 mm, apex caudate. Petals purplish red, obovate-spatulate or suborbicular, much longer than sepals, base long clawed and pubescent. Stamens many, nearly as long as or slightly shorter than petals. Pistils somewhat longer than stamens; ovary glabrous or puberulous. Aggregate fruit orange or red, subglobose, ca. 1 cm in diam., glabrous; pyrenes prominently rugose, pitted. Fl. May–Jun, fr. Jul–Aug. 2n = 14.

Roadside, montane valleys; low to medium elevations. Gansu,


**31. Rubus ellipticus** Smith in Rees, Cycl. 30: Rubus no. 16. 1819.

椭圆悬钩子 tuo yuan xuan gou zi

Shrubs 1–3 m tall. Branchlets purplish brown or brownish, pubescent, with sparse, curved prickles and dense, purplish brown bristles or glandular hairs. Leaves imparipinnate, 3-foliate; petiole 2–6 cm, petiolo of terminal leaflet 2–3 cm, lateral leaflets subsessile, petiolo and rachis pubescent and pubescent bristly, pubescent, with minute prickles; stipules linear, 7–11 mm, pubescent, with intermixed glandular hairs; blade of leaflets elliptic or obovate, 4–8(–12) × 3–6(–9) cm, terminal leaflet much larger than lateral leaflets, abaxially densely tomentose, with purplish red bristles along prominent veins, adaxially veins impressed, pubescent along midvein, base rounded, margin unevenly minute sharply serrate, apex acute, abruptly pointed, shallowly cordate, or subtruncate. Inflorescences terminal, dense glomerate racemes, (1.5–)2–4 cm, flowers several to 10 or more, or flowers several in clusters in leaf axils, rarely flowers solitary; rachis and pedicels pubescent, bristly; bracts linear, 5–9 mm, pubescent. Pedicel 4–6 mm. Flowers 1–1.5 cm in diam. Calyx abaxially pubescent, intermixed yellowish tomentose, sparsely bristly; sepals erect, ovate, 4–5(–6) × 2–3(–4) mm, abaxially densely yellowish gray tomentose, apex acute and abruptly pointed. Petals white or pink, spatulate, longer than sepals, margin premorse, densely pubescent, base clawed. Stamens numerous, shorter than petals; filaments broadened and flattened basally. Ovary pubescent; styles glabrous, slightly longer than stamens. Aggregate fruit golden yellow, subglobose, ca. 1 cm in diam., glabrous or drupelets pubescent at apex; pyrenes triangular-ovoid, densely rugulose. Fl. Mar–Apr, fr. Apr–May, 2n = 14.

Slopes, montane valleys, sparse forests, thickets, roadsides; 300–2600 m. Guangxi, Guizhou, Sichuan, S Xizang, Yunnan [Bhutan, India, Laos, Myanmar, Nepal, Pakistan, Philippines, Sikkim, Sri Lanka, Thailand, Vietnam].

*Rubus fasciculatus* Duthie var. tomentosus Cardot (Notul. Syst. (Paris) 3: 314. 1917), described from Yunnan based on *P. Ngauea s.n.* and *Diucaea 5147*, is probably a synonym of *R. ellipticus*; the present authors have not seen the syntypes.

1a. Leaflets elliptic, apex acute or abruptly pointed; pedicel and abaxial surface of calyx bristly ........................................... 31a. var. ellipticus

1b. Leaflets obovate, apex shallowly cordate or subtruncate; pedicel and abaxial surface of calyx with few bristles ...... 31b. var. obcordatus

31a. Rubus ellipticus var. ellipticus

椭圆悬钩子(原变种) tuo yuan xuan gou zi (yuan bian zhong)

Leaflets elliptic, apex acute or abruptly pointed. Pedicel and abaxial surface of calyx bristly.

Dry slopes, montane valleys, sparse forests; 1000–2600 m. Sichuan, S Xizang, Yunnan [Bhutan, NE India, Laos, Myanmar, Nepal, Pakistan, Philippines, Sikkim, Sri Lanka, Thailand, Vietnam].

31b. Rubus ellipticus var. obcordatus (Franchet) Focke, Bibl. Bot. 17(Heft 72): 199. 1911.

裁秧泡 zai yang pao

*Rubus ellipticus* Smith f. obcordatus Franchet, Pl. Delavay. 206. 1890; *Rubus obcordatus* (Franchet) Thuan.

Leaflets obovate, apex shallowly cordate or subtruncate. Pedicel and abaxial surface of calyx very sparsely bristly.

Slopes, roadsides, thickets; 300–1000 m. Guangxi, Guangzhou, Sichuan, SE Xizang, Yunnan [India, Laos, Thailand, Vietnam].


华西悬钩子 hua xi xuan gou zi

*Rubus chinensis* Franchet (1890), not Thunberg (1813), nor Seringe (1825); *R. chinensis* Franchet var. *concolor* Cardot; *R. stimulans* var. *concolor* (Cardot) C. Y. Wu.

Shrubs 1–2 m tall. Branchlets brown or reddish brown to purplish brown, soft hairy at first, gradually glabrescent, glabrous when old, with needle-like prickles, with sparse, stalked glands. Leaves imparipinnate, 5–7-foliate; petiole 4–8 cm, petiolo of terminal leaflet 1.5–3 cm, lateral leaflets subsessile, petiolo and rachis pubescent, with needle-like prickles, or with intermixed sparse, stalked glands; stipules lanceolate or linear, 7–11 mm, pubescent or with sparse, stalked glands, blade of leaflets ovate to ovate-lanceolate, 4–8 × 2–6 cm, abaxially densely gray tomentose, adaxially sparsely pubescent, base rounded, often subtruncate on terminal leaflet, margin irregularly pinnate-lobed, sharply incised doubly serrate, apex acute to acuminate. Inflorescences terminal on short branchlets, 2–3-flowered, or flowers solitary in leaf axils; bracts linear, 5–8 mm, pubescent. Pedicel 1–2.5 cm, with abaxial surface of calyx pubescent, with needle-like prickles or with sparse, stipitate glandular hairs. Flowers 1.2–2 cm in diam. Calyx tube pelliform; sepals erect, spreading, ovate-lanceolate, 1.5–2 cm × 4–6 mm, margin gray tomentose, apex caudate. Petals pink or white with red spots, ovate or suborbicular, 5–6 mm in diam., much shorter than sepals, base pubescent and shortly clawed. Stamens numerous in 1 whorl, slightly shorter than or nearly as long as petals; filaments purplish red, linear. Pistils many, longer than stamens; style and ovary glabrous, rarely sparsely pilose. Aggregate fruit red, subglobose, 1–1.5 cm in diam., glabrous; pyrenes shallowly rugose or pitted. Fl. Jun–Jul, fr. Aug–Sep.

- Coniferous forests, thickets in mountainous areas; 2000–4100 m. SE Xizang, NW Yunnan.


茅莓 mao mei

Shrubs 1–2 m tall, with arching branches. Branchlets grayish brown or reddish brown to blackish brown, with soft hairs and sparse, curved prickles. Leaves imparipinnate, 3–5-foliate; petiole 2.5–5 cm, terminal leaflet 1–2 cm, petiolo, lateral leaflets subsessile, with soft hairs and sparse, minute prickles; stipules linear, 7–10 mm, soft hairy; blade of leaflets
Rubus parvifolius

1b. Leaves 3-foliolate.

Leaves 3-foliolate. Inflorescence rachis, pedicels, and abaxial surface of calyx without rust colored stalked glands.

Sunny slopes, forests; 500–2700 m. Gansu, Hebei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Ningxia, Shaanxi, Shanxi, Sichuan, Taiwan. 400–2700 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guangzhou, Hainan, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Ningxia, Qinghai, Shaanxi, Shanxi, Shandong, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan].


五叶红莓


Leaves 5-foliolate.

- Thickets, clearings; low elevations. E Taiwan.


红果悬钩子 hong guo xuan gou zi

Shrubs 1–2 m tall. Branchlets reddish brown or purplish brown to purplish black, cylindrical, glabrous, with ± slender prickles, without stalked glands. Leaves imparipinnate, usually 3-foliolate; petiole 4–7 cm, petiolule of terminal leaflet 1.5–3 cm, lateral leaflets subsessile, glabrous or pilose, rarely with sparse, stalked glands, with ± slender prickles; stipules linear or linear-lanceolate, 7–9 mm, glabrous; blade of leaflets 4–10 × 2.5–6 cm, terminal one ovate to ovate-lanceolate, base rounded to shallowly cordate, lateral leaflets ovate or elliptic, base abaxially cuneate to rounded, abaxially densely gray tomentose, with sparse, slender prickles along veins, adaxially pilose, margin coarsely incised-doubly serrate or irregularly sharply serrate, apex acute to shortly acuminate. Inflorescences terminal or axillary, corymbose, 3–4(-5) cm, 3- or 4-flowered, sometimes flowers solitary in leaf axils; rachis and pedicels glabrous, with ± slender prickles, without stalked glands; bracts linear, 5–7 mm, glabrous. Pedicel 1.2–2.5 cm. Flowers 1.5–2 cm in diam. Calyx abaxially usually glabrous, with needle-like prickles, occasionally with sparse, stalked glands; sepals erect, rarely reflexed in fruit, lanceolate or ovate-lanceolate, 1–1.5 cm × 3–5 mm, often tomentose at margin, caudate. Petals pink, elliptic or ovate, shorter than sepals, puberulous. Stamens numerous in 1 whorl, shorter than petals; filaments linear. Pistils many, slightly shorter than stamens; ovary pilose. Aggregate fruit red, subglobose, 1–1.5 cm in diam., glabrous at maturity; pyrenes densely rugulose. Fl. Jul.–Aug. fr. Sep.–Oct.

- Rocky slopes, thickets, mixed forests; 3000–3800 m. NW Yunnan.


腺花茅莓 xian hua mao mei

Rubus triphyllus Thunberg var. adenochlamys Focke, Bot. Jahrb. Syst. 36(Beibl. 82): 55. 1905; R. adenochlamys (Focke) Focke; R. adenochlamys var. orientalis F. P. Metcalf; R. triphyllus var. oukiakiensis Pampanini.

Leaves 3-foliolate. Inflorescence rachis, pedicels, and abaxial surface of calyx with rust colored stalked glands.

Sunny slopes, forests; 500–2700 m. Gansu, Hebei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Ningxia, Shaanxi, Shanxi, Sichuan, Zhejiang [Japan].

33c. Rubus parvifolius

1b. Abaxial surface of calyx with dense needle-like prickles

Abaxial surface of calyx with few needle-like prickles, without stalked glands or occasionally with sparse, stalked glands. 33b. var. adenochlamys

Five-leaf red hong mei xiao


Leaves 5-foliolate.

- Thickets, clearings; low elevations. E Taiwan.


红果悬钩子 hong guo xuan gou zi

Shrubs 1–2 m tall. Branchlets reddish brown or purplish brown to purplish black, cylindrical, glabrous, with ± slender prickles, without stalked glands. Leaves imparipinnate, usually 3-foliolate; petiole 4–7 cm, petiolule of terminal leaflet 1.5–3 cm, lateral leaflets subsessile, glabrous or pilose, rarely with sparse, stalked glands, with ± slender prickles; stipules linear or linear-lanceolate, 7–9 mm, glabrous; blade of leaflets 4–10 × 2.5–6 cm, terminal one ovate to ovate-lanceolate, base rounded to shallowly cordate, lateral leaflets ovate or elliptic, base abaxially cuneate to rounded, abaxially densely gray tomentose, with sparse, slender prickles along veins, adaxially pilose, margin coarsely incised-doubly serrate or irregularly sharply serrate, apex acute to shortly acuminate. Inflorescences terminal or axillary, corymbose, 3–4(-5) cm, 3- or 4-flowered, sometimes flowers solitary in leaf axils; rachis and pedicels glabrous, with ± slender prickles, without stalked glands; bracts linear, 5–7 mm, glabrous. Pedicel 1.2–2.5 cm. Flowers 1.5–2 cm in diam. Calyx abaxially usually glabrous, with needle-like prickles, occasionally with sparse, stalked glands; sepals erect, rarely reflexed in fruit, lanceolate or ovate-lanceolate, 1–1.5 cm × 3–5 mm, often tomentose at margin, caudate. Petals pink, elliptic or ovate, shorter than sepals, puberulous. Stamens numerous in 1 whorl, shorter than petals; filaments linear. Pistils many, slightly shorter than stamens; ovary pilose. Aggregate fruit red, subglobose, 1–1.5 cm in diam., glabrous at maturity; pyrenes densely rugulose. Fl. Jul.–Aug. fr. Sep.–Oct.

- Rocky slopes, thickets, mixed forests; 3000–3800 m. NW Yunnan.

33b. Rubus parvifolius

1b. Abaxial surface of calyx with dense needle-like prickles

Abaxial surface of calyx with few needle-like prickles, without stalked glands or occasionally with sparse, stalked glands. 33b. var. adenochlamys

Rubus triphyllus Thunberg var. adenochlamys Focke, Bot. Jahrb. Syst. 36(Beibl. 82): 55. 1905; R. adenochlamys (Focke) Focke; R. adenochlamys var. orientalis F. P. Metcalf; R. triphyllus var. oukiakiensis Pampanini.

Leaves 3-foliolate. Inflorescence rachis, pedicels, and abaxial surface of calyx with rust colored stalked glands.

Sunny slopes, forests; 500–2700 m. Gansu, Hebei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Ningxia, Shaanxi, Shanxi, Sichuan, Zhejiang [Japan].
and stalked glands ...................................... 34b. var. weixiensis

34a. Rubus erythrocarpus var. erythrocarpus

红果悬钩子 (原变种) hong guo xuan gou zi (yuan bian zhong)

Abaxial surface of calyx with few needle-like prickles, without stalked glands or occasionally with sparse, stalked glands.

● Rocky slopes, thickets; 3000–3800 m. NW Yunnan.


腺果红果悬钩子 xian e hong guo xuan gou zi

Abaxial surface of calyx with dense needle-like prickles and stalked glands.

● Mixed forests; below 3200 m. NW Yunnan (Weixi Xian).


美果悬钩子 mei shi xuan gou zi

Shrubs 1–3 m tall. Branchlets grayish brown or brown to purplish red, initially soft hairy, glabrescent, glabrous when old, with sparse, slender prickles. Leaves imparipinnate, usually 3-foliolate. Petiole 4–8 cm, petiolule of terminal leaflet 1.5–3.5 cm, lateral leaflets shortly petiolulate or subsessile, with soft hairs or sparse prickles; stipules linear-lanceolate, 0.8–1.5 cm, pubescent; blade of leaflets broadly ovate to narrowly ovate, 4–8 × 2.5–5.5 cm, abaxially densely gray tomentose, adaxially pilose, basally rounded to shallowly cordate on terminal leaflet, broadly cuneate to subrounded on lateral leaflets, margin coarsely sharply serrate or incised-doubly serrate, sometimes pinnately lobed, apex shortly acuminate or acute. Inflorescences terminal, corymbose, 3–5 cm, 6–10-flowered, or flowers solitary or in clusters of 2 or 3 in leaf axils; rachis and pedicels pubescent, ± with needle-like prickles; bracts linear, 6–12 mm, pubescent. Pedicel 1–2.5 cm, sometimes with sparse, stipitate glands. Flowers 2–3 cm in diam. Calyx abaxially gray pubescent, intermixed tomentose, sometimes with needle-like prickles and stipitate glands; tube pelviform; sepals erect, spreading after anthesis, triangular-lanceolate, unequal in length, longer sepals to 1.5 cm, shorter sepals only (6–)7–10 mm, margin gray tomentose and entire, apex cاعد. Petals purplish red, obovate, 7–10 × 5–7 mm, both surfaces puberulous, base shortly clawed. Stamens many in 1 whorl, slightly shorter than petals; filaments linear, glabrous. Pistils numerous, somewhat shorter than stamens; ovary ± pubescent. Aggregate fruit red, ovoid-globose, 8–11 mm in diam., glabrous or slightly pilose; pyrenes prominently rugose. Fl. May–Jun, fr. Aug–Sep.

Slopes, thickets, roadsides, forests, ravines; 1900–4000 m. W Sichuan, E Xizang, NW Yunnan [N Myanmar].

1a. Branchlets, petioles, and inflorescences without stipitate glands .............................. 35a. var. subornatus

35a. Rubus subornatus var. subornatus

美果悬钩子 (原变种) mei shi xuan gou zi (yuan bian zhong)

Rubus parvifolius Linnaeus f. parce Focke; R. parvifolius var. purpureus Y. Gu & W. L. Li; R. subornatus var. concolor Cardot; R. subornatus var. fockei H. Lév.éillé.

Branchlets, petioles, and inflorescences without stipitate glands.

Thickets on rocky slopes, mixed forests in valleys, ravines; 1900–4000 m. W Sichuan, SE Xizang, NW Yunnan [N Myanmar].


黑果美果悬钩子 hei xian mei shi xuan gou zi

Rubus vicarius Focke.

Branchlets, petioles, and inflorescences with purplish black or purplish brown stipitate glands.

● Slopes, roadsides, thickets, forests; 2700–4000 m. W Sichuan, E Xizang, NW Yunnan.


牯岭悬钩子 gu ling xuan gou zi

Shrubs 1–2 m tall. Branchlets brown or reddish brown, pubescent at first, glabrescent, glabrous when old, nearly unarmed or with sparse prickles. Leaves imparipinnate, 3-foliolate; petiole 5–9 cm, petiolule of terminal leaflet 1–2 cm, lateral leaflets subsessile or slightly petiolulate, pubescent, with sparse, needle-like prickles; stipules linear, 5–7 mm, pubescent; blade of leaflets lanceolate or oblanceolate, 4–8(–10) × 1.5–3(–4) cm, abaxially densely gray tomentose, adaxially glabrous, base rounded or broadly cuneate, margin irregularly roughly sharply serrate, apex acuminate. Inflorescences usually terminal, corymbose or short racemes, (3–)4–5 cm, several to more than 10-flowered; rachis and pedicels pubescent; bracts lanceolate or linear, 5–6 mm, pubescent. Pedicel 0.5–1 cm. Flowers 6–9 mm in diam. Calyx abaxially densely white tomentose, with intermixed straight hairs; sepals erect in flower and fruit, ovate, 5–6 × 2–3 mm, apex acute, cuspitate. Petals purplish red, broadly elliptic or narrowly obovate, tomentose, base long clawed. Stamens many, nearly as long as petals; filaments broadened and flattened basally. Pistils numerous, nearly as long as or slightly shorter than stamens; ovary and base of style pubescent. Aggregate fruit red, subglobose, less than 1 cm in diam., pilose; pyrenes shallowly rugose. Fl. May–Jun, fr. Jul.

● Mixed forested slopes, hillsides; below 2000 m. Anhui Jiangxi, Zhejiang.


喜连悬钩子 xi yin xuan gou zi

Shrubs scandent, 1–4 m tall. Branchlets reddish brown or purplish brown, with soft hairs and sparse, needle-like prickles or nearly unarmed, old branches grayish brown, with sparse prickles broadened basally. Leaves imparipinnate, often 3-foliolate, rarely 5-foliolate; petiole 3–7 cm, petiolule of terminal
leaflet 1.5–4 cm, lateral leaflets shortly petiolulate or subsessile, petiolules and rachis pubescent, with sparse, curved minute prickles; stipules linear, to 1.2 cm, pubescent, margin entire; blade of leaflets variable in shape, terminal leaflet broadly rhombic-ovate or elliptic-ovate, base rounded to subcordate, margin often pinnate-lobed, apex acuminate, lateral leaflets obliquely elliptic or ovate, 4–9(–11) × 3–7(–9) cm, abaxially densely gray tomentose, adaxially appressed pubescent or glabrescent, base cuneate to rounded, margin unevenly coarsely serrate, often lobed, apex acute. Inflorescences terminal or axillary, corymbose, (2–)3–4.5 cm, shorter than petiole, several to more than 20-flowered; rachis and pedicels pubescent, with sparse, needle-like prickles; bracts linear, 7–10 mm, pubescent. Pedicel 6–12 mm. Flowers ca. 1 cm or more in diam. Calyx abaxially densely pubescent; sepals often reflexed after anthesis, lanceolate, (4–)5–8 × 3–4 mm, inner sepals as long as petals. Styles glabrous; ovary pilose. Aggregate fruit base slightly pubescent and shortly clawed. Stamens more than 20-flowered; rachis and pedicels pubescent, with dense, needle-like prickles; stipules linear-lanceolate, 7–10 mm, pubescent; terminal leaflet broadly ovate to ovate-lanceolate, base truncate to subcordate, margin often pinnately lobed, apex acuminate, slightly longer than lateral leaflets, lateral leaflets oblique-elliptic or oblique-ovate, 2.5–4.5 cm, lateral leaflets subsessile, petiolules and rachis pubescent, with dense, needle-like prickles; stipules linear-lanceolate, 5–7 mm, pubescent. Pedicel 6–10 mm. Flowers 6–8 mm in diam. Calyx abaxially densely pubescent; sepals erect at anthesis, reflexed in fruit, narrowly ovate to ovate-lanceolate, 5–7 × 2–3 mm, apex acute to shortly acuminate. Petals white, with red or purplish red spots, suborbicular or obovate, 5–6 × 4–5 mm, premorse, margin irregularly or incised roughly serrate, abaxially densely gray to yellowish gray tomentose, adaxially pubescent, margin irregularly or incised roughly serrate, base rounded or broadly cuneate, apex acute to shortly acuminate. Inflorescences terminal or axillary, corymbose, 2–4 cm; rachis and pedicels pubescent, with dense, needle-like prickles; bracts linear, 5–7 mm, pubescent. Pedicel 6–10 mm. Flowers 6–8 mm in diam. Calyx abaxially densely pubescent; sepals erect at anthesis, reflexed in fruit, narrowly ovate to ovate-lanceolate, 5–7 × 2–3 mm, apex acute to shortly acuminate. Petals white, with red or purplish red spots, suborbicular or obovate, 5–6 mm in diam., slightly longer than sepals, base puberulous. Stamens many, somewhat shorter than petals; filaments linear, glabrous. Pistils slightly longer than stamens; ovary pubescent; styles glabrous. Aggregate fruit blue-black at maturity, subglobose, 6–8 mm in diam., puberulous; pyrenes smooth or rugose. Fl. May–Jun. fr. Jul–Aug. 2n = 14*.

Forests, slopes, montane valleys, river banks, stream sides, near water courses, roadsides; 600–3600 m. Chongqing, Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Taiwan, Yunnan [Bhutan, Japan, Nepal, Sikkim, Russia (Sakhalin)].

1a. Leaflets tomentose at fruit, glabrescent, subglabrous abaxially ....................... 37c. var. glabrescens
1b. Leaflets persistently tomentose abaxially.
   2a. Branchlets, petioles, and pedicel without stalked glands ............... 37a. var. mesogaeus
   2b. Branchlets, petioles, and pedicles ± with stalked glands ................. 37b. var. oxycomus

37a. Rubus mesogaeus var. mesogaeus

喜阴悬钩子(原变种) xi yin xuan gou zi (yuan bian zhong)

Rubus eous Focke; R. euleucus Focke ex Handel-Mazzetti; R. idaeus Linnaeus var. exsuccus Franchet & Savatier; R. illudens H. Léveillé; R. kinashii H. Léveillé & Vaniot; R. kinashii f. macrophyllus Cardot; R. kinashii f. microphyllus Cardot; R. mesogaeus var. incisus Cardot; R. occidentalis H. Léveillé; R. occidentalis var. exsuccus (Franchet & Savatier) Makino; R. occidentalis var. japonicus Miyabe; R. rarissimus Hayata.

Leaflets persistently tomentose abaxially. Branchlets, petiolules, and pedicels without stalked glands.

Slopes, forest understories in montane valleys, river banks; 600–3600 m. Chongqing, Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Taiwan, Xizang, Yunnan [Bhutan, Japan, Nepal, Sikkim, Russia (Sakhalin)].


腺毛喜阴悬钩子 xian mao xi yin xuan gou zi

Leaflets persistently tomentose abaxially. Branchlets, petiolules, and pedicels ± with stalked glands.

- Mixed forested slopes, montane valleys, roadsides, stream sides; below 2800 m. Gansu, Shaanxi, Sichuan, Yunnan.


脱落毛喜阴钩子 tuo mao xi yin xuan gou zi

Leaflets tomentose at first, glabrescent, subglabrous when old abaxially.

- Broad-leaved evergreen forests, near water courses; 2000–2200 m. Chongqing (Jinfu Shàn), S Sichuan (Leibo Xian).


密刺悬钩子 mi ci xuan gou zi

Shrubs climbing, 1–2 m tall. Old branches brown or reddish brown, pubescent, with dense unequal needle-like prickles and basally broadened short prickles; branchlets dark green, more with dense, needle-like prickles. Leaves imparipinnate, 3–5-foliolate; petiole 2.5–4.5 cm, petiolule of terminal leaflet 1.5–2.5 cm, lateral leaflets subsessile, petiolules and rachis pubescent, with dense, needle-like prickles; stipules linear-lanceolate, 7–10 mm, pubescent; terminal leaflet broadly ovate to ovate-lanceolate, base truncate to subcordate, margin often pinnately lobed, apex acuminate, slightly longer than lateral leaflets, lateral leaflets oblique-elliptic or oblique-ovate, 2–5 × 1.5–4 cm, abaxially densely gray to yellowish gray tomentose, adaxially pubescent, margin irregularly or incised roughly serrate, base rounded or broadly cuneate, apex acute to shortly acuminate. Inflorescences terminal or axillary, corymbose, 2–4 cm; rachis and pedicels pubescent, with dense, needle-like prickles; bracts linear, 5–7 mm, pubescent. Pedicel 6–10 mm. Flowers 6–8 mm in diam. Calyx abaxially densely pubescent; sepals erect at anthesis, reflexed in fruit, narrowly ovate to ovate-lanceolate, 5–7 × 2–3 mm, apex acute to acuminate. Petals white, with red or purplish red spots, suborbicular or obovate, 5–6 mm in diam., slightly longer than sepals, base puberulous. Stamens many, somewhat shorter than petals; filaments linear, glabrous. Pistils slightly longer than stamens; ovary pubescent; styles glabrous. Aggregate fruit blue-black at maturity, subglobose, 6–8 mm in diam., puberulous; pyrenes smooth or rugose. Fl. May–Jun. fr. Jun–Jul.

- Slopes, thickets, valleys; below 2300 m. Gansu, Shaanxi, Sichuan.

38a. Rubus subtibetanus var. subtibetanus

密刺悬钩子(原变种) mi ci xuan gou zi (yuan bian zhong)

Branchlets, petioles, pedicel, and abaxial surface of calyx without glandular hairs.

39. Rubus biflorus Buchanan-Hamilton ex Smith in Rees, Cyc. 30: Rubus no. 9. 1819.

ROSACEAE

● Slopes, thickets, valleys; below 2300 m. Gansu, Shaanxi, Sichuan.

39b. Rubus biflorus var. adenophorus Franchet, Pl. Delavay. 207. 1890.

● Petioles, peticel, and abaxial surface of calyx densely pubescent, without stalked glands.
● Forests, forest margins; below 3000 m. S Xizang, NW Yunnan.


● Petioles, peticel, and abaxial surface of calyx densely pubescent, without stalked glands.
mentose only at apex; styles densely white tomentose basally.
Aggregate fruit yellow, globose, 1.2–1.5 cm in diam., glabrous, enclosed in calyx; druplets apically with persistently tomentose styles; pyrenes reniform, shallowly rugulose. Fl. Apr.–May, fr. Jun–Jul.

Montane valleys, stream sides, waste slopes, forest clearings and margins; 2000–3700 m. Sichuan, Xizang, Yunnan [Bhutan, Nepal].

1a. Petioles, pedicel, and abaxial surface of calyx without glandular hairs ........... 40a. var. alexeterius

1b. Petioles, pedicel, and abaxial surface of calyx with prominent glandular hairs ................................................. 40b. var. acaenocalyx

40a. Rubus niveus var. alexeterius

刺萼悬钩子 (原变种) ci e xuan gou zi (yuan bian zhong)

Petioles, pedicel, and abaxial surface of calyx without glandular hairs.

Montane valleys, stream sides, waste slopes, forest clearings; 2000–3700 m. Sichuan, Xizang, NW Yunnan [Bhutan, Nepal].


腺毛刺萼悬钩子 xian mao ci e xuan gou zi


Petioles, pedicel, and abaxial surface of calyx with prominent glandular hairs.

Forested slopes, forest margins; 2000–3200 m. Sichuan, Xizang, Yunnan [Bhutan, Nepal].


密毛纤细悬钩子 mi mao xian xi xuan gou zi

Rubus pedunculosus var. echinocalyx (Edgeworth) Kitamura.

ROSACEAE

42. Rubus inopertus (Focke) Focke, Biblioth. Bot. 17(Heft 72): 182. 1911.

红花悬钩子 hong hua xuan gou zi

Shrubs climbing, 1–2 m tall. Branchlets brownish to purplish brown, angled, glabrous, with sparse, curved prickles. Leaves imparipinnate, 7–11-foliolate, rarely 5-foliolate; petiole 3.5–6 cm, purplish brown, petiolute of terminal leaflet 0.6–2–3 cm, lateral leaflets subsessile, petiolarules and rachis glabrous or slightly pubescent, with sparse, curved minute prickles; stipules linear-lanceolate, 3–5 mm, glabrous or margin slightly puberulous, margin entire; blade of leaflets ovate to ovate-lanceolate, (2–)3–7 × 1–3 cm, abaxially pubescent along veins, adaxially pilose, base rounded or subtruncate, margin coarsely sharp doubly serrate, apex acuminate. Inflorescences terminal, corymbs, 2–4 cm, several flowered, or flowers several in clusters; rachis and pedicels glabrous, unarmed; bracts linear-lanceolate, 3–5 mm, glabrous or slightly puberulous. Pedicel (0.7–)1–1.5 cm. Flowers 1–1.2 cm in diam. Calyx abaxially glabrous; tube pelliform; sepals erect at anthesis, reflexed in fruit, narrowly ovate or triangular-ovate, 4–7 × 2–4 mm, inner sepals tomentose at margin, apex acute to acuminate. Petals pink to purplish red, obovate, 5–7 × 4–6 mm, base puberulent and shortly clawed. Stamens numerous, slightly shorter than or nearly as long as petals; filaments linear or broadened basally. Pistils slightly shorter than or ca. as long as stamens; ovary and style soft hairy. Aggregate fruit purplish black at maturity, globose, 8–9 mm in diam., thinly pubescent; pyrenes rugulose. Fl. May–Jun, fr. Jul–Aug. 2n = 14*.

Dense forests in mountainous regions, river valleys, rocky slopes; 800–2800 m. Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Taiwan, Yunnan [Vietnam].

1a. Abaxial surface of calyx without needle-like prickles ....................... 42a. var. inopertus

1b. Abaxial surface of calyx with needle-like prickles ................................... 42b. var. echinocalyx

42a. Rubus inopertus var. inopertus

红花悬钩子 (原变种) hong hua xuan gou zi (yuan bian zhong)

Rubus niveus Thunberg subsp. inopertus Focke, Bot. Jahrb. Syst. 29: 400. 1900; R. fraxinifolius Poiret var. yushunii Suzuki & Yamamoto; R. ohwianus Koidzumi; R. ritozanensis Sasaki; R. yamamotoanus H. L. Li; R. yoshinii (Suzuki & Yamamoto) Suzuki & Yamamoto.

Abaxial surface of calyx without needle-like prickles.

Dense forests in mountainous regions, river valleys, rocky slopes; 800–2800 m. Guangxi, Guizhou, Hubei, Hunan, Shannxi, Sichuan, Taiwan, Yunnan [Vietnam].

42b. Rubus inopertus var. echinocalyx Cardot, Notul. Syst.
44. Rubus amabilis


秀丽莓 xiù lì méi

Shrubs 1–3 m tall. Branches purplish brown or dark brown, glabrous, with sparse prickles; flower bearing branchlets short, soft hairy, with minute prickles. Leaves imparipinnate, 7–11-foliolate; petiole 1–3 cm, petiolo of terminal leaflet ca. 1 cm, lateral leaflets subsessile, petiolo and rachis pubescent when young, gradually glabrescent, glabrous or subglabrous, with sparse, small prickles; stipule linear-lanceolate, 5–8 mm, soft hairy; blade of leaflets ovate or ovate-lanceolate, 1–5.5 × 0.8–2.5 cm, usually apical ones larger than basal ones, abaxially soft hairy and with small prickles along veins, adaxially glabrous or sparsely appressed-hairy, base subrounded, sometimes subuneate on terminal leaflet, margin incised-doubly serrate, occasionally 2- or 3-lobed on terminal leaflet, apex acute, often acuminate on terminal leaflet. Inflorescences 1-flowered, terminal on lateral branchlets, pendent. Pedicel 2.5–6 cm, with soft hairs and sparse, minute prickles, sometimes with intermixed sparse, stipitate glands. Flowers 3–4 cm in diam. Calyx green, tinged red, abaxially pubescent, unarmed, rarely with short needle-like prickles or stipitate glands; tube pelviform; sepals spreading, broadly ovate, 1–1.5 cm × 5–8 mm, apex acuminated or abruptly pointed. Petals white, suborbicular, 1–1.7 cm in diam., longer than or nearly as long as sepals, base shortly clawed and pubescent. Stamens numerous, slightly shorter than petals; filaments whitish, linear, broadened basally. Pistils shorter than stamens; ovary pubescent, styles greenish, glabrous. Aggregate fruit red, oblong; rarely ellipsoid, (0.8–)1.5–2.5 × 1–1.2 cm, sparsely pubescent when young, glabrescent; pyrenes reniform, somewhat reticulate. Fl. Apr–May, fr. Jul–Aug.

1a. Abaxial surface of calyx unarmed, rarely with sparse, short needle-like prickles or stipitate glands; aggregate fruit oblong, rarely ellipsoid, 15–25 mm ................. 44a. var. amabilis

1b. Abaxial surface of calyx ± with needle-like prickles, without or with stipitate glands; aggregate fruit not longer than 14 mm.

2a. Abaxial surface of calyx with sparse, needle-like prickles, without stipitate glands; aggregate fruit ovoid-globose or ellipsoid, 8–13 mm ............... 44b. var. microcarpus

2b. Abaxial surface of calyx with dense needle-like prickles, with sparse, stipitate glands; aggregate fruit narrowly ovoid, 9–14 mm ....................... 44c. var. aculeatissimus

44a. Rubus amabilis var. amabilis

秀丽莓(原变种) xiù lì méi (yuán biàn zhòng)

Abaxial surface of calyx unarmed, rarely with sparse, short needle-like prickles or stalked glands. Aggregate fruit oblong, rarely ellipsoid, 1.5–2.5 cm.

1. Foothills, ravines, thickets in valleys; 1000–3700 m. Gansu, Henan, Huabei, Qinghai, Shaanxi, Shanxi, Sichuan.

44b. Rubus amabilis var. microcarpus


小果秀丽莓 xiǎo guǒ xiù lì méi

Abaxial surface of calyx with sparse, needle-like prickles, without stipitate glands. Aggregate fruit ovoid-globose or ellipsoid, 0.8–1.3 cm.

1. Montane valleys, slopes, forests, thickets; 2000–3500 m. Gansu, Qinghai.

44c. Rubus amabilis var. aculeatissimus

45a. Rubus ptilocarpus

Shrubs 1–2 m tall. Old branches purplish brown or brown, glabrous, prickly; flower bearing branchlets brownish, pubescent, with intermixed glandular hairs, with sparse, minute prickles. Leaves imparipinnate, 7–11-foliolate; petiole 2–3(–4) cm, petiolo of terminal leaflet 0.6–2 cm, lateral leaflets subsessile, petiolo and rachis pubescent, with intermixed glandular hairs, with minute prickles; stipules linear or linear-lanceolate, (5–)6–8 mm, pubescent or with glandular hairs; blade of leaflets ovate, ovate-lanceolate, or rhombic-ovate, 1.5–4(–6) × 1–3(–4) cm, both surfaces soft hairy, base rounded, rarely subcordate, margin deeply incised-doubly serrate, sometimes pinnate-lobed on terminal leaflet, apex acute, or shortly acuminate on terminal leaflet. Inflorescences terminal, rarely axillary, 1–3-flowered; bracts linear to linear-lanceolate, shorter than stipules, with soft hairs or glandular hairs. Pedicel 1.5–3(–6) cm, with soft hairs and intermixed glandular hairs, with sparse, minute prickles or unarmed. Flowers to 2 cm in diam. Calyx abaxially pubescent, with intermixed glandular hairs; tube broad and short, often unarmed; sepals spreading or rarely reflexed, ovate to ovate-lanceolate or narrowly lanceolate, unequal, longer sepals to 1.8 cm, shorter sepals 6–7 mm, apex long acuminate or long caudate. Petals oblong, longer than sepals. Stamens many; filaments linear. Ovary with dense grayish yellow or gray slender soft hairs. Aggregate fruit blackish red, subglobose, 1–1.2 cm in diam., densely grayish yellow or gray slender pubescent; pyrenes reniform, slightly rugulose. Fl. May–Jun, fr. Jul–Aug.

- Shaded slopes, river valleys, forests, grasslands; 2300–4100 m. Qinghai, W Sichuan, NE Yunnan.

1a. Flowers usually 1–3; pedicel 1.5–3 cm; sepals ovate to ovate-lanceolate, to 12 mm, apex long acuminate .......... 45a. var. ptilocarpus

1b. Flowers often solitary; pedicel to 6 cm; sepals narrowly lanceolate to linear-lanceolate, to 18 mm, apex long caudate ...................... 45b. var. degensis

45a. Rubus ptilocarpus var. ptilocarpus

毛果悬钩子(原变种) mao gou xuan gou zi (yuan bian zhong)

Flowers usually 1–3. Pedicel 1.5–3 cm. Sepals ovate to ovate-lanceolate, to 1.2 cm, apex long acuminate.

- Shaded slopes, river valleys, forests, grasslands; 2300–4100 m. Qinghai, W Sichuan, NE Yunnan.


46. Rubus lutescens

Subshrubs, 10–50 cm tall. Stems ascending, brown, glabrescent. Leaves imparipinnate, to 4–10(–15)-foliolate; petiole 1–2 cm, petiolo of terminal leaflet 0.7–1.5 cm, lateral leaflets subsessile, petiolo and rachis with fine soft hairs and minute, curved prickles, occasionally with sparse, glandular hairs; stipules variable, stipules in proximal part of branches larger, ovate-lanceolate, 6–9 mm, margin entire, rarely lobed, stipules apically of branches narrower, linear, 5–7 mm, not divided, finely soft hairy; blade of leaflets broadly ovate or rhombic-ovate, rarely oblong, 1.5–3(–4) cm, both surfaces soft hairy, abaxially more dense along veins, with sparse, minute prickles along veins, base rounded, margin unevenly serrate or incised-doubly serrate, sometimes pinnate-lobed on terminal leaflet, apex acute, rarely obtuse, or shortly acuminate on terminal leaflet. Inflorescences terminal or axillary, 1- or 2-flowered, sometimes 3 or 4 flowers terminal on short branchlets; bracts similar to stipules, but smaller. Pedicel 2–3(–4) cm, thinly pubescent, with sparse, minute prickles, sometimes with sparse, glandular hairs. Flowers 2–3 cm in diam. Calyx abaxially thinly pubescent; tube without or with sparse, minute prickles; sepals spreading, rarely reflexed in fruit, ovate-lanceolate to lanceolate, 0.9–1.2 cm × 3.5–5 mm, apex acuminate or shortly caudate. Petals white, turning yellowish, obovate or suborbicular, 5–7.5 × 5–6 mm, base shortly clawed. Stamens many, shorter than petals; filaments linear, broadened basally; anthers yellowish. Pistils numerous, slightly shorter than stamens. Ovary densely gray thinly pubescent. Aggregate fruit yellowish red, globose, 1.4–2 cm in diam., densely thinly pubescent; pyrenes ovoid-globose, shallowly reticulate. Fl. May–Jun, fr. Jul–Aug.

- Forest margins on slopes, mixed forests, stony places; 2500–4300 m. Sichuan, E Xizang, Yunnan.


小叶悬钩子 xiao ye xuan gou zi

Rubus elegans Hayata (1906), not P. J. Mueller (1858), nor Utsch (1885), nor Sudre (1898).

Subshrubs ca. 10 cm tall. Stems ascending, brown, glabrescent. Leaves imparipinnate, to 10 cm, 9–15-foliolate; petiole 1–2 cm, petiolo of terminal leaflet shorter, 2–4 mm, lateral leaflets sessile or subsessile, petiolo and purplish red rachis glabrous, with curved minute prickles; stipules lanceolate or linear-lanceolate, 6–10 mm, glabrous; blade of leaflets elliptic
to broadly oblong, lateral leaflets sometimes obovate, 0.7–1.5 cm × 5–9 mm, both surfaces glabrous, only sparsely pubescent along midvein abaxially, base cuneate, margin sharply serrate above middle, becoming entire toward base; apex acute or obtuse. Inflorescences with flowers solitary or in pairs; bracts linear-lanceolate, 3–5 mm, glabrous. Pedicel 2–4 cm, glabrous, with curved minute prickles. Flowers 1–2 cm in diam. Calyx abaxially glabrous or sparsely soft hairy; sepals erect in fruit, ovate or triangular-ovate, 6–8 × 2–4 mm, margin slightly tomentose, apex shortly ciliate. Petals white, broadly ovate to suborbicular, rarely oblong, 7–10 × 5–6 mm, glabrous or sparsely hairy, base slightly clawed, apex obtuse or rounded. Stamens many, shorter than petals; filaments linear or somewhat broadened and flattened. Pistils numerous, shorter than stamens; style and ovary glabrous. Aggregate fruit red, subglobose, 7–9(–12) mm in diam., glabrous. Fl. Jun–Jul, fr. Aug–Sep. 2n = 14*.

Mountains; 1500–3000 m. C Taiwan.


红毛悬钩子 hong mao xuan gou zi

Rubus ellipticus Smith subsp. fasciculatus (Duthie) Focke; R. ellipticus var. fasciculatus (Duthie) Masumune; R. erythrocallus Focke; R. fasciculatus Duthie; R. pinaeflora H. Léveillé & Vaniot.

Shrubs climbing, 1–2 m tall. Branchlets reddish brown, grayish brown in age, robust, angled, pubescent, with sparse, curved prickles, with dense, spreading red brown bristles to 7 mm. Leaves imparipinnate, usually 3-foliate; petiole 2–4.5 cm, petiole of terminal leaflet 1.5–3 cm, lateral leaflets subsessile, reddish brown bristly, pubescent, with sparse prickles; stipules linear, 0.7–1.4 cm, pubescent, intermixed sparsely setose; blade of leaflets elliptic or ovate, rarely obovate, 4–9(–12) × 3–7(–10) cm, terminal leaflet larger than lateral leaflets, midvein and veins raised abaxially, impressed adaxially, often sparsely setose, with minute prickles, abaxially dark green, glabrous or slightly pubescent along midvein, adaxially slightly pale, pilose only along veins, base rounded or broadly cuneate, margin irregularly sharply serrate, apex acuminate to caudate, rarely nearly acute. Inflorescences clusters of 4–8 flowers in leaf axils, rarely flowers solitary; bracts linear or linear-lanceolate, 6–10 mm, pubescent. Pedicel 4–7 mm, pubescent, intermixed setose, with minute prickles. Flowers 1–1.3 cm in diam. Calyx abaxially densely tomentose; sepals erect in fruit, broadly ovate or triangular-ovate, 5–7 × 4–5 mm, apex subacute, abruptly long pointed. Petals white, spatulate to elliptic-ovate, 6–10 × 4–6 mm, both surfaces tomentose, base clawed, apex rounded to acute. Stamens many, shorter than petals; filaments linear, but somewhat broadened and flattened. Pistils slightly shorter than or nearly as long as stamens; apex of ovary and base of style soft hairy. Aggregate fruit golden or reddish yellow at maturity, globose, 5–8 mm in diam., glabrous; pyrenes deeply rugose. Fl. Mar–Apr, fr. May–Jun. 2n = 14*.

Thickets on slopes, mixed forests, montane valleys, ravines, stream sides, cliffs; 300–2200 m. Guangxi, Guizhou, Hubei, Hunan, Si-chuan, Taiwan, Yunnan [Bhutan, India, Nepal, Sikkim, Vietnam].


插田泡 cha tian pao

Shrubs 1–3 m tall. Branchlets reddish brown to purplish brown, cylindric, robust, glabrous, with ± straight flattened curved prickles and glaucous bloom. Leaves imparipinnate, 5-foliolate, rarely 3-foliolate; petiole 2–5 cm, petiolo of terminal leaflet 1–2 cm, lateral leaflets subciliate, petiolo and rachis pubescent, with sparse, curved minute prickles; stipules linear-lanceolate, 4–7 mm, softly hairy; blade of leaflets ovate, rhombic ovate, or broadly ovate, (2–)3–8 × 2–5 cm, abaxially pubescent or only along veins or shortly tomentose, adaxially glabrous or pubescent only along veins, base cuneate to subrounded, margin irregularly coarse serrate to incised coarsely serrate, sometimes 3-lobed on terminal leaflet, apex acute. Inflorescences terminal on lateral short branchlets, corymbose, 2.5–5 cm, several to more than 30-flowered; rachis and pedicels gray pubescent, with sparse, curved minute prickles; bracts linear, nearly as long as or slightly shorter than stipules, pubescent. Pedicel 5–10 mm. Flowers 7–10 mm in diam. Calyx abaxially gray pubescent; tube shallowly cupular; sepals spreading at anthesis, reflexed in fruit, narrowly ovate to ovate-lanceolate, 4.7 × 2–3.5 mm, margin tomentose, apex acuminate to caudate. Petals pink to dark red, obovate, premorese, nearly as long as or somewhat shorter than sepals. Stamens numerous, shorter than or ca. as long as petals; filaments pinkish, linear. Pistils slightly shorter than stamens; ovary sparsely pubescent; styles glabrous. Aggregate fruit dark red or purplish black, subglobose, 5–8 mm in diam., glabrous or subglabrous; pyrenes rugose. Fl. Apr–Jun, fr. Jun–Aug. 2n = 14.

Thickets on slopes, montane valleys, ravines, river banks, roadsides; 100–3100 m. Anhui, Fujian, Gansu, Guizhou, Henan, Hunan, Jiangsu, Jiangxi, Shanxi, Sichuan, Xinjiang, Yunnan, Zhejiang [Japan, Korea].

1a. Leaflets sparsely pubescent or pubescent only along veins
abaxially ................................................. 49a. var. coreanus

1b. Leaflets densely shortly tomentose
abaxially ................................................. 49b. var. tomentosus

49a. Rubus coreanus var. coreanus

插田泡(原变种) cha tian pao (yuan bian zhong)

Rubus coreanus var. coreanus (H. Léveillé) H. Léveillé; R. coreanus var. nakaii H. Léveillé; R. pseudoxaizzatlis H. Léveillé; R. pseudoxaizzatlis var. kooykhtensis H. Léveillé; R. nakaii H. Léveillé ex Nakai; R. quelpaertensis H. Léveillé.

Leaflets sparsely pubescent or pubescent only along veins abaxially.

Thickets on slopes, montane valleys, river banks, roadsides; 100–1700 m. Anhui, Fujian, Gansu, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shanxi, Sichuan, Xinjiang, Yunnan, Zhejiang [Japa & Korea].

49b. Rubus coreanus var. tomentosus Cardot, Notul. Syst.
毛叶插田泡 mao ye cha tian pao

Leaflets densely shortly tomentose abaxially.

- Thickets on slopes, montane valleys, ravines; 800–3000 m. Anhui, Gansu, Guizhou, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.


51. Rubus spananthus

ROSACEAE

(Paris) 3: 310. 1914.

少花悬钩子 shao hua xuan gou zi

Shrubs erect, 1–2 m tall, with arching branches. Branchlets reddish brown, glabrous, without glaucous bloom, with straight or somewhat curved prickles. Leaves imparipinnate, usually 5-foliate; petiole 2–4 cm, petiolo of terminal leaflet 1–2 cm, lateral leaflets sessile or subuplicate, together with petiolo and rachis thinly pubescent, with sparse, minute prickles; stipules linear-lanceolate, puberulous; blade of leaflets ovate, broadly ovate, or rhombic-ovate, 2–6 × 1.5–4 cm, abaxially glabrous or pilose only along veins, adaxially glabrous or sparsely pubescent, base cuneate or broadly cuneate, rarely subrounded, margin incised coarsely sharply serrate or doubly serrate, sometimes pinnate-lobed on terminal leaflet, apex acute. Inflorescences terminal on lateral branchlets, racemes, compact, cylindric, short; rachis and pedicels densely tomentose yellow villous; bracts lanceolate, grayish yellow villous. Pedicel 5–10 mm. Flowers 5–8 mm in diam. Calyx abaxially densely grayish yellow villous; sepals erect, spreading, ovate or broadly ovate, 3–5 mm, margin not tomentose, apex obtuse or acute, abruptly shortly pointed. Petals purplish red, spatulate, rarely obovate, ca. 2 × or longer than sepals, base shortly clawed, soft hairy. Stamens many; filaments purplish red, linear, basally slightly broadened and flattened. Pistils numerous; ovary densely gray villous; styles glabrous. Aggregate fruit red, subglobose, 6–8 mm in diam., glabrous or subglabrous. Fl. May–Jun, fr. Jul–Aug.

- Slopes, thickets along stream sides or ditches, riverbank bluffs; 900–1500 m. Gansu, Henan, Shaanxi.

52. Rubus stans

直立悬钩子 zhi li xuan gou zi

Shrubs 1–2 m tall. Branchlets brownish to dark brown, sometimes blackish, pubescent, with intermixed glandular hairs and prickles; flower bearing branchlets lateral, 5–8 cm, pubescent, with intermixed glandular hairs. Leaves imparipinnate, 3-foliate; petiole 2–3.5 cm, petiolo of lateral leaflet 0.5–1.5(–2) cm, lateral leaflets subsessile, pubescent, with intermixed glandular hairs, with sparse, minute prickles; stipules linear, 0.6–1 cm, pubescent, with glandular hairs; blade of leaflets broadly ovate to narrowly ovate, rarely suborbicular, 2–4 × 1.8–3 cm, terminal leaflet slightly longer than lateral leaflets, both surfaces pressed pubescent, more densely so and with glandular hairs along veins abaxially, base rounded, usually subtruncate on terminal leaflet, margin with sparse, glandular hairs and irregularly minute sharply serrate, sometimes 3-lobed on terminal leaflet, apex obtuse or acute. Inflorescences terminal on lateral branchlets, corymbose, 2–4 cm, or 4–flowered or more, or flowers solitary in leaf axils; rachis and pedicels with soft hairs, intermixed glandular hairs, and sparse, minute prickles; bracts linear, 4–7 mm, pubescent, with glandular hairs. Pedicel (1–)1.5–3 cm. Flowers 1–1.5 cm in diam. Calyx purplish red, abaxially densely pubescent, with stalked glands, unarmed or with needle-like prickles; tube pelviform; sepals erect, lanceolate, 0.8–1.4 cm × 2.5–5 mm, apex acuminate. Petals white, tinged purplish, or purplish red, broadly elliptic or oblong, 5–6 mm in diam., slightly shorter than sepals, base shortly and broadly clawed, margin entire or sometimes erose. Stamens many, shorter than petals; filaments linear, basally broadened and flattened. Pistils somewhat shorter than stamens; ovary densely pubescent, glabrescent; styles glabrous. Aggregate fruit orange-red, subglobose, 8–11 mm in diam., glabrous, pyrenes somewhat reniform, alveolate. Fl. May–Jun, fr. Jul–Aug.

- High montane forests, coniferous forests, forest margins, open stony thickets; 2000–4000 m. Qinghai, Sichuan, E Xizang, Yunnan.

The fruit are edible.

1a. Branchlets with sparse prickles; abaxial surface of calyx unarmed or with sparse, minute needle-like prickles; petals white or tinged purplish ................................. 52a. var. stans

1b. Branchlets densely prickly; abaxial surface of calyx with dense, needle-like prickles; petals purplish red ........... 52b. var. soulieanus

52a. Rubus stans var. stans

直立悬钩子(原变种) zhi li xuan gou zi (yuan bian zhong)
Rubus testaceus C. K. Schneider.

Branchlets with sparse prickles. Calyx abaxially unarmed or with sparse, minute needle-like prickles. Petals white or tinged purplish red.

- High montane forests, forest margins, open stony thickets; 2000–3400 m. Qinghai, Sichuan, E Xizang, Yunnan.


多刺直立悬钩子 duo ci zhi li xuan gou zi


Branchlets densely pricky. Calyx abaxially with dense, needle-like prickles. Petals purplish red.

- Coniferous forests; below 4000 m. W Sichuan, E Xizang.


锡金悬钩子 xi jing xuan gou zi

Shrubs to 2 m tall. Branchlets brownish to reddish brown, pubescent, with sparse, intermixed stipitate glandular hairs and straight or somewhat curved slender prickles. Leaves imparipinnate, 3-foliolate; petiole 4–10 cm, petiolo of terminal leaflet 2.5–3.5 cm, lateral leaflets sessile, pubescent, with minute prickles, with sparse, purplish red stipitate glands; stipules linear, 1–1.5 cm, pubescent, sparingly stipitate glandular; blade of leaflets ovate to broadly ovate, 4–8 × 2.5–5.5 cm, both surfaces pubescent along veins, subglandular, base broadly cuneate to rounded, subcordate on terminal leaflet, margin irregularly obtusely dentate, often lobed or deeply divided on terminal leaflet, apex shortly acuminated to acuminated. Inflorescences with flowers 1 or 2 in leaf axils; bracts linear, to 1.3 cm, pubescent, sparingly stipitate glandular. Pedicel 1–3 cm, pubescent, with stalked glands and sparse prickles. Flowers 2–3 cm in diam. Calyx purplish red, abaxially pubescent, sparingly stipitate glandular; tube pelviform, with slender prickles; sepals triangular-lanceolate, 8–11 × 3–5 mm, apex long acuminate. Petals white, oblong, obovate, or suborbicular, 7–9 × 5–6 mm, much shorter than sepals, glabrous, base clawed. Stamens many, unequal in length, longer ones longer than petals, shorter ones nearly as long as or slightly shorter than petals; filaments somewhat broadened and flattened basally. Pistils numerous; ovary soft hairy or subglandular; styles glabrous or sparingly short hairy basally. Aggregate fruit red, subglobose, 1–1.5 cm in diam., pubescent or subglandular; pyrenes ovoid-globose, 2–3 mm, conspicuously rugose. Fl. Apr–May, fr. Jul–Aug. 2n = 14.

- Mountainous regions; below 3800 m. S Xizang (Cona Xian) [Bhutan, NW India, Japan, Kashmir, Korea, N Myanmar, Nepal, Sikkim, SW Asia].

1a. Branchlets and abaxial surface of calyx with dense, needle-like prickles.

2a. Flower bearing branchlets, petioles, pedicel, and abaxial surface of calyx usually without stalked glands ...... 54a. var. pungens

2b. Flower bearing branchlets, petioles, pedicel, and abaxial surface of calyx often with conspicuous stalked glands.

3a. Leaflets 5–7, 1–3 cm ............ 54b. var. villosus

3b. Leaflets often 3, rarely 5, 2.5–6 cm ........................................ 54c. var. tenuatus

1b. Branchlets and abaxial surface of calyx nearly unarmed or ± with needle-like prickles.

4a. Flower bearing branchlets, petioles, pedicel, and abaxial surface of calyx without or partly with sparse, short stipitate glands; sepals ovate-triangular or narrowly ovate-lanceolate, 1–1.5 cm ...................... 54d. var. oldhamii

4b. Flower bearing branchlets, petioles, pedicel, and abaxial surface of calyx with prominent stipitate glands; sepals linear or linear-lanceolate, to 2 cm ............... 54e. var. linearisepalus

54a. Rubus pungens var. pungens

针刺悬钩子(原变种) zhen ci xuan gou zi (yuan bian zhong)

Rubus pungens var. discolor Prochanov; R. pungens var. fargesii Cardot.

Branchlets and abaxial surface of calyx with dense, needle-like prickles. Flower bearing branchlets, petioles, pedicel, and abaxial surface of calyx without stalked glands.
ROSACEAE

Forest slopes, forest margins, river sides; 2200–3300 m. Gansu, Shaanxi, Sichuan, Taiwan, Xizang, Yunnan [Bhutan, NW India, Japan, Kashmir, Korea, N Myanmar, Nepal, Sikkim; SW Asia].

柔毛针刺悬钩子 rou mao zao ci xuan gou zi

Branchlets and abaxial surface of calyx with dense, needle-like prickles. Flower bearing branchlets, petioles, pedicel, and abaxial surface of calyx with conspicuous stalked glands. Leaflets 5–7, 1–3 cm.

- Grassy slopes; below 2600 m. Hubei, Shaanxi, Sichuan.

三叶针刺悬钩子 san ye zhen ci xuan gou zi

Branchlets and abaxial surface of calyx with dense, needle-like prickles. Flower bearing branchlets, petioles, pedicel, and abaxial surface of calyx with prominent stalked glands. Leaflets 3, rarely 5, 2.5–6 cm.

- Mixed forests and forest margins along roadsides; below 3400 m. Sichuan, Yunnan.

香莓 xiang mei

Rubus oldhamii Miquel, Profls. Fl. Jap. 34. 1867; R. hayatae Nemoto; R. hirsutopungens Hayata; R. okamotoanus Koidzumi; R. parvipungens Hayata; R. pungens var. indefensus Focke; R. rostitioli Smith var. hirsutus Hayata.

Branchlets and abaxial surface of calyx nearly unarmed or ± with needle-like prickles. Flower bearing branchlets, petioles, pedicel, and abaxial surface of calyx without or partly with sparse, shortly stipitate glands. Sepals ovate-triangular or narrowly ovate-lanceolate, 1–1.5 cm.

Semishaded wet places in montane valleys, forested slopes, thickets; 600–3900 m. Fujian, Gansu, Guizhou, Henan, Hubei, Jiangxi, Jilin, Shaanxi, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea].

线萼针刺悬钩子 xian e zhen ci xuan gou zi

Branchlets and abaxial surface of calyx nearly unarmed or ± with needle-like prickles. Flower bearing branchlets, petioles, pedicel, and abaxial surface of calyx without or partly with sparse, shortly stipitate glands. Sepals ovate-triangular or narrowly ovate-lanceolate, to 2 cm.

- Mixed forests, roadsides; below 3400 m. NW Yunnan (Weixi Xian).

细瘦悬钩子 xi shou xuan gou zi

Shrubs 1–2 m tall. Branchlets brown or reddish brown, terete, villous, with unequal long complanate prickles. Leaves imparipinnate, 3-foliolate, rarely simple; petiole 0.8–1.5 cm, petiolule of terminal leaflet 0.5–1 cm, lateral leaflets subsessile, pubescent, with minute prickles; stipules linear or linear-lanceolate, 4–6 mm, soft hairy; blade of leaflets lanceolate, ovate-lanceolate, or ovate, terminal leaflet much more than lateral leaflets, 3–5 × 1–2.5 cm, lateral leaflets 1–2 × 0.7–1.4 cm, both surfaces glabrous or slightly soft hairy, abaxially with sparse, minute prickles only along veins, base rounded or broadly cuneate, margin sharply serrate, apex acute, rarely obtuse, often shortly acuminate on terminal leaflet. Inflorescences terminal on short lateral branchlets, 1–3-flowered; bracts lanceolate or linear-lanceolate, somewhat smaller than stipules, soft hairy. Pedicel 6–10 mm, villous, sometimes with sparse, minute prickles. Flowers ca. 1 cm in diam. Calyx abaxially villous; sepals erect, rarely spreading, lanceolate or triangular-lanceolate, 6–8 × 2–3(–4) mm, apex shortly cuneate. Petals white, broadly ovate to oblong, slightly longer than or nearly as long as sepals, both surfaces soft hairy, base clawed. Stamens many, shorter than sepals; filaments broad, complanate. Pistils many, slightly shorter than stamens; apical part of ovary and base of style sparsely villous. Aggregate fruit orange or red, subglobose, glabrous or somewhat soft hairy, enclosed in calyx; pyrenes globose, deeply reticulate. Fl. Apr–May, fr. Jul–Aug.

Slopes, roadsides, near water courses, forest margins; 900–3300 m. Sichuan, Xizang, Yunnan [Bhutan, NW India, Kashmir, Nepal, Sikkim].

1a. Branchlets not angled .........................  55a. var. macilentus
1b. Branchlets prominently angled ...........  55b. var. angulatus

55a. Rubus macilentus var. macilentus

细瘦悬钩子(原变种) xi shou xuan gou zi (yuan bian zhong)

Rubus minensis Pax & K. Hoffmann; R. trichopetalus Handel-Mazzetti.

Branchlets not angled.

Slopes, roadsides, near water courses, forest margins; 900–3300 m. Sichuan, Xizang, Yunnan [Bhutan, NW India, Kashmir, Nepal, Sikkim].

55b. Rubus macilentus var. angulatus Franchet, Pl. Delavay. 205. 1890.
棱枝细瘦悬钩子 leng zhi xi shou xuan gou zi

Branchlets prominently angled.

- Roadsides; below 2000 m. NW Yunnan.


黄果悬钩子 huang guo xuan gou zi

Rubus sitiens Focke; R. tibetanus Focke (1909), not Franchet (1886); R. xanthocarpus var. tibetanus (Focke) Cardot.

Subshrubs low, 15–50 cm tall. Rhizomes creeping, woody; stems usually upright, yellowish brown, herbaceous, branched or not branched, obliquely angled, densely pubescent when young, subglabrescent, with sparse, long needle-like prickles. Leaves imparipinnate, 3-foliolate, sometimes 5-foliolate; peti-
ole (2–)3–8 cm, petiolule of terminal leaflet 1–2.5 cm, lateral leaves subsessile, petiolule and rachis pilose, with straight prickles; stipules lanceolate or linear-lanceolate, 1–1.5 cm, margin entire or shallowly laciniate; lobes linear to lanceolate, pubescent; blade of leaflets oblong or elliptic-lanceolate, rarely ovate-lanceolate, terminal leaflet 5–10 × 1.5–3 cm, base often 2-lobed, lateral leaflets smaller, 2–5 × 1–2 cm, both surfaces glabrous or pubescent only along veins, abaxially with slender prickles along veins, base broadly cuneate to subrounded, margin irregularly serrate, apex acute or obtuse. Inflorescences terminal or axillary, corymbose, 2–3 cm, several flowered, rarely flowers solitary; rachis and pedicels pubescent, with sparse, needle-like prickles; bracts lanceolate or linear, margin entire or laciniate, pubescent. 

Pedicel 1–2.5 cm. Flowers 1–2.5 cm in diam. Calyx abaxially with dense needle-like prickles, pubescent; sepals narrowly ovate to ovate-lanceolate, 7–10 × 3–6 mm, apex caudate or subulate-acuminate. Aggregate fruit orange-yellow, compressed globose, 1–1.2 cm in diam.; pyrenes rugose. Fl. May–Jun, fr. Jul–Aug. 2n = 14.*

- Roadsides, slopes, forests, rocky ravines; 600–3200 m. Anhui, Gansu, Shaanxi, Sichuan, Yunnan.

The fruit are eaten fresh and used for making jam, jelly, and wine. Whole, young plants are used in medicine.

57. Rubus simplex Focke, Hooker’s Icon. Pl., ser. 3, 10: t. 1948. 1890.

单茎悬钩子 dan jing xuan gou zi

Subshrubs low, 40–60 cm tall. Stems erect, brownish, woody, not branched, glabrous, rarely puberulous, with sparse, short curved prickles; flower bearing branchlets arising from creeping roots. Leaves imparipinnate, 3-foliolate; petiole 5–10 cm, petiolule of terminal leaflet to 1 cm; lateral leaflets subsessile or shorty petiolulate, puberulous, with sparse, curved prickles; stipules lanceolate or linear-lanceolate, 6–9 mm, puberulent, margin entire; blade of leaflets ovate to ovate-lanceolate, 6–9.5 × 2.5–5 cm, terminal leaflet slightly longer than lateral leaflets, abaxially pilose or with sparse, minute prickles only along veins, abaxially sparsely appressed pubescent, base subrounded, margin irregularly shortly serrate, apex acuminate. Inflorescences terminal or axillary, 3- or 4-flowered, rarely flowers solitary; bracts linear to lanceolate, 5–9 mm, puberulous. Pedicel 6–12 mm, puberulous, with curved minute prickles. Flowers 1.5–2 cm in diam. Calyx abaxially with sparse, curved minute prickles, finely pubescent; sepals narrowly triangular to ovate, 6–10 × 3–5 mm, margin tomentose, apex subulate-acuminate. Petals white, obovate, 4–6 mm in diam., nearly as long as sepals, finely pubescent, base shortly clawed. Stamens many, erect, shorter than petals; filaments broad, complanate. Pistils slightly shorter than stamens; apex of ovary and base of style pubescent. Aggregate fruit orange-red, globose, 7–9 mm in diam., often glabrous, with many drupelets; pyrenes rugose. Fl. May–Jun, fr. Aug–Sep. 2n = 14.*

- Slopes, roadsides, forests; 1500–2500 m. Gansu, Hubei, Jiangsu, Shaanxi, Sichuan.


红腺悬钩子 hong xiao xuan gou zi

Rubus asper Wallich ex G. Don var. myriadenus (H. Léveillé & Vaniot) Focke; R. asper var. myriadenus (H. Léveillé & Vaniot) Focke subvar. grandifoliotus (H. Léveillé) Focke; R. asper var. pekanicus Focke; R. dolichocephalus Hayata; R. indotibetanus Koidzumi; R. myriadenus H. Léveillé & Vaniot; R. myriadenus var. grandifoliotus H. Léveillé; R. rosifolius Smith subsp. sumatranus (Miquel) Focke; R. somae Hayata; R. sorbifolius Maximowicz; R. takasagoensis Koidzumi.

Shrubs erect or scendent. Branchlets brownish to dark reddish brown, cylindric, with long soft hairs, usually with scattered setose purplish red glandular hairs and curved prickles; glandular hairs and prickles unequal in length, glandular hairs to 4–5 mm, prickles to 8 mm. Leaves imparipinnate, to 15 cm, 5–7-foliolate, rarely 3-foliolate; petiole 3–5 cm, petiolule of terminal leaflet to 1 cm, lateral leaflets shortly petiolulate, petiolule and rachis short hairs, with intermixed glandular hairs, with curved minute prickles; stipules lanceolate or linear-lanceolate, 6–8 mm, with soft hairs and intermixed glandular hairs; blade of leaflets ovate-lanceolate to lanceolate, 3–8 × 1.5–3 cm, abaxially villous, with gland-tipped hairs and small prickles along midvein, adaxially villous especially along midvein, base rounded, margin irregularly sharply serrate to doubly serrate, sometimes 3-lobed on terminal leaflet, apex acuminate. Inflorescences terminal, corymbose, 4–7 cm, 3- to several flowered, rarely flowers solitary; rachis and pedicels villous, with intermixed glandular hairs, with minute prickles; bracts lanceolate or linear, 5–7 mm, with soft hairs and intermixed glandular hairs. Pedicel 2–3 cm. Flowers 1–2 cm in diam. Calyx abaxially with soft hairs, with intermixed unequal long gland-tipped hairs; sepals reflexed in fruit, lanceolate or oblong-lanceolate, 7–12 × 2–4 mm; apex long caudate. Petals white, narrowly obovate or ovate, slightly shorter than sepals, base clawed. Stamens many, shorter than petals. Pistils to 400; style and ovary glabrous; torus raised, oblong, base shortly stalked. Aggregate fruit orange-red, oblong, 1.2–1.8 cm × 7–11 mm, glabrous; pyrenes reticulate. Fl. Apr–Jun, fr. Jul–Aug. 2n = 14.

- Forests, forest margins, thickets, bamboo forests, grasslands; 700–2500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, Cambodia, N India, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Sikkim, Thailand, Vietnam].


黄腺悬钩子 hao ban xuan gou zi

Shrubs low, to 1 m tall. Branchlets dark brown to dark reddish brown, slender, pubescent, with intermixed dense glandular hairs, or glabrous, with sparse, straight to curved prickles to 4 mm. Leaves imparipinnate, to 20 cm, papery, usually 5–7-foliolate, sometimes 3-foliolate on flower bearing branchlets;
petiole 2–4 cm, petiolule of terminal leaflet 0.8–1.5 cm, lateral leaflets subsessile, petioloile and rachis densely soft hairy or glabrous, with intermixed glandular hairs and sparse, minute prickles; stipules lanceolate, 5–10 mm, pubescent, with intermixed glandular hairs; blade of leaflets variable in shape, terminal leaflet ovate-elliptic to ovate-lanceolate, 4–7 × 2–5 cm, apex acute to shortly acuminate, lateral leaflets elliptic or ovate, 2–5 × 1.5–3 cm, both surfaces with dense spreading soft hairs, glabrescent, usually with some small prickles along midvein abaxially, base cuneate or rounded to subcordate, apex obtuse or acute, lateral leaflets often oblique basally, margin unevenly serrate to doubly serrate, sometimes with glandular hairs. Inflorescences terminal on short lateral branchlets, corymbose, 1–to several flowered; pedicel and abaxial surface of calyx with glandular hairs, soft hairy or glabrous; bracts lanceolate, 4–8 mm, puberulous, with glandular hairs. Pedicel 2–3 cm, with few small prickles. Flowers 2–3 cm in diam. Calyx tube pelviform; sepals triangular-oblong or triangular-lanceolate, 0.7–1.5 cm × 4–6 mm, inner sepals tomentose at margin, margin entire, rarely divided, apex long caudate. Petals white, nearly orbicular or broadly ovate-elliptic, 0.8–1.4 × 0.7–1.3 cm, abaxially shortly hairy. Stamens many, shorter than petals; filaments linear. Pistils numerous, shorter than stamens; ovary to 1 mm, with sparse, soft hairs especially apically, usually with some stalked glands; styles ca. 1.5 mm. Aggregate fruit red at maturity, subglobose or ovoid, rarely ellipsoid, 1–1.5 cm in diam., with few glandular hairs; pyrenes foveolate. Fl. Mar–Apr, fr. May–Jun.

Forest clearings, forest margins, roadsides, landslides, river banks; sea level to medium elevations. Taiwan [Cambodia, India, Japan (Ryukyu Islands), Laos, Myanmar, Thailand, Vietnam].

1a. Branchlets, petioles, inflorescences, and abaxial surface of calyx soft hairy .................................  59a. var. croceacanthus
1b. Branchlets, petioles, inflorescences, and abaxial surface of calyx glabrous ......  59b. var. glaber

59a. Rubus croceacanthus var. croceacanthus

59b. Rubus croceacanthus var. glaber

60. Rubus hirsutus

Shrubs 1–2 m tall. Branchlets reddish brown or brown, terete, with soft hairs, stalked glands, and sparse, curved prickles. Leaves imparipinnate, 3–5-foliolate; petiole (0.5–)2–10 cm, petioloile of terminal leaflet to 2 cm, lateral leaflets shortly petiolulate, petioloile and rachis pubescent, with stalked glands and sparse prickles; stipules lanceolate or ovate-lanceolate, 6–10 × 2–3 mm, both surfaces pubescent, margin entire; blade of leaflets ovate or broadly ovate, 3–7 × 2–3.5 cm, both surfaces sparsely soft hairy, base broadly cuneate to rounded, margin irregularly sharply doubly serrate, apex acute, acuminate, or caudate. Inflorescences terminal or axillary, often 1-flowered; bracts lanceolate or linear, 4–7 mm, pubescent. Pedicel (1.5–)3–6 cm, pubescent, with stalked glands, or with few small needle-like prickles. Flowers 3–4 cm in diam. Calyx abaxially with dense soft hair and stalked glands; sepals reflexed after anthesis, ovate-lanceolate or triangular-lanceolate, 1–1.5 cm × 4–5 mm, margin gray tomentose, apex long caudate. Petals white, obovate or suborbicular, 1.2–1.8 cm × 7–12 mm, glabrous, base clawed. Stamens numerous, much shorter than petals. Pistils shorter than stamens; style and ovary glabrous. Aggregate fruit subglobose, 1–2 cm in diam., glabrous. Fl. Apr, fr. May–Jun. 2n = 14.

Slopes, roadsides, waste places, thickets, forested slopes; 900–3200 m. Anhui, Fujian, Guangdong, Henan, Hubei, Jiangsu, Jiangxi, Taiwan, Yunnan, Zhejiang [Japan, Korea].

The young plants and roots are used in medicine.

1a. Pedicel (2–)3–6 cm; petiole 2–3 cm, petioloile of terminal leaflet to 1 cm; apex of terminal leaflet acuminate, apex of lateral leaflets acute .................. 60a. var. hirsutus
1b. Pedicel 1.5–3 cm; petiole 5–10 cm, petioloile of terminal leaflet to 2 cm; apex of terminal and lateral leaflets acuminate to caudate .................. 60b. var. brevipedicellus

60a. Rubus hirsutus var. hirsutus

60b. Rubus hirsutus var. brevipedicellus
60. **Rubus glandulosocalycinus** Hayata, Icon. Pl. Formosan. 5: 42. 1915.

Shrubs scandent, ca. 1 m tall. Branchlets brownish to reddish brown, slender, pilose, glabrescent, with sparse, sharp prickles, with dense, purplish red stalked glands 2–5 mm. Leaves imparipinnate, 3–7-foliolate; petiole 2–3 cm, petioloide of terminal leaflet 5–10 mm, lateral leaflets subsessile, petioloide and rachis glabrous or sparsely pilose, with purplish red stalked glands and sparse prickles; stipules lanceolate or linear, 6–9 mm, margin with glandular hairs, sparsely pilose; blade of leaflets ovate-oblong or ovate-lanceolate, terminal leaflet 5.6 × 0.8–1.5 cm, lateral leaflets 1.5–3 × 0.6–1 cm, abaxially subglabrous, pilose, with stalked glands and with minute prickles along veins, adaxially sparsely pilose, base rounded to truncate, lateral leaflets oblique basally, margin incised-doubly serrate, apex acute to acuminate. Inflorescences terminal, corymbose, 3–5 cm, 1- or 2-flowered, rarely 3- or 5-flowered; rachis and pedicels subglabrous, with sparse prickles and stalked glands, rarely 2–5-flowered; rachis and pedicels glabrous, with unequal long stalked glands; bracts lanceolate, 6–10 mm, glabrous. Pedicel 2–4 cm. Flowers 3–4 mm in diam. Calyx abaxially glabrous; tube petaliform, ca. 1 cm in diam., with sparse, glandular hairs; sepals erect at anthesis, reflexed in fruit, oblong-lanceolate or narrowly ovate-lanceolate, 0.9–1.5 cm × 4.6 mm, inner sepals with gray tomentose margin, apex long caudate. Petals white, narrowly obovate or oblong, 0.9–1.4 cm × 6–8 mm, base clawed. Stamens unequally long, shorter than petals; filaments somewhat broadened and flattened. Pistils many, more than 100, shorter than stamens; style and ovary glabrous. Aggregate fruit red, subglobose, to 1.5 cm in diam., glabrous or with glandular hairs. Fl. Apr–May, fr. Jun–Jul. 2n = 14*.

- Slopes, foothills, river banks, forests, forest margins; 800–2500 m. Fujian, Guangdong, Guangxi, Guizhou, N Jiangxi, Sichuan, Yunnan, Zhejiang.

61. **Rubus hayatanus** Koidzumi.

Subshrubs to 50 cm tall. Branchlets brownish to reddish brown, slender, pilose, glabrescent, with sparse, sharp prickles, with dense, purplish red stalked glands 2–5 mm. Leaves imparipinnate, 3–7-foliolate; petiole 5–10 cm, petiolule of terminal leaflet to 2 cm; apex acute to acuminate. Pedicel 1.5–3 cm.

- Forested slopes; 900–1300 m. SE Anhui (Jixi Xian).


Shrubs scandent, ca. 1 m tall. Branchlets brownish, dark brown, or reddish brown, terete, slightly angled, glandular, with sparse prickles and stalked glands 1–2 mm. Leaves imparipinnate, (5–)7–9(–11)-foliolate, sometimes with 5 leaflets on flower bearing branchlets; petiole 4–7 cm, petioloide of terminal leaflet to 1 cm, lateral leaflets shortly petioloide or subsessile, petioloide and rachis glabrous, with sparse, stalked glands and minute prickles; stipules lanceolate, 1–1.4 cm, glabrous or puberulous, sometimes with sparse, shortly stalked glands; blade of leaflets lanceolate or ovate-lanceolate, 4.7 × 0.8–2 cm, both surfaces slightly pubescent when young, gradually glabrescent, abaxially with sparse, small prickles along midvein, base rounded, margin irregularly tenuously sharply serrate to doubly serrate, apex acuminate. Inflorescences terminal, corymbose, 4–6 cm, 3–5-flowered, rarely flowers solitary; rachis and pedicels glabrous, with unequal long stalked glands; bracts lanceolate, 6–10 mm, glabrous. Pedicel 2–4 cm. Flowers 3–4 cm in diam. Calyx abaxially glabrous; tube petaliform, ca. 1 cm in diam., with sparse, glandular hairs; sepals erect at anthesis, reflexed in fruit, oblong-lanceolate or narrowly ovate-lanceolate, 0.9–1.5 cm × 4.6 mm, inner sepals with gray tomentose margin, apex long caudate. Petals white, narrowly obovate or oblong, 0.9–1.4 cm × 6–8 mm, base clawed. Stamens unequally long, shorter than petals; filaments somewhat broadened and flattened. Pistils many, more than 100, shorter than stamens; style and ovary glabrous. Aggregate fruit red, subglobose, to 1.5 cm in diam., glabrous or with glandular hairs. Fl. Apr–May, fr. Jun–Jul. 2n = 14*.

- Slopes, foothills, river banks, forests, forest margins; 800–2500 m. Fujian, Guangdong, Guangxi, Guizhou, N Jiangxi, Sichuan, Yunnan, Zhejiang.

62a. **Rubus tsangii** var. tsangii

- Forested slopes in valleys, slopes, foothills, river banks; 800–2500 m. Fujian, Guangdong, Guizhou, Sichuan, Yunnan, Zhejiang.


- Forests in valleys, slopes, foothills, river banks; 800–2500 m. Fujian, Guangdong, Guizhou, Sichuan, Yunnan, Zhejiang.


Subshrubs erect, 20–45 cm tall. Stems cylindric, slightly angled, not or few branched, unarmed, with sparse, glandular hairs. Leaves imparipinnate, 5–7-foliolate, rarely 3-foliolate;
petiole 3–5 cm, petiolule of terminal leaflet 1–1.5 cm, petiolule of lateral leaflets ca. 3 mm, petiole and rachis pilose, glabrescent, with glandular hairs, sometimes with small prickles; stipules lanceolate, margin with sparse, short glandular hairs, entire; blade of leaflets ovate or ovate-oblong, rarely ovate-lanceolate, 2–6.5 × 1.7–3.5 cm, abaxially glabrous or pilose along veins, with pale glands, adaxially pilose, base obliquely sub-rounded, margin doubly serrate, apex acute to acuminate. Inflorescences terminal on lateral branchlets, sometimes corymbose, 2–4-flowered, rarely flowers solitary in leaf axis; rachis and pedicels with glandular hairs; bracts lanceolate, margin entire, or sparsely shortly glandular. Flowers 3–4 cm in diam. Calyx abaxially glabrous, with gland-tipped hairs; sepals 5(–7), lancelate or ovate-lanceolate, margin tomentose and entire, apex long caudate. Petals 5(–7), white, oblong, broadly ovate, or broadly obovate, glabrous. Stamens many, shorter than petals. Pistils ca. 80–100; ovary glabrous, with sparse, glandular hairs; torus villous, base with ca. 3 mm stalk. Aggregate fruit subglobose, less than 1 cm in diam., with sparse, gland-tipped hairs; pyrenes foveolate. Fl. Mar–May, fr. Jun–Jul.

64. Rubus rosifolius Smith, Pl. Icon. Ined. 3: 60. 1791.

空心泡 kong xin pao

Shrubs erect or climbing, 2–3 m tall. Branchlets grayish brown or dark reddish brown, terete, soft hairy or subglabrous, with straight to curved prickles and yellowish glands. Leaves imparipinnate, usually 5–7-foliolate; petiole 2–3 cm, petiolule of terminal leaflet 0.8–1.5 cm, lateral leaflets subpersistent, petiolo and rachis with soft hairs and sparse, minute prickles, sometimes subglabrous, with yellow glands; stipules linear or lanceolate to ovate-lanceolate, 0.8–1.2 cm × 1.5–3.5 mm, sparsely soft hairy; blade of leaflets ovate or ovate-elliptic to lanceolate, 4–7(–10) × 1.5–5 cm, both surfaces pilose, subglandular, with yellow glands, abaxially with sparse, minute prickles along midvein, base rounded, margin sharply incised with ± soft hairs and sparse, minute prickles, sometimes glandular; sepals erect before anthesis, reflexed after anthesis, triangular-lanceolate or ovate-lanceolate, 0.8–1.2(–1.4) cm × 4–6 mm, apex long caudate. Petals white, oblong, narrowly obovate, or suborbicular, 0.8–1.5 × 0.8–1.2 cm, abaxially shortly hairy, base clawed, apex obtuse. Stamens many, shorter than petals; filaments broad. Pistils to 2 mm, shorter than stamens; ovary glabrous, sometimes glandular; styles glabrous; torus shortly stalked. Aggregate fruit red, ovoid-globose or narrowly obovoid to oblong, 1–1.5 × 0.8–1.2 cm, glabrous, with few glands; pyrenes deeply foveolate. Fl. Apr–May, fr. Jun–Jul. 2n = 14*.

Mixed forests, grassy slopes, roadsides, landslides; low to medium elevations. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Cambodia, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Philippines, Sikkim, Thailand, Vietnam; Africa, Australia].

1a. Flowers double; branchlets, petioles, and pedicel ± prickly .................................. 64c. var. coronarius
1b. Flowers single; branchlets, petioles, and pedicel ± unarmed.

2a. Branchlets, petioles, and pedicel ± prickly .................................................................. 64a. var. rosifolius
2b. Branchlets, petioles, and pedicel unarmed ................................................................. 64b. var. inermis

64a. Rubus rosifolius var. rosifolius

空心泡（原变种） kong xin pao (yu an bian zhong)


Rubus rosifolius var. rosifolius

Rubus glandulosopunctatus Hayata; R. hirsutus Thunberg var. glabellus (Focke) Wuzhi; R. hopingensis Y. C. Liu & F. Y. Lu; R. minusculus H. Léveillé & Vaniot; R. parvirosiifolius Hayata; R. rosifolius var. polyphylarius Cardot; R. tagallus Chamisso & Schlechtendal; R. taiwanianus Matsumura; R. thunbergii Siebold & Zuccarini var. glabellus Focke.

Branchlets, petioles, and pedicel ± prickly. Flowers single.

Mixed forests, grassy slopes, roadsides, landslides; low to medium elevations. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Cambodia, NE India, Indonesia, Japan, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam; Africa, Australia].


无刺空心泡 wu ci kong xin pao

Branchlets, petioles, and pedicel unarmed. Flowers single.

Roadsides; 900–1000 m. E Jiangxi (Wuyi Shan).

64c. Rubus rosifolius var. coronarius (Sims) Focke, Biblioth. Bot. 17(Heft 72): 155. 1911.

垂瓣空心泡 chong ban kong xin pao

Rubus coronarius Sims, Bot. Mag. (Curtis) 43: t. 1783. 1815; R. rosifolius f. coronarius (Sims) Kuntze; R. rosifolius var. wuyishanensis Z. X. Yu.

Branchlets, petioles, and pedicel ± prickly. Flowers double, fragrant, 3–5 cm in diam.

Naturalized in Jiangxi, Shaanxi, Yunnan, and likely elsewhere [native to India, Indonesia, Malaysia, Nepal, Sikkim].

This variety, originally described from cultivated plants in England, is now occasionally cultivated for ornamental use throughout SE Asia (Fl. Bhutan 1(3): 562. 1987).


矮空心泡 ai kong xin pao

Subshrubs low, 0.4–1 m tall. Branchlets brown or reddish brown, soft hairy when young, gradually glabrescent, glandular, unarmed or with few small prickles. Leaves imparipinnate, 5-foliolate, rarely 7- or 3-foliolate; petiole 1–2.5(–3.5) cm, petiolule of terminal leaflet 4–6 mm, lateral leaflets subpersistent, petiolule and rachis puberulent, with sparse, minute prickles, glandu-
lar; stipules linear or lanceolate, 5–7 mm, sparsely glandular; blade of leaflets ovate-oblong or ovate-lanceolate, 1–3 × 0.7–1.2 cm, terminal leaflet larger than lateral leaflets, abaxially sparsely pubescent, glandular, adaxially dark green, sparsely stigose, especially along midvein, base cuneate to subrounded, margin coarsely incised-doubly serrate, apex acuminate on terminal leaflet, acute on lateral leaflets. Inflorescences terminal or lateral, 1-flowered; bracts lanceolate or linear, 2–4 mm, puberulent. Pedicel 2–3 cm, puberulent, sparsely glandular. Flowers 1.5–1.8 cm in diam. Calyx pubescent, glandular; tube pelviform; sepals reflexed, narrowly lanceolate, 5–8 × 2–3 mm, margin tomentose, apex acuminate. Flowers unknown. Aggregate fruit red, globose, small, 5–7 mm in diam., pubescent when young, glabrescent, glandular; pyrenes small, shallowly foveolate. Fl. spring, fr. Jun–Jul.

- Thickets along roadsides; 1000–1600 m. Fujian.


兰屿悬钩子 lan yu xuan gou zi

Rubus tagallus Chamisso & Schlechtendal var. lanyuensis (Chang) S. S. Ying.

Shrubs erect. Branches glabrous, with short prickles. Leaves imparipinnate, usually 3–5-foliolate; petiole 3–4 cm, sparsely villous, prickly; stipules linear-lanceolate, 0.8–1.2 cm, sparsely pilose; blade of leaflets ovate, 3–5 × 3–4 cm, veins raised abaxially, impressed adaxially, both surfaces glabrous or nearly so except sparsely villous at base, abaxially glandular, base cuneate to rounded, margin doubly serrate, apex acute. Inflorescences axillary racemes, few flowered. Pedicel 1–1.5 cm, glabrous. Flowers ca. 2 cm in diam. Calyx abaxially glabrous, glandular; tube cupular, 1.5–1.8 cm in diam.; sepals narrowly triangular, ca. 8 mm, apex shortly caudate. Petals white, orbicular-ovate, 6–7 mm. Filaments glabrous. Apex of ovary with few hairs. Fruit unknown.

- Near sea level. Taiwan (Lan Yu).


大红泡 da hong pao

Rubus eustephanos var. eustephanos

大红泡(原变种) da hong pao (yu an bian zhong)

Flower bearing branchlets or pedicel without gland-tipped hairs.

- Foothills, densely forested slopes, thicket; 500–2300 m. Guizhou, Hubei, Shaanxi, Sichuan, Zhejiang.

67b. Rubus eustephanos var. glanduliger

楊毛大红泡 yang mao da hong pao

Flower bearing branchlets or pedicel ± with glandular hairs.

- Slopes, forests, thicket; 700–2300 m. Sichuan.

68. Rubus fraxinifolius Hayata, Icon. Pl. Formosan. 5: 46. 1915.

悬钩子 xian gou zi

Rubus parvifraxinifolius Hayata; R. suzukianus Y. C. Liu & Yang.

Shrubs scandent. Branchlets brownish to reddish brown, flexuous, glabrous, with sparse, recurved prickles 3–4 mm. Leaves imparipinnate, 3–5(–7)-foliolate; petiole 3–4 cm, peti- lule of terminal leaflet 5–10 mm, petiule of lateral leaflets 2–3 mm, petiule and rachis glabrous or nearly so, with sparse, minute prickles; stipules linear to linear-lanceolate, 5–10 mm, margin entire; blade of leaflets lanceolate to ovate-lanceolate, 3–9 × 1.5–3 cm, papery, terminal leaflet usually longer than lateral leaflets, both surfaces glabrous, abaxially with sparse, minute prickles along midvein, adaxially sometimes slightly hisrate along veins, both rounded to subulate, margin unevenly serrate to doubly serrate, apex acute to acuminate. Inflorescences terminal or axillary, 1–2-flowered. Pedicel (1.5–)2–2.5 cm, glabrous or subglabrous. Flowers 2.3–4 cm in diam. Calyx cupular, ca. 8 mm in diam., glabrous, with few brown glands abaxially; sepals narrowly triangular, 1–1.3 cm × 5–7 mm, margin tomentose, apex caudate. Petals white, obovate, 1.2–1.9 × 1–1.5 cm, base clawed. Stamens many, shorter than petals; filaments broadened and flattened. Pistils numerous, slightly shorter than stamens when young; style and

- Along trails in broad-leaved forests, river valleys; 100–1000 m.
- E Taiwan.

69. Rubus delavayi Franchet, Pl. Delavay. 205. 1890.

三叶悬钩子 san ye xuan gou zi

Rubus duclosii H. Léveillé.

Shrubs erect, low, 0.4–1 m tall. Branchlets brownish or reddish brown, cylindrical, glabrous, with short curved prickles. Leaves imparipinnate, usually 3-foliolate; petiole 2–3 cm, peti- olole of terminal leaflet 5–8 mm, lateral leaflets sessile or sub- sessile, glabrous or pilose, with sparse, small prickles; stipules linear, 4–7 mm, puberulous when young, glabrescent; blade of leaflets lanceolate to narrowly lanceolate, 3–7 × 1–2 cm, both surfaces glabrous or abaxially with sparse, soft hairs and with minute prickles along midvein, base broadly cuneate to rounded, margin irregularly coarsely serrate, apex acuminate. Inflorescences terminal or axillary, 1-flowered, or with flowers in clusters of 2 or 3; bracts linear, smaller than stipules, puberulous or glabrescent. Pedicel 1–2 cm, puberulent or subgla- brous, with sparse, minute prickles. Flowers ca. 1 cm in diam. Calyx abaxially puberulous and with sparse, minute prickles; tube short, broad; sepals erect in fruit, triangular-lanceolate, 6– (8–)10 × 2–3 mm, apex long caudate. Petals white, obovate, shorter than sepals, puberulent, base prominently clawed. Stamens many, shorter than petals; filaments short, broad, puberu- lent. Pistils shorter than stamens; style and ovary glabrous. Ag- gregate fruit orange-red, globose, ca. 1 cm in diam.; pyrenes small, rugulose. Fl. May–Jun, fr. Jun–Jul.

- Mixed forested slopes; 2000–3400 m. Yunnan.

The dried fruit, seeds, and leaves are used in traditional Chinese medicine.


白花悬钩子 bai hua xuan gou zi

Rubus glaberrimus Champion ex Bentham; R. leucanthus var. paradoxus (S. Moore) F. P. Metcalf; R. leucanthus var. villosulus Cardot; R. paradoxus S. Moore.

Shrubs climbing, 1–3 m tall. Branchlets brown, glabrous, rarely angled, with sparse, curved prickles. Leaves imparipinnate, 3–5-foliolate; petiole 5–8 cm, peti- olole of terminal leaflet (0.5–)1–2 cm, lateral leaflets shortly petiolulate, glabrous or sparsely pilose, with small curved prickles; stipules lanceolate or linear- lanceolate, 7–10 mm, glabrous or slightly soft hairy; blade of leaflets narrowly elliptic to elliptic-lanceolate, 6–9 × 2–3 cm, terminal leaflet slightly longer than lateral leaflets, subherba- ceous, both surfaces glabrous, base cuneate, rarely subrounded, margin irregularly densely sharply minute serrate to incised-doubly serrate, apex acuminate to caudate. Inflorescences terminal or axillary, clusters of 2 or 3(–5) flowers, rarely flowers solitary in leaf axils; bracts lanceolate or linear-lanceolate, 6–8 mm, glabrous or slightly pilose. Pedicel 1.5–2.5 cm, glabrous. Flowers 1.3–1.5 cm in diam. Calyx abaxially puberulous; tube short, broad; sepals spreading or reflexed in fruit, ovate-lanceolate, 7–9 × 2–3.5 mm, inner sepals slightly tomentose margin- ally, apex long caudate. Petals white, oblong or elliptic, much longer than sepals, base clawed. Stamens many; filaments linear, basally slightly broader. Pistils shorter than stamens; style and ovary glabrous. Aggregate fruit ovoid-globose, 7–10 mm in diam., glabrous; pyrenes densely rugulose. Fl. Apr–May, fr. Jun–Jul.

- Broad-leaved evergreen forests; below 1600 m. SE Yunnan (Xi- chou Xian).


小柱悬钩子 xiao zhu xuan gou zi

Shrubs scandent, 1–2.5 m tall. Branchlets brown, glabrous or villous, with sparse, curved prickles. Leaves imparipinnate, 3-foliolate, those below inflorescences sometimes simple; petiole 2–4 cm, peti- olole of terminal leaflet 1–2 cm, lateral leaflets variable; shortly petiolulate, glabrous or villous, with sparse, minute prickles; stipules linear, 6–8 mm, glabrous, rarely puberulous; blade of leaflets elliptic to ovate- lanceolate, 3–10(–16) × 1.5–5(–6) cm, terminal leaflet much longer than lateral leaflets, subleathery, both surfaces glabrous or adaxially sparsely appressed pubescent, base rounded or sub- cordate, margin unevenly densely coarsely serrate, apex acumi- nate. Inflorescences terminal or axillary, compound, 6–8 cm, 3–7-flowered, sometimes flowers solitary in leaf axils at bases;
Herbs 0.5–1 m tall. Stems brown or reddish brown, cylindric, glabrous, with sparse, small prickles. Leaves simple; stipules linear, 8–10 mm, glabrous, margin entire; blade lanceolate or oblong-lanceolate, 10–22 × 2–5 cm, veins 9–12 pairs, raised abaxially, impressed adaxially, both surfaces glabrous, adaxially with sparse, small prickles along midvein, base rounded, margin sparsely sharply serrate, apex acuminate to caudate. Inflorescences terminal or axillary, 1-flowered. Pedicel 1.5–2.5 cm, glabrous, unarmed. Flowers to 1.5 cm in diam. Calyx abaxially glabrous; sepals reflex after anthesis, ovate-lanceolate or triangular-lanceolate, inner sepals yellowish gray tomentose at margin, apex acuminate or acute. Petals white, broadly obovate, shorter than sepals, adaxially puberulous, base shortly clawed. Stamens numerous, in many whorls, unequal in length; filaments broader. Pistils many, shorter than stamens; ovary soft hairy apiically; torus shortly stalked basally. Fl. May–June.

73a. Rubus paucidentatus var. paucidentatus

73b. Rubus paucidentatus var. guangxiensis


Subshrubs lianoid. Branchlets dark brown, cylindric, glabrous, with sparse, curved prickles or nearly unarmed. Leaves imparipinnate, usually 3-foliolate, sometimes simple on flower bearing branchlets; petiole 1.5–2.5 cm, petiolo of terminal leaflet ca. 1 cm, lateral leaflets subsessile or shortly petiolulate, glabrous, with sparse, minute prickles; stipules linear, small, glabrous; blade of leaflets narrowly lanceolate or oblong-elliptic to elliptic, terminal leaflet 7–14 cm, nearly 4 × as long as lateral leaflets, lateral leaflets (1.5) – 6 × 1–2.5 cm, both surfaces glabrous, base rounded, margin inconspicuously shallowly minute serrate or nearly entire, apex acuminate. Inflorescences often terminal, 1-flowered or in clusters of 2 or 3; bracts linear, minute, glabrous. Pedicel 1–1.5 cm, glabrous. Flowers 1.5–2 cm in diam. Calyx abaxially glabrous; sepals erect after anthesis, ovate-lanceolate or triangular-lanceolate, inner sepals yellowish gray tomentose at margin, apex acuminate or acute. Petals white, broadly obovate, shorter than sepals, adaxially puberulous, base shortly clawed. Stamens numerous, in many whorls, unequal in length; filaments broader. Pistils many, shorter than stamens; ovary soft hairy apiically; torus shortly stalked basally. Fl. Apr–May, fr. Jun–Jul.

72a. Rubus columellaris var. columellaris

72b. Rubus columellaris var. villosus

73a. Rubus paucidentatus var. paucidentatus

73b. Rubus paucidentatus var. guangxiensis


Subshrubs lianoid. Branchlets dark brown, cylindric, glabrous, with sparse, curved prickles or nearly unarmed. Leaves imparipinnate, usually 3-foliolate, sometimes simple on flower bearing branchlets; petiole 1.5–2.5 cm, petiolo of terminal leaflet ca. 1 cm, lateral leaflets subsessile or shortly petiolulate, glabrous, with sparse, minute prickles; stipules linear, small, glabrous; blade of leaflets narrowly lanceolate or oblong-elliptic to elliptic, terminal leaflet 7–14 cm, nearly 4 × as long as lateral leaflets, lateral leaflets (1.5) – 6 × 1–2.5 cm, both surfaces glabrous, base rounded, margin inconspicuously shallowly minute serrate or nearly entire, apex acuminate. Inflorescences often terminal, 1-flowered or in clusters of 2 or 3; bracts linear, minute, glabrous. Pedicel 1–1.5 cm, glabrous. Flowers 1.5–2 cm in diam. Calyx abaxially glabrous; sepals erect after anthesis, ovate-lanceolate or triangular-lanceolate, inner sepals yellowish gray tomentose at margin, apex acuminate or acute. Petals white, broadly obovate, shorter than sepals, adaxially puberulous, base shortly clawed. Stamens numerous, in many whorls, unequal in length; filaments broader. Pistils many, shorter than stamens; ovary soft hairy apiically; torus shortly stalked basally. Fl. Apr–May, fr. Jun–Jul.

72a. Rubus columellaris var. columellaris

72b. Rubus columellaris var. villosus

73a. Rubus paucidentatus var. paucidentatus

73b. Rubus paucidentatus var. guangxiensis


Subshrubs lianoid. Branchlets dark brown, cylindric, glabrous, with sparse, curved prickles or nearly unarmed. Leaves imparipinnate, usually 3-foliolate, sometimes simple on flower bearing branchlets; petiole 1.5–2.5 cm, petiolo of terminal leaflet ca. 1 cm, lateral leaflets subsessile or shortly petiolulate, glabrous, with sparse, minute prickles; stipules linear, small, glabrous; blade of leaflets narrowly lanceolate or oblong-elliptic to elliptic, terminal leaflet 7–14 cm, nearly 4 × as long as lateral leaflets, lateral leaflets (1.5) – 6 × 1–2.5 cm, both surfaces glabrous, base rounded, margin inconspicuously shallowly minute serrate or nearly entire, apex acuminate. Inflorescences often terminal, 1-flowered or in clusters of 2 or 3; bracts linear, minute, glabrous. Pedicel 1–1.5 cm, glabrous. Flowers 1.5–2 cm in diam. Calyx abaxially glabrous; sepals erect after anthesis, ovate-lanceolate or triangular-lanceolate, inner sepals yellowish gray tomentose at margin, apex acuminate or acute. Petals white, broadly obovate, shorter than sepals, adaxially puberulous, base shortly clawed. Stamens numerous, in many whorls, unequal in length; filaments broader. Pistils many, shorter than stamens; ovary soft hairy apiically; torus shortly stalked basally. Fl. Apr–May, fr. Jun–Jul.
1a. Aggregate fruit soft hairy, not long tomentose. 75c. var. *hubeiensis*

1b. Aggregate fruit densely long tomentose.

2a. Abaxial surface of calyx and pedicel glabrous.

3a. Leaves 3–5–foliolate; stipules and bracts 8–16 × 5–10 mm. 75a. Rubus *lasiostylus* var. *lasiostylus*

3b. Leaves 5–7–foliolate; stipules and bracts 8–10 × 4–5 mm. 75b. Rubus *lasiostylus* var. *dizygos*

2b. Abaxial surface of calyx and pedicel hairy.

4a. Abaxial surface of calyx pubescent and with sparse, minute prickles; pedicel pubescent, glandular, with sparse, minute prickles. 75d. Rubus *lasiostylus* var. *tomentosus*

4b. Abaxial surface of calyx densely long tomentose, unarmed; pedicel long tomentose, with sparse, minute prickles.
1a. Plants with stalked glands and minute or needle-like prickles ....................... 77a. var. pentagonus

77. Rubus pentagonus Wall. ex Focke, Biblioth. Bot. 17(Heft 72): 145. 1911.

掌叶悬钩子 zhang ye xuan gou zi

Shrubs scrambling, 1.5–3 m tall. Branchlets climbing, brownish to dark brown, slightly pubescent when young, later glabrous, with sparse prickles, often with stalked glands. Leaves palmately 3- or 5-foliolate; petiole 2–4 cm, sparsely pubescent, with stalked glands, leaflets sessile; stipules linear-lanceolate, 7–10 mm, puberulous, margin with stalked glands, margin entire or deeply 2-laciniate; blade of leaflets rhombic-lanceolate, 3–8(–11) × 1.5–4 cm, abaxially sparsely pubescent, adaxially pilose along veins, base cuneate, margin incised coarsely doubly serrate, apex acuminate to caudate. Inflorescences terminal, corymbose, 2–3 cm, 2- or 3-flowered or with flowers solitary in leaf axils; bracts linear-lanceolate, 6–9 mm, often with stalked glands, margin entire or 2- or 3-laciniate. Pedicel 1.5–2.5 cm, glabrous, with sparse, gland-tipped hairs and small prickles. Flowers to 2 cm in diam. Calyx glabrous, abaxially glandular pubescent, with minute prickles; sepals erect, spreading, lanceolate or ovate-lanceolate, 0.8–1.2(–3) cm × 5–8 mm, margin entire or 3-laciniate, inner sepals with tomentose margin, apex acuminate or ciliate. Petals white, elliptic or oblong, much shorter than sepals, base shortly clawed. Stamens many; filaments broad. Pistils 10–15, slightly shorter than stamens; style and ovary glabrous. Aggregate fruit red or orange-red, to 2 cm in diam., glabrous, enclosed in calyx; pyrenes reniform, to 4 mm, rugose. Fl. Apr–May, fr. Jun–Jul.

Mountainous areas; below 2000 m. Chongqing (Wushan Xian).


无刺掌叶悬钩子 wu ci zhang ye xuan gou zi

Leaves palmately 5-foliolate. Flowers less than 1.5 cm in diam. Sepals not more than 2 cm.

Forest margins on slopes, thickets, valleys; 1600–2800 m. Guizhou, Sichuan, Yunnan.


无腺掌叶悬钩子 wu xian zhang ye xuan gou zi

Leaves palmately 5-foliolate. Flowers less than 1.5 cm in diam. Sepals not more than 2 cm.

Forest margins on slopes, thickets, valleys; 1600–2800 m. Guizhou, Sichuan, Yunnan.


长萼掌叶悬钩子 chang e zhang ye xuan gou zi

Leaves palmately 3-foliolate. Flowers more than 1.5 cm in diam. Sepals 2–3 cm, apex long caudate.

Mixed forests on slopes, roadsides; 1500–2000 m. SE Yunnan (Pingbian Xian, Wenshan Xian).


五叶悬钩子 wu ye xuan gou zi

Shrubs scendent, ca. 1.5 m tall. Branchlets reddish brown to purplish brown when young, grayish brown in age, terete, soft hairy, glandobrescent, with sparse prickles. Leaves palmately 5-foliolate; petiole 2–4 cm; leaflets sessile or subsessile, soft hairy; stipules linear-lanceolate, 4–6 mm, puberulous, usually undivided; blade of leaflets elliptic-lanceolate or rhombic-lanceolate, 3–7 × 1–2.4 cm, terminal leaflet slightly longer than lateral leaflets, both surfaces soft hairy along veins, base cuneate, margin coarsely sharply serrate and doubly serrate, apex acuminate to ciliate. Inflorescences terminal on lateral branchlets, 1-flowered; bracts linear-lanceolate, 3–5 mm, puberulous, margin entire. Pedicel 2–3.5 cm, glabrous. Flowers 1.5–2 cm in diam. Calyx abaxially glabrous, unarmed or with sparse, nee-
Rosaceae

dele-like prickles; tube broadly pelviform; sepals erect, spreading, ovate-lanceolate or triangular-lanceolate, 8–10 mm, margin entire, rarely apically shallowly to 3-laciniate, inner sepals tomentose at margin, apex caudate. Petals white, ovate or elliptic, much shorter than sepals, puberulous, base slightly clawed. Stamens many, uniseriate; filaments broad, complanate. Pistils 10–15; ovary and base of style yellowish villous. Aggregate fruit red, semiglobose, 1–1.5 cm in diam., together with persistent styles villous, enclosed in calyx; pyrenes to 4 mm, rugose. Fl. Apr.–May, fr. May–Jun.

- Slopes, stream side forests, mixed forests on low ridges; 1600–2500 m. SW Guizhou (Anlong Xian), SW Yunnan (Shuangjiang Xian).


Shrub upright or climbing, 1–2 m tall. Branchlets reddish brown or brownish, cylindric, glabrous, with sparse prickles; prickles broad, flat, glaucous. Leaves simple; petiole 4–8 cm, glabrous, with minute prickles; stipules brownish, ovate or ovate-lanceolate, 1–1.5 cm × 7–10 mm, membranous, glabrous, margin entire; blade peltate, ovate-ombilicate, 7–17 × 6–15 cm, both surfaces appressed villous, abaxially with more dense small prickles along midvein, base cordate, margin palmately 3–5-lobed; lobes triangular-ovate, terminal lobe slightly longer than or as long as lateral leaflets, irregularly tenuous-serrate, apex acute to shortly acuminate. Inflorescences ca. 5 cm or more in diam., 1-flowered; bracts ovate or ovate-lanceolate, 7–12 × 4–7 mm, glabrous. Pedicel 2.5–4.5 cm, glabrous. Calyx tube cylindric, 3–4.5 × 1–1.5 cm, densely soft hairy; pyrenes rugose. Fl. Apr.–May, fr. Jun–Jul. 2n = 14.

Slopes, foothills, forest margins, ravines, moist waste places; 300–1500 m. Anhui, Guizhou, Hubei, Jiangxi, Zhejiang [Japan].

The edible fruit are used in medicine.


光果悬钩子 guang guo xuan gou zi

Shrubs 3 m tall. Branchlets brown or reddish brown, terete, slender, prickly; prickles basally broadened and flattened; young shoots brown-yellow to purplish red, with soft hairs and intermixed glandular hairs or glabrous. Leaves simple; petiole 1–2 cm, slender, with soft hairs and intermixed glandular hairs or glabrous, with minute prickles; stipules linear, 5–8 mm, pilose, with intermixed glandular hairs; blade narrowly ovate to ovate-lanceolate, 4–7 × 2–4.5 cm, both surfaces soft hairy, more densely so or with glandular hairs along veins, sparsely pilose in age, base somewhat cordate or subtruncate, margin 3–5-lobed or incised-lobed, irregularly doubly serrate or incised-serrate, with stalked glands, apex acuminate. Inflorescences terminal or axillary, 1-flowered, ca. 1.5 cm in diam. Pedicel 5–10(–15) mm, soft hairy or glabrous, with stalked glands. Calyx soft hairy, abaxially with stalked glands; tube campanulate; sepals lanceolate, 7–10 × 2–4 mm, apex caudate. Petals white, ovate-oblong or oblong, 8–10 × 4–7 mm, nearly as long as sepals, glabrous, apex obtuse or subacute. Stamens many, shorter than petals; filaments broad, complanate. Pistils shorter than stamens; ovary glabrous, with sparse, glandular hairs. Aggregate fruit red, ovoid-globose, 1(–2) cm in diam., glabrous or with sparse, stalked glands; pyrenes rugose. Fl. Mar.–May, fr. May–Jun.

- Slopes, bases of mountains, river banks, forests; low to medium elevations. Fujian, Jiangsu, Zhejiang.

80a. Rubus glabricarpus var. glabricarpus

光果悬钩子 var. guang guo xuan gou zi (yuan bian zhong)

Rubus corchorifolius Linnaeus f. var. neilloides Focke; R. neilloides (Focke) Migo.

Branchlets, petioles, and pedicel soft hairy, with stalked glands. Aggregate fruit ca. 1 cm in diam.

- Slopes, bases of mountains, river banks, forests; low to medium elevations. Fujian, Jiangsu, Zhejiang.

80b. Rubus glabricarpus var. glabratus

光果悬钩子 var. wu mao guang guo xuan gou zi

Rubus corchorifolius Linnaeus f. var. neilloides Focke; R. neilloides (Focke) Migo.

Branchlets, petioles, and pedicel soft hairy, with stalked glands. Aggregate fruit ca. 1 cm in diam.

- Slopes, bases of mountains, river banks, forests; low to medium elevations. Fujian, Jiangsu, Zhejiang.

81. Rubus corchorifolius Linnaeus f., Suppl. Pl. 263. 1782.

山莓 shan mei

Rubus althaeoides Hance; R. arisanensis Hayata; R. arisanensis var. horishaeensis Hayata; R. corchorifolius var. glaber Matsumura; R. corchorifolius var. oliveri (Miquel) Focke; R. corchorifolius f. roseolus Z. X. Yu; R. involucratus Focke; R. kerrifolius H. Léveillé & Vaniot; R. oliveri Miquel; R. otophorus Franchet; R. shinkoensis Hayata; R. suishaensis Hayata; R. vaniotii H. Léveillé & Vaniot; R. villosus Thunberg.

Shrubs erect, 1–3 m tall. Branchlets brownish or dark brown to blackish brown, cylindric, prickly, finely hairy, glabrescent. Leaves simple; petiole 1–2 cm, with dense fine, soft hairs when young, with sparse, minute prickles; stipules linear-lanceolate or linear, 5–7 mm, soft hairy; blade ovate to ovate-lanceolate, 5–12 × 2.5–5 cm, abaxially somewhat dark, densely finely pubescent when young, gradually glabrescent, subglabrescent, with sparse, small prickles along midvein, adaxially pale,
83. Rubus taitoensis

Fruit unknown. Fl. Apr–May.

84. Rubus trianthus

cm, pubescent, with minute prickles; stipules linear-lanceolate, 6–9 mm, slightly pubescent; blade broadly ovate or triangular-ovate, 6–8(–10) × 3.5–5(–7) cm, papery, 3–5-veined, abaxially pale, pubescent, with small prickles along veins, adaxially thinly pubescent especially along veins, finally glabrous, base slightly cordate to truncate, margin incised-serrate to doubly serrate, 3-parted near middle or not lobed, central lobe contracted and becoming entire toward base, apex acuminate, lateral leaflets ovate, apex acute. Inflorescences terminal or axillary, 1-flowered or flowers in clusters of 2 or 3; bracts linear, 5–7 mm, slightly pubescent. Pedicel 1–2 cm, pubescent. Flowers 1.8–2.8 cm in diam. Calyx campanulata, abaxially pubescent, with sparse, needle-like prickles; sepals triangular-lanceolate, 7–12 × 3–5 mm, apex long caudate. Petals white, broadly ovate, 7–9 × 6–8 mm, glabrous, base clawed. Stamens numerous, shorter than petals; filaments broad, complanate. Pistils shorter than stamens; styles to 4 mm, base long hairy. Aggregate fruit red at maturity, globose, 0.9–1.2 cm in diam., sparsely pubescent, finally glabrous; pyrenes rugulose. Fl. May–Jun, fr. Jul–Aug. 2n = 14*

● Mountainous regions; 1500–2800 m. Taiwan.

1a. Leaves 3-parted; petioles 1–2 cm ........ 83a. var. taitoensis
1b. Leaves not lobed; petioles 2–4 cm 

................................. 83b. var. aculeatiflorus

83a. Rubus taitoensis var. taitoensis
tai dong ci hua xuan gou zi (yuan bian zhong)

Rubus aculeatiflorus Hayata var. taitoensis (Hayata) Y. C. Liu & Yang, nom. illeg.

Leaves deeply 3-lobed; petioles 1–2 cm.

● Mountainous regions; 1500–2500 m. Taiwan.


刺花悬钩子 ci hua xuan gou zi


Leaves not lobed; petioles 2–4 cm.

● Mountains; 1500–2800 m. Taiwan.

84. Rubus trianthus

Focke, Biblioth. Bot. 17(Heft 72); 140. 1911.

三花悬钩子 san hua xuan gou zi

Rubus condruplicatus Dutth ex Hayata; R. incisus Thunberg var. condruplicatus (Dutth ex Hayata) Koidzumi; R. incisus var. formosanus (Cardot) Masamune; R. incisus subsp. koehneanus (Focke) Koidzumi; R. koehneanus Focke; R. koehneanus var. formosanus Cardot; R. retuinipetalus Hayata.

Shrubs scandent, 0.5–2 m tall. Branchlets brown or dark purplish to purplish black, terete, slender, glabrous, with few prickles to 5 mm and glaucous bloom. Leaves simple; petiole finely pubescent along veins, base somewhat cordate, sometimes subtruncate or subrounded, margin undivided or 3-lobed, usually 3-divided on sterile branches, irregularly sharply serrate to doubly serrate, apex acuminate. Inflorescences 1-flowered or few flowers terminal on short lateral branchlets. Pedicel (0.6–) 1–2 cm, finely pubescent. Flowers 1.5–2(–3) cm in diam. Calyx abaxially densely finely pubescent, unremarked; sepals ovate or triangular-ovate, 5–8 × 2.5–4 mm, apex acute to shortly acuminate. Petals white or pinkish, oblong or elliptic, 0.9–1.2 cm × 6–8 mm, longer than sepals, glabrous, base clawed, apex obtuse. Stamens much shorter than petals; filaments short, complanate. Pistils many, slightly shorter than stamens; ovary pubescent. Aggregate fruit of many drupelets, red, subglobose or ovoid-globose, 1–1.2 cm in diam., densely finely pubescent; pyrenes rugose. Fl. Feb–Apr, fr. Apr–Jun. 2n = 14.

Sunny slopes, stream sides, montane valleys, thickets, waste places; 200–2600 m. Anhui, Fujian, Gansu (except NE), Guizhou, Guangdong, Guangxi, Hainan, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Shandong, Shanxi, S Shaanxi (Qin Ling), Sichuan, Yunnan, Zhejiang, Xizang [Japa-
1a. Leaves often not divided .......................... 85a. var. grayanus
1b. Leaves usually 3-divided ....................... 85b. var. trilobatus

85a. Rubus grayanus var. grayanus

中南悬钩子(原变种) zhong nan xuan gou zi (yuan bian zhong)

Leaves often undivided, sometimes 3–5-lobed only on sterile branchlets.

Slopes, sunny areas, montane valleys, thickets, mixed forests along water courses; 500–1100 m. Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Zhejiang [Japan].


三裂中南悬钩子 san lie zhong nan xuan gou zi

Leaves usually 3-lobed; lobes triangular-ovate, terminal lobe ca. more than 2 × as long as lateral leaflets.

- Slopes; 300–700 m. C and N Fujian (Chong’an Xian, Sha Xian), Zhejiang.


九仙莓 jiu xian mei

Shrubs scrambling or sub erect, 1–2(–3) m tall. Branches brown or dark brown, glabrous; anotinous branchlets brownish, glabrous, with sparse, curved prickles. Leaves simple; petiole 1.5–2.5 cm, glabrous, sometimes with sparse, small stalked glands; stipule linear or linear-lanceolate, 6–8 mm, glabrous; blade ovate or oblong to oblong-lanceolate, 6–12(–14) × 3.5–4.5(–6) cm, abaxially pale gray or somewhat purplish red, sometimes with sparse, slender prickles along midvein, adaxially usually green, glabrous except puberulous at base of midvein, base cordate to deeply cordate, basal incision sometimes narrow and deep forming overlapped incised margin, margin serrate, apex acuminate or abruptly with a 1–2 cm point. Inflorescences terminal or axillary, 1-flowered; bracts similar to stipules, but smaller. Pedicel 0.8–1.8 cm, glabrous. Calyx abaxially glabrous; sepal triangular-lanceolate, 6–8 mm, glabrous or with sparse, minute stalked glands, apex caudate. Petals spreading, white, longer than sepals. Stamens many. Pistils numerous, densely gray tomentose. Aggregate fruit pale golden, subglobose; pyrenes reniform, ca. 1.5 mm, alveolate. Fl. spring, fr. spring–summer.

- Thickets at forest margins; 700–1600 m. S Fujian (Dehua Xian, Shanghang Xian).


牛叠肚 niu die du

Rubus amplexophyllus H. Léveillé; R. crataegifolius f. flavescens Skvortsov; R. davidianus Kuntze; R. ouensanensis H. Léveillé & Vaniot; R. wrightii A. Gray.

Shrubs erect, 1–2(–3) m tall. Branchlets brown or reddish brown, angular, thinly pubescent when young, gradually glabrous, with slightly curved prickles. Leaves simple; petiole 2–5 cm, pilose, with minute prickles, stipules linear, 6–8 mm, thinly pubescent or subglabrous; blade ovate to narrowly ovate, 5–12 × 5–8 cm, palmately 5-veined, abaxially pubescent and with
minute prickles along veins, adaxially subglabrous, base cordate or subtruncate, margin palmately 3–5-lobed; lobes ovate or narrowly obovate, terminal lobe usually acuminate, lateral leaflets acute, irregularly incised-serrate. Inflorescences terminal, rarely axillary, short racemes or flowers several in cluster, 3–5 cm; bracts linear, 4–7 mm, slightly pubescent. Pedicel 5–10 mm, pubescent. Flowers 1–1.5 cm in diam. Calyx abaxially thinly pubescent, subglabrous in fruit; sepals ovate-triangular or ovate, 6–9 × 3–5 mm, apex acuminate. Petals white, elliptic or obovate, 7–9 × 4–5 mm, base puberulous and long clawed, margin erose or slightly undulate. Stamens erect, much shorter than petals; filaments broad, complanate. Pistils numerous, slightly shorter than stamens; style and ovary glabrous. Aggregate fruit yellow to dark red, subglobose, ca. 1 cm in diam., glabrous, lustrous; pyrenes rugose. Fl. May–Jun, fr. Jul–Sep. 2n = 14*, 21*, 28*.

Sunny thickets on slopes, forest margins, ravines, roadsides; 300–2500 m. Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Shandong, Shanxi [Japan, Korea, E Russia].


掌叶覆盆子 zhang ye fu pen zi

Shrubs lianoid, 1.5–3 m tall. Branchlets green when young, reddish brown in age, cylindric, slender, glabrous, with sparse prickles 5–6 mm and glaucous bloom. Leaves simple; petiole green, 2–4 cm, slightly pubescent or glabrous, with sparse prickles 5–6 mm; stipules green, linear-lanceolate, 7–10 mm, puberulous or glabrous; blade suborbicular, 5–11(–16) × 5–13(–18) cm, palmately (3–)5–7-veined, both surfaces pubescent or subglabrous, base cordate, margin usually palmately (3–)5(–8)-lobed; lobes elliptic to rhombic-lanceolate, terminal lobe slightly longer than lateral lobes, lobes contracted toward base, doubly serrate, apex acuminate to caudate. Inflorescences terminal on short branchlets, 1-flowered. Pedicel 2–3.5(–4) cm, usually glabrous. Flowers 2.5–4(–5) cm in diam. Calyx somewhat green or purplish red, abaxially densely pubescent; tube broadly pelviform; sepals narrowly ovate to ovate-oblong, 7–10 × 4–6 mm, apex acute to shortly acuminate, abruptly long pointed. Petals white, elliptic or ovate-oblong, rarely obovate, 1–1.5(–2.5) × 0.7–1.5 cm, glabrous, base shortly clawed, apex obtuse. Stamens many in 3 whorls, unequal in length, shorter than petals; filaments broad, complanate. Pistils numerous, shorter than longer stamens, nearly as long as shorter ones; ovary densely gray pubescent. Aggregate fruit red, subglobose, 1.5–2 cm in diam., densely gray pubescent; pyrenes rugose. Fl. Mar–Apr, fr. May–Jun. 2n = 14.

Slopes, broad-leaved evergreen forests on hills, coniferous forests, thickets, roadsides; below 500–1000 m. Anhui, Fujian, Guangxi, Jiangsu, Jiangxi, Zhejiang [Japan].

The specific epithet honors the collector of the type specimen, R. C. Ching, although it was misspelled “chungii” in the protologue. Hu later corrected it to “chingii” (J. Arnold. Arbor. 7: 70. 1926).

The very sweet fruit are eaten fresh and are also used for making jam, jelly, and various drinks, including wine. The fruit, roots, and leaves are used in medicine.

1a. Leaves palmately 5-parted, rarely 3- or 7-parted; flowers 2.5–4 cm in diam.; petals 1–1.5(–2) cm .................................. 88a. var. chingii

1b. Leaves palmately 5–7-parted, rarely 6- or 8-parted; flowers 3–5 cm in diam.; petals 1.4–2.5 cm .................................. 88b. var. suavissimus

88a. Rubus chingii var. chingii

掌叶覆盆子(原变种) zhang ye fu pen zi (yuan bian zhong)

Rubus officinalis Koidzumi; R. palmatus Hemsley (1887), not Thunberg (1784).

Leaves palmately 5-parted, rarely 3- or 7-parted. Flowers 2.5–4 cm in diam. Petals 1–1.5(–2) cm.
Slopes, shaded thickets, roadsides; low to medium elevations. Anhui, Fujian, Guangxi, Jiangsu, Jiangxi, Zhejiang [Japan].

Further study is required to determine the identity of *Rubus setomentatus* H. L. Li (J. Arnold Arbor. 26: 62. 1945), described from Guangxi, which might be synonymous with *R. chingii* var. *chingii*.


甜茶  tian cha

Leaves palmately 5–7-parted, rarely 6- or 8-parted. Flowers 3–5 cm in diam. Petals 1.4–2.5 cm.

- Broad-leaved evergreen forests on hills, coniferous forests, thickets; 500–1000 m. EC Guangxi (Guiping Xian, Jinxia Xian).

The leaves are rich in sugar and are used to make a sweet tea in S China.


掌绿莓组  chang lu mei zu

Shrubs evergreen, prickly. Leaves usually ternate, sometimes pedately or palmately quinquately compound, rarely simple, leathery; stipules mostly adnate to base of petiole, rarely free and on twig near petiole base. Flowers bisexual, forming large cymose panicles. Aggregate fruit separating from torus, or adnate to torus and separating from base of torus at maturity, hollow or not.

One species in China.


光亮悬钩子  guang liang xuan gou zi

Shrubs evergreen, scandent, ca. 4 m tall. Branchlets thinly pubescent or subglabrous, becoming glabrescent, with minute prickles. Leaves ternately-pinnately compound, 3-foliate; petiole 4–10(–15) cm, petiolule of terminal leaflet 1.5–3 cm, lateral leaflets shortly petiolulate, thinly pubescent or subglabrescent, with sparse prickles; stipules caducous, linear or lanceolate, 5–7 mm, thinly pubescent; blade of leaflets ovate, broadly elliptic, or ovate-lanceolate, 8–13 × 4–7 cm, leathery, lateral veins 8–10 pairs, adaxially shiny, both surfaces glabrous or thinly pubescent only along veins, base rounded or broadly cuneate, margin sparsely shallowly sharply serrate, apex caudate. Inflorescences terminal or axillary, cymose panicles, terminal ones 15–30 cm, lateral ones shorter; rachis and pedicels thinly pubescent; bracts linear or lanceolate, 4–6 mm, puberulous. Pedicel ca. 1 cm. Calyx abaxially thinly soft hairy; tube pelviform; sepals erect in fruit, oblong, 4–6 × 2–3 mm, margin thinly gray tomentose, apex obtuse, abruptly pointed. Petals white or pink, obovate, nearly as long as sepals. Stamens usually 20–40, sometimes to more than 70, shorter than petals; filaments linear. Pistils 10 to more than 20, shorter than stamens; ovary soft hairy. Aggregate fruit subglobose, less than 1 cm in diam., glabrous or slightly soft hairy, enclosed in calyx; pyrenes coarsely rugose. Fl. Jun–Aug, fr. Oct–Dec.

Montane valleys, ravines, forests, thickets; 600–3000 m. S Yunnan [India, Indonesia, Philippines].

3. Rubus sect. Rubus

悬钩子组  xuan gou zi zu

Shrubs deciduous, usually prickly. Leaves ternate, papery, pedately or palmately quinquately compound, rarely septernately compound, occasionally simple; stipules persistent, mostly adnate to base of petiole, rarely free and on twig near petiole base, narrow, undivided. Flowers bisexual, forming cymose panicles and subracemes, or several in clusters, or solitary. Aggregate fruit adnate to torus, separating from base of torus, rarely separating from torus at maturity, not or rarely hollow.

One species in China.


欧洲木莓  ou zhou mu mei

Shrubs scandent, to 1.5 m tall. Branchlets yellow-green to brownish, glabrous or puberulous, glaucous and with unequal long prickles. Leaves ternately-pinnately compound; petiole 4–7 cm, petiolule of terminal leaflet 1–2.5 cm, lateral leaflets subsessile, thinly pubescent, with minute prickles, sometimes with intermixed shortly stipitate glands; stipules lanceolate or elliptic-lanceolate, 6–10 × 2–3 mm, pubescent, margin sparsely stipitate glandular; blade broadly ovate or rhombic-ovate, 4–7 × 3–7 cm, both surfaces puberulous, base rounded to truncate, margin incised, coarsely sharp doubly serrate, often 3-lobed, apex acute. Inflorescences terminal or axillary, corymbose or short racemes, several to more than 10-flowered, terminal ones to 14 cm, with more flowers, axillary ones shorter, few flowered; rachis and pedicels pubescent, with minute prickles, sometimes with intermixed shortly stipitate glands; bracts broadly lanceolate, 5–8 × 1–2 mm, pubescent or shortly stipitate gland
ular. Pedicel 1–1.5 cm. Flowers to 2 cm in diam. Calyx abaxially pubescent, with minute prickles; tube short, pelviform; sepals usually erect, ovate-lanceolate, 6–8 × 3–5 mm, apex acuminate. Petals white, broadly elliptic or broadly oblong, nearly as long as or slightly longer than sepals, glabrous, base shortly clawed. Stamens many, shorter than petals; filaments linear.

Pistils nearly as long as or slightly shorter than stamens; style and ovary glabrous. Aggregate fruit black, subglobose, ca. 1 cm in diam., glabrous. Fl. Jun–Jul, fr. Aug.

Forests in montane valleys, ravines, river banks; 1000–1500 m. Xinjiang [Russia; SW Asia, Europe, North America].


木莓组

Shrubs, rarely subshrubs or herbs, often prickly. Leaves simple, rarely palmately or pedately compound, 3–5-foliolate; stipules caducous or persistent, free, on twig near base of petiole, broader, rarely narrower, serrate, lobed or dissected, occasionally not divided. Flowers usually bisexual, rarely unisexual, in cymose panicles, subracemes, or corymbs, rarely flowers several in clusters or solitary. Aggregate fruit adnate to torus, separating from base of torus at maturity, not hollow.

Ninety-two species (71 endemic) in China.

1a. Terminal inflorescences simple racemes or flowers solitary.

2a. Flowers solitary, rarely in clusters of 2 or 3, terminal or axillary.

3a. Leaves compound, 3-foliolate, both surfaces sparsely soft hairy.

4a. Plants with stalked glands; lateral leaflets suborbicular or ovate; flowers 3–4 cm in diam.; pedicel 3–4 cm; pistils numerous .............................................................. 179. R. wardii

4b. Plants without stalked glands; lateral leaflets ovate or elliptic; flowers 1–1.5 cm in diam.; pedicel ca. 1 cm; pistils not numerous .............................................................. 180. R. metoensis

3b. Leaves simple, glabrous or adaxially sparsely pubescent and abaxially tomentose.

5a. Leaves leathery, both surfaces glabrous, margin subentire or sparsely serrulate, base rounded to subtruncate; petioles 0.5–1 cm; aggregate fruit ovoid-globose, densely thinly gray pubescent .......... 181. R. jambosoides

5b. Leaves not leathery, adaxially sparsely pubescent, abaxially tomentose, margin aristate-serrate, base deeply cordate to subauriculate; petioles 2–2.5 cm; aggregate fruit globose, glabrous at maturity .......... 182. R. lohfaenus

2b. Terminal inflorescences simple racemes; leaves palmately compound, 3–5-foliolate, or simple.

6a. Leaves palmately compound, 3–5-foliolate.

7a. Stipules and bracts palmately parted; leaflets sharply serrate; soft hairs of stamens deciduous in age .............................................................. 160. R. playfairianus

7b. Stipules and bracts usually entire or only apically serrate; leaflets sparsely minute serrate; soft hairs of stamens persistent in age .............................................................. 161. R. bambusarum

6b. Leaves simple.

8a. Leaves deeply divided.

9a. Leaves lobes lanceolate or narrowly oblong, margin sparsely minute sharply serrate; inflorescences and calyx without glandular hairs, or only abaxial surface of calyx with sparse, glandular hairs; aggregate fruit black .................................................. 162. R. henryi

9b. Leaf lobes elliptic or oblong, margin densely coarsely sharply serrate; inflorescences and calyx with sparse, glandular hairs; aggregate fruit red .................................................. 163. R. huangpingensis

8b. Leaves undivided or lobed.

10a. Inflorescences stipitate glandular.

11a. Stipules and bracts palmatipartite nearly to base, late caducous; inflorescences and abaxial surface of calyx villous, with sparse, needle-like prickles ......................................... 170. R. refractus

11b. Stipules and bracts entire or toothed, caducous; inflorescence and calyx with stipitate glands and needle-like prickles.

12a. Leaves leathery, undivided, abaxially yellowish brown to rust colored tomentose; inflorescences and calyx with stipitate glands, with intermixed needle-like prickles ................................ 164. R. dannii

12b. Leaves not leathery, undivided or lobed, abaxially gray to rust colored tomentose; inflorescences and calyx with unequal stipitate glands and needle-like prickles.

13a. Abaxial surface of leaves rust colored tomentose.

14a. Leaves lanceolate to elliptic-lanceolate, base rounded to truncate, rarely shallowly cordate, not divided; abaxial surface of calyx tomentose; aggregate fruit dark red ........................................ 168. R. gressittii

14b. Leaves ovate to ovate-lanceolate, base cordate, lobed or undulate; abaxial surface of calyx tomentose-villosus; aggregate fruit black ...................................................... 169. R. lichuanensis

13b. Abaxial surface of leaves gray to yellowish gray tomentose.

15a. Leaves cordate at base, broadly ovate, lobed; inflorescences and abaxial surface of calyx with glandular hairs 2–4 mm, with needle-like prickles ........................................ 167. R. hanceanus
15b. Leaves rounded or truncate to shallowly cordate at base, undivided; inflorescences and calyx with glandular hairs 1–2 cm, unarmored.
16a. Hairs of leaves of fruiting branchlets deciduous in age; sepals ovate or triangular-ovate ...... 165. R. swinhoei
16b. Hairs of leaves of fruiting branchlets persistent in age; sepals lanceolate or triangular-lanceolate .................................................................................................................... 166. R. doyonensis
10b. Inflorescences not stipitate glandular.
17a. Abaxial surface of leaves glabrous, or slightly hairy only along veins; terminal inflorescences corymbose racemes ................................................................................................. 178. R. kawakamii
17b. Abaxial surface of leaves tomentose; terminal inflorescences racemes.
18a. Leaves not leathery, abaxially gray or yellowish gray tomentose, coarsely sharply serrate.
19a. Aggregate fruit red; pedicel 1.5–3.5 cm; outer sepals apically laciniate, inner sepals entire; leaves basally subtruncate to shallowly cordate; stamens with few hairs only on anthers ...... 175. R. hemithyrsus
19b. Aggregate fruit purplish black; pedicel 0.7–1.5 cm; outer and inner sepals entire; leaves basally subrounded to subtruncate; stamens villous or glabrous.
20a. Leaves narrowly obovate or broadly ovate-lanceolate to narrowly lanceolate, base rounded to subtruncate; stamens glabrous or anthers slightly villous; styles ca. as long as or slightly longer then stamens ..................................................................................................................... 176. R. preptanthus
20b. Leaves elliptic or oblong-elliptic, base subrounded; stamens villous; styles much longer than stamens ........................................................................................................................... 177. R. malifolius
18b. Leaves leathery, abaxially densely yellowish to rust colored tomentose, minutely shallowly serrate.
21a. Pedicel and abaxial surface of calyx with dense, needle-like prickles; leaves abaxially yellowish brown tomentose ........................................................................................................ 171. R. fujianensis
21b. Pedicel and abaxial surface of calyx unarmed; leaves abaxially rust colored or yellowish tomentose.
22a. Aggregate fruit black at maturity; leaves abaxially rust colored tomentellate, lateral veins 5–8 pairs; style villous .................................................................................................................. 174. R. caudifolius
22b. Aggregate fruit red at maturity; leaves abaxially densely yellow or yellowish brown tomentose, lateral veins 7–11 pairs; styles glabrous or villous.
23a. Leaves densely yellowish brown tomentose abaxially, lateral veins 8–11 pairs; petioles 0.8–1.5 cm; styles and ovary glabrous ....................................................................................................................... 172. R. oblongus
23b. Leaves densely yellowish brown tomentose abaxially, lateral veins 7–9 pairs; petioles 1.5–3 cm; styles and apex of ovary hairy ........................................................................................................ 173. R. liui
1b. Terminal inflorescences cymose panicles or subracemes, rarely corymb, or flowers several or solitary.
24a. Leaves palmately compound, 3–5-foliolate, rarely simple.
25a. Leaflets pinnately veined with (20–)30–50 pairs of lateral veins, abaxially densely sericeous; stipules and bracts not lobed ........................................................................................................ 91. R. lineatus
25b. Leaflets reticulately veined, lateral veins few; abaxially tomentose or pilose; stipules and bracts palmately divided or not.
26a. Abaxial surface of leaflets tomentose; stipules and bracts 5–10 mm, palmately divided .............. 92. R. cochichinensis
26b. Abaxial surface of leaflets pilose; stipules and bracts leaflike, 20–35 mm, not divided, serrate ....... 93. R. foliaceistipulatus
24b. Leaves simple.
27a. Stipules and bracts broader, usually 2–5 × 1–2 cm, rarely smaller, divided or serrate.
28a. Leaves abaxially glabrous except soft hairy along veins, lobed; stipules broadly to narrowly ovate, 2–3 cm ........................................................................................................................................ 159. R. wangi
28b. Leaves abaxially densely tomentose or sericeous-villous, undulate, inconspicuously lobed or lobed; stipules oblong lanceolate, suborbicular, broadly ovate, to oblong, 1.5–5 cm.
29a. Leaves abaxially densely sericeous-villous, undulate or 3–5-lobed; flowers solitary or in clusters of 2 or 3 ........................................................................................................................................ 158. R. crassifolius
29b. Leaves abaxially tomentose, with narrow caudate lobes above middle or with broad obtuse or acute lobes; terminal inflorescences narrow cymose panicles or subracemes.
30a. Stipules oblong-lanceolate, 2–4(–5) cm; leaves elliptic or ovate-elliptic, rarely suborbicular, with irregular narrow caudate lobes above middle; inflorescences and calyx gray tomentose .............. 154. R. yiwuanus
30b. Stipules broadly ovate or oblong, 1.5–3 cm; leaves suborbicular or broadly ovate to narrowly ovate, with broad obtuse or acute lobes; inflorescences and calyx villous or tomentose.
31a. Leaves broadly ovate to narrowly ovate, abaxially gray tomentose, apically acuminate, margin inconspicuously lobed; inflorescences and calyx with soft hairs ........................................................................ 157. R. pacificus
31b. Leaves suborbicular or broadly ovate, abaxially with gray, yellowish gray, or yellowish brown hairs, apically acute or obtuse, margin undulate to lobed; inflorescences villous or tomentose.
27b. Stipules and bracts narrower, less than 2 × 1 cm, rarely broader, divided and entire.

33a. Leaves abaxially ± soft hairy, rarely glabrous.

34a. Subshrubs, nearly creeping, villous; inflorescences subracemes, several-flowered; leaves cordate at base ................................................................. 153. R. hypopitys

34b. Shrubs climbing or upright, taller; inflorescences cymose panicles or subracemes, many flowered, rarely few flowered; leaves rounded, subtruncate, or cordate at base.

35a. Leaves rounded or subtruncate, rarely shallowly cordate at base.

35b. Leaves cordate at base.

36a. Plants densely yellow glandular; inflorescences minutely soft hairy; abaxial surface of calyx subglabrous ................................................................. 138. R. taronensis

36b. Plant without glands; inflorescences pubescent or glabrous; abaxial surface of calyx pubescent or glabrous.

37a. Leaves basally truncate to subcordate.

37b. Leaves basally rounded.

38a. Leaves, inflorescences, and abaxial surface of calyx thinly pubescent; leaves broadly ovate or narrowly obovate; sepals undivided; petals soft hairy on both surfaces ................................................................. 143. R. yunnanica

38b. Plants not glandular; leaves narrowly to broadly ovate; sepals undivided or pinnately laciniate; petals slightly pubescent or glabrous.

39a. Petioles to 1 cm; inflorescences and abaxial surface of calyx pubescent; carpels 5–10 (–17) .... 139. R. piriformis

39b. Petioles (0.7–1)–2 cm; inflorescences and abaxial surface of calyx glabrous or soft hairy; carpels more, usually more than 10, to many.

40a. Petioles 1–2 cm; leaves ovate-oblong or lanceolate, margin sparsely minute sharply serrate; inflorescences and abaxial surface of calyx glabrous ............................................. 140. R. acuminatus

40b. Petioles 0.7–1 cm; leaves oblanceolate, margin coarsely sharply serrate; inflorescences and abaxial surface of calyx soft hairy ................................................ 141. R. brevipespinatius

41a. Terminal inflorescences large lax cymose panicles.

41b. Terminal inflorescences narrow cymose panicles or subracemes.

42a. Plants glandular, leaves broadly ovate or narrowly obovate, sepals undivided; petals soft hairy on both surfaces ................................................................. 144. R. forrestianus

42b. Plants not glandular; leaves narrowly to broadly ovate, sepals undivided or pinnately laciniate; petals slightly pubescent or glabrous.

43a. Leaves narrowly ovate; pedicel 1–2 cm; sepals ovate or ovate-triangular, outer sepals pinnately laciniate; petals slightly pubescent ................................................................. 145. R. laxus

43b. Leaves broadly ovate, rarely oblong-ovate; pedicel 0.5–1 cm; sepals ovate-lanceolate or triangular-lanceolate, undivided; petals glabrous ................................................ 146. R. lambertianus

44a. Abaxial surface of calyx with needle-like prickles.

44b. Abaxial surface of calyx without needle-like prickles.

45a. Leaves 6–9 × 5–7 cm; pedicel less than 1 cm; sepals broadly ovate, outer sepals pinnately divided; aggregate fruit 1–1.2 cm in diam. ................................................ 147. R. calycacanthus

45b. Leaves 10–17 × 15–20 cm; pedicel 1.5–2.5 cm; sepals lanceolate or ovate-lanceolate, outer sepals apically 2- or 3-laciniate; aggregate fruit 1.4–1.8 cm in diam. .......................... 148. R. gongshanensis

46a. Plants usually without stalked glands, villous; leaves oblong to ovate-oblong; stipules 6–9 mm, deeply divided ................................................................. 152. R. howii

46b. Plants usually with stalked glands, soft hairy or glabrous; leaves lanceolate to ovate or broadly oblong.

47a. Plants with stalked glands, soft hairs, and bristles; leaves narrowly ovate or broadly oblong; petiole 2–3 cm; stipules deeply pinnate-laciniate ........................................ 149. R. menglaensis

47b. Plants soft hairy or glabrous, with sparse, stalked glands; leaves lanceolate, ovate-lanceolate or oblong-lanceolate; petiole 1–4 cm; stipules subulate or linear-lanceolate to oblong-lanceolate, margin entire and palmatifid.

48a. Leaves ovate-lanceolate, base deeply cordate, basal incision broad; stipules subulate or linear-lanceolate, margin entire ................................................ 150. R. ichangensis

48b. Leaves lanceolate or oblong-lanceolate, base cordate-auriculate, basal incision narrow; stipules oblanceolate or ovate-lanceolate, palmatifid .......................... 151. R. latourillartius
33b. Leaves abaxially densely tomentose.

49a. Leaves narrow, ovate-oblong or ovate-lanceolate to lanceolate, not divided, rarely lobed basally, pinnately veined; petioles 0.5–2(–4) cm.

50a. Leaves basally rounded to shallowly cordate; petioles 0.5–1.5 cm; plants with or without stalked glands.

51a. Plants without stalked glands; petioles 1–1.5 cm; leaves oblong-lanceolate, abaxially densely yellow or grayish yellow tomentose ................................................................. 96. *R. xichouensis*

51b. Plants wholly or partly with stalked glands; petioles 0.5–0.8 cm; leaves lanceolate or oblong, abaxially densely gray tomentose.

52a. Stipules and bracts palmately divided above middle; leaves subleathery, lanceolate; branchlets, petals, and inflorescences glabrous, stalked glands not present; abaxial surface of calyx tomentose, with stalked glands ........................................................................................................ 94. *R. dolichophyllus*

52b. Stipules and bracts deeply divided to below middle or to base; leaves papery, lanceolate or oblong; branchlets, petals, inflorescences, and abaxial surface of calyx yellowish villous, with sparse, glandular hairs ........................................................................................................ 95. *R. raopingensis*

50b. Leaves basally deeply cordate; petioles 0.5–3.5 cm; plants with stalked glands.

53a. Stipules and bracts linear or lanceolate, entire; terminal inflorescences narrow cymose panicles or short subracemes; petioles 1–1.5 cm ................................................................. 99. *R. angustibracteatus*

53b. Stipules and bracts palmate-laciniate; terminal inflorescences broad cymose panicles; petioles 0.5–3.5 cm.

54a. Adaxial surface of leaves appressed villous, basal incision shallow, broad, 2 basal short lobes not touching; petioles often 0.5–1 cm, rarely longer; sepals 0.5–1 cm, shortly acuminate ............... 97. *R. parkeri*

54b. Adaxial surface of leaves hairy only along veins, basal incision narrow, to 2 cm deep, 2 basal long lobes touching; petioles 2–3.5 cm; sepals 1–1.5 cm, apex subulate or long caudate .......... 98. *R. panduratus*

49b. Leaves broad, suborbicular, broadly ovate, or elliptic to oblong, not divided or lobed, palmately 5-veined from base; petioles more than 2 cm, rarely shorter.

55a. Leaves abaxially densely rusty yellow or rust colored, rarely rufous tomentose; terminal inflorescences short subracemes, rarely cymose panicles, with few flowers.

55a. Leaf base cuneate to rounded, undivided.

57a. Leaves narrowly ovate, rarely elliptic, with 8–10 pairs of lateral veins; terminal inflorescences lax cymose panicles, many flowered ................................................................. 131. *R. penduliflorus*

57b. Leaves ovate, with 4 or 5 pairs of lateral veins; terminal inflorescences short subracemes, few flowered ........................................................................................................ 132. *R. malipoensis*

56a. Leaf base cuneate to rounded, undivided.

56b. Leaf base cordate, divided, or undivided.

58a. Leaves not divided or 2-lobed basally.

59a. Leaves ovate or narrowly ovate, undivided or somewhat undulate; stipules and bracts only apically palmately lobed; anthers and styles glabrous ................................................................. 136. *R. flagelliflorus*

59b. Leaves oblong-lanceolate or ovate-lanceolate, usually with 2 distinct lobes near base; stipules and bracts palmately parted basally; anthers and styles sericeous-villous ........................................... 137. *R. hastifolius*

58b. Leaves divided or undulate.

60a. Leaves narrowly ovate, 3–5(–7)-lobed; stipules and bracts broadly obovate, 1–1.4 × 0.9–1.3 cm, pectinately or palmately divided; terminal inflorescences short subracemes, densely rust colored villous; abaxial surface of calyx rust colored villous, tomentose ........................................ 135. *R. reflexus*

60b. Leaves ovate to suborbicular, lobed or undulate; stipules oblong, oblong-lanceolate to ovate-lanceolate, palmate-laciniate or only apically palmately lobed; terminal inflorescence compact panicle or short subraceme; abaxial surface of calyx densely rust colored sericeous or yellow sericeous-villous or tomentose.

61a. Leaves 12–20 × 8–16 cm; stipules oblong-lanceolate, to 1.5 cm, pinnate-laciniate; terminal panicles compact, many flowered; calyx densely rust colored tomentose ........................................ 133. *R. fascicifolius*

61b. Leaves 8–11 × 5–9 cm; stipules oblong or ovate-lanceolate, less than 1 cm, only apically palmately lobed; terminal inflorescences short subracemes, few flowered; abaxial surface of calyx yellow sericeous-villous, margin of sepals tomentose ....................................................... 134. *R. shihae*

55b. Leaves abaxially densely gray or yellowish gray tomentose.

62a. Leaves ovate, narrowly ovate, or ovate-lanceolate to oblong, rarely broadly ovate or suborbicular, undivided or lobed, apically acuminate, rarely acute or obtuse; terminal inflorescences large broad cymose panicles, to 27 cm, rarely racemose.

63a. Plants with glandular hairs or bristles.

64a. Plants tomentose, bristly; leaves suborbicular, abaxially densely gray tomentose; fruit purplish black ...................................................................................................................... 103. *R. tephrodes*
64b. Plants pubescent, not bristly; leaves ovate or orbicular-ovate to narrowly ovate; fruit red, purplish red or purplish black.

65a. Leaves subleathery, broadly ovate or orbicular-ovate, abaxially yellowish tomentose; plants with stipitate glands ca. 1 mm; abaxial surface of calyx tomentose .......................... 102. *R. luchunensis*

65b. Leaves not leathery, narrowly to broadly ovate or orbicular-ovate, abaxially gray tomentose; plants with stipitate glands 2–3 mm; abaxial surface of calyx villous.

66a. Leaves ovate to narrowly ovate, apically obtuse to acute, margin undulate-lobed, lobes obtuse; sepals undivided ................................................................. 100. *R. feddei*

66b. Leaves broadly ovate or orbicular-ovate, apically acuminate, margin divided, lobes acute; sepals laciniate ................................................................. 101. *R. salwinensis*

63b. Plants without glandular hairs, rarely pedicel and abaxial surface of calyx with stalked glands.

67a. Leaves distinctly lobed, base cordate; petioles 3–7 cm .................................................. 104. *R. lobophyllus*

67b. Leaves undivided, sometimes lobed, base rounded or cordate; petioles 0.5–10 cm.

68a. Leaves basally rounded, rarely subtruncate, oblong, ovate-oblong, or elliptic; petioles 0.5–1 cm .................................................................................................................. 105. *R. assamensis*

68b. Leaves basally truncate to cordate, rarely suborbicular; petioles usually more than 2 cm.

69a. Leaves basally truncate, broadly triangular-ovate ................................................................ 106. *R. tinifolius*

69b. Leaves basally cordate, rarely subrounded, suborbicular, broadly ovate.

70a. Inflorescences and abaxial surface of calyx sericeous-villous.

71a. Leaves suborbicular or broadly ovate.

72a. Leaves thickly papery, base cordate, margin sharply serrate; terminal cymose panicles large, broad; flowers apetalous ........................................ 107. *R. chroosepalus*

72b. Leaves leathery, base truncate to shallowly cordate, margin shallowly obtusely serrate; terminal cymose panicles small, narrow; flowers petalous ................................ 108. *R. mallotifolius*

71b. Leaves narrowly ovate or ovate-lanceolate.

73a. Shrubs deciduous; leaves 7–10 cm, lobed; petioles 2–4 cm, sparsely villous; pedicel and abaxial surface of calyx with sparse, minute stalked glands .......... 109. *R. fuscocarbens*

73b. Shrubs evergreen; leaves 11–22 cm, not divided or shallowly undulate; petioles 5–10 cm, glabrous; pedicel and abaxial surface of calyx without stalked glands ...... 110. *R. jianensis*

70b. Inflorescences and abaxial surface of calyx tomentose or tomentose-villous.

74a. Leaf base rounded to shallowly cordate; flowers 6–8 mm in diam.; abaxial surface of calyx tomentose; flowers petalous or apetalous.

75a. Leaves broadly ovate, rarely ovate-oblong, undivided; petioles glabrous; abaxial surface of calyx gray tomentose; flowers apetalous; aggregate fruit black ................................................................. 111. *R. cinclidodictyus*

75b. Leaves narrowly ovate to ovate-lanceolate, lobed; petioles tomentose; abaxial surface of calyx tomentose, gray tomentose on sepal margin; flowers petalous; aggregate fruit dark red ........................................................................ 112. *R. xanthoneurus*

74b. Leaf base cordate; flowers 8–18 mm in diam.; abaxial surface of calyx tomentose and villous; flowers petalous.

76a. Leaves ovate to narrowly ovate, apically acuminate; petioles 2–4 cm; flowers to 18 mm in diam.; terminal cymose panicles broad, lax ........................................ 113. *R. paniculatus*

76b. Leaves broadly ovate to suborbicular, rarely narrowly ovate, apically acute; petioles 1–2.5 cm; flowers 8–10 mm in diam.; terminal cymose panicles short, compact ........................................................................ 114. *R. neoviburnifolius*

62b. Leaves suborbicular, broadly ovate to broadly oblong, lobed, apically obtuse or acute, rarely acuminate; terminal inflorescences always narrow cymose panicles or racemose, less than 17 cm.

77a. Stipules and bracts pinnately or palmately parted or irregularly lacerate nearly to base.

78a. Plants with dense, large stipitate glands; leaves suborbicular or broadly ovate, 4–6 cm; petioles 1–2 cm; sepals triangular-ovate, not divided .................................................. 115. *R. nagasawanus*

78b. Plants without stipitate glands; leaves suborbicular to broadly ovate, 6–16 cm; petioles (2–)3–5(–8) cm; sepals apically 2- or 3-laciniate, with 3 bristles at apex or palmately to pinnately laciniate.

79a. Leaves broadly ovate, undivided or slightly undulate, abaxially hairs deciduous at maturity; terminal inflorescences narrow panicles or racemose; sepals lanceolate, outer sepals apically 2- or 3-laciniate ................................................................. 120. *R. chrysobotrys*
79b. Leaves suborbicular or broadly ovate, distinctly 3–7-divided, abaxially persistently tomentose; terminal inflorescences short subracemes or cymose panicles; outer sepals entire with 3 bristles only at apex or palmately to pinnately laciniate.

80a. Terminal inflorescences short subracemes, 3–6-flowered; sepals long obovate, outer sepals entire, with 3 bristles only at apex; adaxial surface of leaves not distinctly bullate between veins .......................................................... 119. *R. yulensis*

80b. Terminal cymose panicles or subracemes, many flowered; sepals broadly ovate or triangular-ovate, outer sepals palmately to pinnately laciniate; adaxial surface of leaves prominently bullate or not.

81a. Adaxial surface of leaves prominently bullate between veins; terminal inflorescences narrow cymose panicles or subracemes ....................................................................................... 116. *R. alceifolius*

81b. Adaxial surface of leaves not prominently bullate between veins; terminal inflorescences broad cymose panicles.

82a. Branchlets, petioles, and inflorescences yellowish villous; pedicel 5–8 cm; petals and ovary pubescent ........................................................................................................ 117. *R. platysepalus*

82b. Branchlets, petioles, and inflorescences grayish tomentose; pedicel 0.8–2 cm; petals pubescent; ovary glabrous ........................................................................................................ 118. *R. arachnoideus*

77b. Stipules and bracts palmately or pinnately lobed, rarely parted.

83a. Plants with brownish bristles; leaves suborbicular, apically acute to caudate.

84a. Stipules and bracts 1.5–2 × 1.2–1.5 cm, parted, late caducous; flowers ca. 1 cm in diam.; sepals broadly ovate or ovate-lanceolate, apically caducous ........................................ 121. *R. rufus*

84b. Stipules and bracts 1–1.2 × 0.7–1 cm, lobed, caducous; flowers 1.2–1.7 cm in diam.; sepals lanceolate or ovate-lanceolate, apically acute to shortly acuminate ........................................ 122. *R. lasiotrichos*

83b. Plants without bristles; leaves suborbicular or broadly ovate, truncate, apically obtuse or acute.

85a. Shrubs low, climbing or prostrate; leaves abaxially glabrescent.

86a. Branchlets, petioles, and inflorescences thinly pubescent; leaf lobes often obtuse; abaxial surface of calyx densely yellowish villous, intermixed tomentose; sepals broadly ovate, outer sepals pinnate-laciniate on margin ........................................................................ 129. *R. hunanensis*

86b. Branchlets, petioles, and inflorescences tomentose-villos; leaf lobes often obtuse; abaxial surface of calyx dark yellowish pubescent, intermixed tomentose; sepals lanceolate or ovate-lanceolate, outer sepals only apically lobed .................................................................. 130. *R. buergeri*

83b. Shrubs larger, climbing; leaves abaxially persistently tomentose.

87a. Terminal inflorescences short subracemes, few flowered; stipules and bracts broadly flabellate or broadly ovate to broadly oblong, 1–1.5(–2) × (0.6–)1–1.5 cm, pinnately or palmately parted to base.

88a. Leaves 3–5-lobed, lobes acute, rarely obtuse; stipules and bracts broadly ovate to broadly oblong; pedicel 3–4 mm; sepals triangular to ovate, outer sepals entire or only apically lobed ........................................................................................................ 127. *R. formosensis*

88b. Leaves 5–7-lobed, lobes obtuse or acute; stipules and bracts broadly flabellate; pedicel 7–10(–15) mm; sepals narrowly ovate or ovate-lanceolate, outer sepals pinnately parted ........................................................................................................ 128. *R. pinnatisepalus*

87b. Terminal inflorescences narrow cymose panicles or subracemes, many flowered; stipules and bracts subflabellate, obovate or ovate to ovate-lanceolate, 0.7–1.8 cm, pectinately to palmately divided or laciniate.

89a. Stipules and bracts subflabellate, broadly elliptic, or broadly obovate, 1–1.8 cm and ca. as broad, pectinately to palmately divided.

90a. Leaves palmately 7–9-lobed, terminal lobe obtuse or subtruncate, rarely acute; lobes of stipules usually undivided; pedicel 1–1.5 cm; flowers white, 1.5–2.5 cm in diam. ........................................................................................................ 123. *R. pluribracteatus*

90b. Leaves usually 5-lobed, terminal lobe acute; lobes of stipules divided again; pedicel 1.5–3(–4) cm; flowers yellowish white or white, 1–1.5 cm in diam. .......................... 124. *R. reticulatus*

89b. Stipules and bracts ovate or ovate-lanceolate, rarely narrowly obovate, 0.7–1.1 cm and nearly as broad, apex palmate-laciniate.

91a. Leaves 5–7-lobed, lobes obtuse, rarely acute, sepals ovate-lanceolate, apically caducate; flowers purplish red; aggregate fruit black .................................................. 125. *R. setchuenensis*

91b. Leaves 7–11-lobed, lobes acute; sepals broadly ovate, apically acute; flowers white; aggregate fruit red ........................................................................................................ 126. *R. faberi*

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**91. *Rubus lineatus*** Reinwardt in Blume, Bijdr. Fl. Ned. India 绢毛悬钩子 juan mao xuan gou zi

17: 1108. 1826.
ROSACEAE

Shrubs 1–2 m tall, much branched. Branchlets brownish to grayish brown, terete, with sparse, minute prickles, with dense appressed silvery-gray or yellowish gray silky hairs, glabrescent. Leaves palmately compound, 3–5-foliolate; petiole 2–5 cm, lateral leaflets sessile or subsessile, sericeous; stipules caducous, free, lanceolate or ovate-oblong, 1.2–2 cm, sometimes to 2–3 cm on sterile branchlets, often broad, membranous, abaxially densely sericeous, not divided; blade of leaflets oblong or lanceolate to oblanceolate, 8–12 × 1.5–3.5 cm, pinnately veined with (20–)30–50 pairs of parallel lateral veins terminating at margin, midvein and lateral veins prominent abaxially, impressed adaxially, abaxially densely silvery-gray or yellowish gray appressed-sericeous, adaxially glabrous or long hairy along midvein, base cuneate, margin sharply serrate to doubly serrate, apex acuminate to caudate. Inflorescences terminal and in axis of apical leaves, cymose panicles, ca. 15–20-flowered, sometimes flowers in clusters in leaf axils; rachis and pedicels sericeous or glabrescent; bracts lanceolate or ovate-oblong, smaller than stipules, sericeous. Pedicel 1–2 cm. Flowers ca. 1.5 cm in diam. Calyx abaxially densely silvery-gray or yellowish gray sericeous or glabrescent; sepals ovate-triangular to lanceolate, 6–12 × 3–7 mm, margin entire, apex acuminate to caudate. Petals white or greenish white, elliptic or oblong, somewhat smaller than sepals, glabrous, base not distinctly clawed. Stamens ca. 50–100 or more, shorter than petals; filaments subulate, stamens apically 3-lobed. Petals white, suborbicular, shorter than sepals. Pistils many, shorter than petals; filaments subulate, ovoid, 7–10 mm in diam., sericeous when young, glabrescent; pyrenes distinctly rugose. Fl. Jul–Aug, fr. Sep–Oct.

Slopes, valleys, forests, forest margins, fallow fields; 1400–3000 m. Xizang, Yunnan [Bhutan, NE India, Indonesia, Malaysia, Myanmar, Nepal, Sikkim, N Vietnam].

1a. Pedicel and abaxial surface of calyx with deciduous sericeous hairs ........... 91c. var. glabrescens
1b. Pedicel and abaxial surface of calyx with dense, persistent sericeous hairs.

2a. Blade of leaflets oblong or lanceolate to oblanceolate ............... 91c. var. lineatus
2b. Blade of leaflets narrowly lanceolate .................................. 91b. var. angustifolius

91a. Rubus lineatus var. lineatus

绢毛悬钩子(原变种) jian mao xuan gou zi (yuan bian zhong)

Rubus pulcherrimus Hooker.

Pedicel and abaxial surface of calyx densely persistently sericeous. Blade of leaflets oblong or lanceolate to oblanceolate.

Slopes, valleys, forest understories, forest margins, fallow fields; 1400–3000 m. Xizang, Yunnan [Bhutan, NE India, Indonesia, Malaysia, Myanmar, Nepal, Sikkim, N Vietnam].


狭叶绢毛悬钩子 xia ye jian mao xuan gou zi

Pedicel and abaxial surface of calyx with dense, persistent silvery hairs. Blade of leaflets narrowly lanceolate.

- Mixed forests; 1800–2800 m. NW Yunnan.


光秃绢毛悬钩子 guang tu jian mao xuan gou zi

Pedicel and abaxial surface of calyx sericeous when young, glabrescent.

- Moist montane valleys, sparse forests; 1700–2000 m. SE Yunnan.

92. Rubus cochinchinensis Traffinick, Rosac. Monogr. 3: 97. 1823.

 ninja shou juan mao xuan gou zi

Rubus fruticosus Loureiro (1790), not Linnaeus (1753); R. playfairii Hemsley.

Shrubs climbing. Branchlets brown to purplish brown, yellow tomentose when young, gradually glabrescent, with sparse, curved small prickles. Leaves palmately compound, 5-foliolate, sometimes 3-foliolate; petiole 4–5 cm, petioloile of leaflets 3–6 mm, tomentose when young, glabrates in age, with sparse, curved minute prickles; stipules flabellate, 5–7 mm, broader, tomentose initially, glabrates in age, palmately divided, lobes lanceolate; blade of leaflets elliptic, ovate-elliptic, or elliptic-lanceolate, 5–10(–15) × 2.5–3.5(–5) cm, central leaflet slightly larger than lateral leaflets, abaxially densely brown-yellow tomentose and with minute prickles along midvein, adaxially glabrous, base cuneate, margin irregularly sharply serrate, apex shortly acuminate. Inflorescences terminal ones cymose paniculate, axillary ones subracemes, sometimes flowers several in clusters in leaf axils; rachis and pedicels densely yellow tomentose, with sparse, curved small prickles; bracts caducous, 4–6 mm, narrow, palmately or pectinately divided, tomentose when young. Pedicel 4–10 mm. Flowers 0.8–1.2 cm in diam. Calyx campanulate, densely tomentose, unarmed abaxially; sepals ovate-orbicular, 4–6 × 3–5 mm, apex acuminate, outer sepals apically 3-lobed. Petals white, suborbicular, shorter than sepals. Stamens many, shorter than petals; filaments subulate, glabrous. Pistils 30–40, longer than petals, glabrous. Aggregate fruit red when immature, black at maturity, globose, 8–11 mm in diam., glabrous; pyrenes conspicuously rugose. Fl. Mar–May, fr. Jul–Aug.

Thickets, roadsides, slopes; low to medium elevations. Guangdong, Guangxi, Hainan, Sichuan, Yunnan [Cambodia, Laos, Thailand, Vietnam].

The fruit and roots are used in medicine.


托叶绢毛悬钩子 tuo ye xuan gou zi

Shrubs to 2 m tall. Branchlets brownish to dark reddish brown, glabrous, with sparse prickles. Leaves palmately compound, 3-foliolate; petiole reddish brown, 1.5–3 cm, lateral leaflets subsessile, soft hairy when young, gradually glabrescent,
with sparse prickles; stipules free, leaflke, ovate or narrowly ovate, 2–3.5 × 1–2 cm, herbaceous, glabrous, margin unevenly coarsely serrate, apex acuminate; blade of leaflets elliptic or oblong-elliptic, 6–14 × 2.5–5 cm, lateral veins 10–15 pairs, middle leaflet much longer than lateral leaflets, abaxially glabrous except puberulous along veins, adaxially glabrous or sparsely pubescent only along midvein, base broad cuneate to rounded, margin irregularly coarsely sharply serrate, apex acuminate. Inflorescences terminal on lateral short branchlets, short racemes, flowers usually in clusters of 3–5; rachis and pedicels glabrous; bracts ovate or broadly triangular-ovate, slightly smaller than stipules, glabrous, margin unevenly serrate, apex acuminate. Pedicel 1–2 cm. Flowers 2–3 cm in diam. Calyx reddish brown, abaxially glabrous; sepals broadly ovate or triangular-ovate to ovate-lanceolate, 1.2–2 cm, apex long caudate; outer sepals broader, margin shallowly laciniate above middle or at apex, inner sepals entire, with tomentose margin. Petals erect after anthesis, white, elliptic or spatulate, 0.7–1.4 cm × 5–7 mm, glabrous. Stamens many, unequal in length, longer ones to 2 cm, shorter ones 6–7 mm. Raised abaxially, impressed adaxially, subleathery, abaxially densely gray tomentose, adaxially glabrous, base rounded to shallowly cordate, margin with shallow sharp minute teeth, apex long acuminate. Inflorescences terminal or axillary, large cymose panicles, 14–20 cm, axillary ones shorter; rachis and pedicels yellowish villous, stipitate glandular; bracts smaller than stipules, apex palatomely lobed; lobes linear or nearly subulate, glabrous. Pedicel 1–1.4 cm. Flowers 6–9 mm in diam. Calyx purplish red, abaxially densely gray tomentose, with sparse, intermixed glandular hairs; tube pelviform; sepals lanceolate, 6–9 × 2–3 mm, apex entire, apex subulate-acuminate or caudate. Petals absent. Stamens many; filaments linear. Pistils few, longer than stamens; style and ovary glabrous. Aggregate fruit black, adaxially pubescent only along veins, base rounded to shallowly cordate, margin irregularly serrate, apex acuminate. Inflorescences terminal or axillary, cymose panicles, large, large, many flowered; rachis and pedicels yellowish villous, stipitate glandular; bracts smaller than stipules, sparsely villous, with stalked glands. Petals unequal in length, longer ones to 2 cm, shorter ones 6–7 mm. Flowers not more than 1 cm in diam. Calyx purplish red, yellowish villous, with stalked glands; sepals erect in fruit, ovate-lanceolate, 5–7 × 3–5 mm, margin entire, apex caudate. Petals absent. Stamens many; filaments linear. Pistils few, longer than stamens; style and ovary glabrous. Aggregate fruit black, small, glabrous, with few drupelets, enclosed in calyx; pyrenes rugose.


Shrubs scandent. Branchlets brown or dark purplish brown, terete, yellowish villous, with sparse, stipitate glandular hairs and sparse, curved prickles. Leaves simple; petiole 6–8 mm, yellowish villous, sparsely stipitate glandular; stipules caducous, free, deeply palmately divided nearly to base, lobes linear, villous, stipitate glandular; blade lanceolate or oblong-lanceolate, 7–12 × 2–4.5 cm, veins 6–8 pairs, slightly raised abaxially, papery, abaxially gray tomentose and with yellowish long hairs along veins, sometimes glabrescent, adaxially pubescent only along veins, base rounded to shallowly cordate, margin irregularly serrate, apex acuminate. Inflorescences terminal or axillary, cymose panicles, large, lax, many flowered; rachis and pedicels yellowish villous, stipitate glandular; bracts smaller than stipules, sparsely villous, with stalked glands. Petals unequal in length, longer ones to 2 cm, shorter ones 6–7 mm. Flowers not more than 1 cm in diam. Calyx purplish red, yellow villous, with stalked glands; sepals erect in fruit, ovate-lanceolate, 5–7 × 3–5 mm, margin entire, apex caudate. Petals absent. Stamens many; filaments linear. Pistils few, longer than stamens; style and ovary glabrous. Aggregate fruit black, small, glabrous, with few drupelets, enclosed in calyx; pyrenes rugose.


- Slopes, thicket in montane valleys; below 2100 m. SW Guizhou (Panxian Tequ).


Shrubs scandent. Branchlets brown or dark purplish brown, terete, yellowish villous, with sparse, stipitate glandular hairs and sparse, curved prickles. Leaves simple; petiole 6–8 mm, yellowish villous, sparsely stipitate glandular; stipules caducous, free, deeply palmately divided nearly to base, lobes linear, villous, stipitate glandular; blade lanceolate or oblong-lanceolate, 7–12 × 2–4.5 cm, veins 6–8 pairs, slightly raised abaxially, papery, abaxially gray tomentose and with yellowish long hairs along veins, sometimes glabrescent, adaxially pubescent only along veins, base rounded to shallowly cordate, margin irregularly serrate, apex acuminate. Inflorescences terminal or axillary, cymose panicles, large, lax, many flowered; rachis and pedicels yellowish villous, stipitate glandular; bracts smaller than stipules, sparsely villous, with stalked glands. Petals unequal in length, longer ones to 2 cm, shorter ones 6–7 mm. Flowers not more than 1 cm in diam. Calyx purplish red, yellow villous, with stalked glands; sepals erect in fruit, ovate-lanceolate, 5–7 × 3–5 mm, margin entire, apex caudate. Petals absent. Stamens many; filaments linear. Pistils few, longer than stamens; style and ovary glabrous. Aggregate fruit black, small, glabrous, with few drupelets, enclosed in calyx; pyrenes rugose.


西畴悬钩子 xi chou xuan gou zi

Shrubs climbing, 0.5–1 m tall. Branchlets brownish to reddish brown, yellowish sericeous-villosous when young, glabrescent, unarmed or with sparse, minute prickles. Leaves simple; petiole reddish brown, 1–1.5 cm, yellowish sericeous-villosous when young; stipules caducous, free, narrowly oblong, but broader near apex, to 1 cm, palmately divided, lobes linear, soft hairy; blade oblong-lanceolate, 11–19 × 2.5–5 cm, lateral veins 7–10 pairs, subleathery, abaxially densely yellow or grayish yellow tomentose, with sparse, internerved long soft hairs along veins, adaxially glabrous or slightly pubescent subepicondial veins, base rounded, margin irregularly sharply serrate, teeth abruptly pointed, apex acute. Inflorescences terminal or axillary, terminal ones short cymose panicles, 4–6 cm, few flowered, axillary ones short racemes or shortly subcorymbose, sometimes 2 or 3 flowered, base internerved, margin irregularly sharp serrate, teeth abruptly pointed, apex acute. Indafauses terminal or axillary, terminal ones short cymose panicles, 4–6 cm, few flowered, axillary ones short racemes or shortly subcorymbose, sometimes 2 or 3 flowered, base internerved, margin irregularly sharp serrate, teeth abruptly pointed, apex acute.


鉢齿悬钩子 dun chi xuan gou zi

Leaves tomentose abaxially, gradually glabrescent, margin minutely obtusely serrate.

- Stream sides, forest margins; 600–700 m S Fujian (Nanjing Xian).


琴叶悬钩子 qin ye xuan gou zi

Shrubs scandent, to 5 m tall. Branchlets slender, villous, with sparse, curved prickles, purplish red, with stalked glands. Leaves simple; petiole 2–3.5 cm, hirsute, purplish red, with stalked glands; stipules free, small, palmately laciniate, lobes linear, hirsute, stipitate glandular or not; blade ovate-lanceolate, 10–18 × 4–9 cm, abaxially densely gray tomentose and sparsely hirsute along veins, adaxially glabrous except hirsute or with sparse, stalked glands on veins, base deeply cordate, basal incision narrow, to 2 cm deep, basal lobes long, touching, margin irregularly sharply serrate, with shallow lobes above base, apex acuminate. Indafauses terminal, cymose panicles, basal branches spreading; rachis, pedicels, and abaxial surface of calyx hirsute, with dense, purplish red or blackish purple stalked glands; bracts palmate-laciniate; lobes linear, hirsute, with stalked glands. Pedicel to 1 cm. Flowers to 1 cm in diam. Calyx reddish purple; sepals narrowly triangular-lanceolate, 1–1.5 cm, apex subulate or long caudate. Petals often absent or small and reduced. Stamens many, much shorter than sepals; filaments linear; anthers purple. Pistils few, glabrous. Aggregate fruit dark red or purplish black, small, dry at maturity; pyrenes rugose. Fl. Jun–Jul, fr. Jul–Aug.

- Forests, montane valleys; low to medium elevations. Guangdong, Guangxi, Guizhou, Hunan.


脱毛琴叶悬钩子 tuo mao qin ye xuan gou zi

Leaf blade not tomentose abaxially. Leaves simple; petiole 2–3.5 cm, hirsute, purplish red, with stalked glands; stipules free, small, palmately laciniate, lobes linear, hirsute, stipitate glandular or not; blade ovate-lanceolate, 10–18 × 4–9 cm, abaxially densely gray tomentose and sparsely hirsute along veins, adaxially glabrous except hirsute or with sparse, stalked glands on veins, base deeply cordate, basal incision narrow, to 2 cm deep, basal lobes long, touching, margin irregularly sharply serrate, with shallow lobes above base, apex acuminate. Indafauses terminal, cymose panicles, basal branches spreading; rachis, pedicels, and abaxial surface of calyx hirsute, with dense, purplish red or blackish purple stalked glands; bracts palmate-laciniate; lobes linear, hirsute, with stalked glands. Pedicel to 1 cm. Flowers to 1 cm in diam. Calyx reddish purple; sepals narrowly triangular-lanceolate, 1–1.5 cm, apex subulate or long caudate. Petals often absent or small and reduced. Stamens many, much shorter than sepals; filaments linear; anthers purple. Pistils few, glabrous. Aggregate fruit dark red or purplish black, small, dry at maturity; pyrenes rugose. Fl. Jun–Jul, fr. Jul–Aug.

- Forests, montane valleys; low to medium elevations. Guangdong, Guangxi, Guizhou, Hunan.

ROSACEAE


琴叶悬钩子原变种 qin ye xuan gou zi (yuan bian zhong)

Leaf blade densely gray tomentose abaxially. Leaves simple; petiole 2–3.5 cm, hirsute, purplish red, with stalked glands; stipules free, small, palmately laciniate, lobes linear, hirsute, stipitate glandular or not; blade ovate-lanceolate, 7–16 × 3.5–6 cm, lateral veins 5 or 6 pairs, raised abaxially, abaxially densely gray tomentose, internerved, minute prickles along veins, adaxially appressed villous, more densely so along veins, base cordate, basal incision shallow, broad, basal 2 lobes short, not touching, margin tenuously serrate, lobed, apex acuminate. Cymose panicles, large, 12–24 cm; rachis and pedicels densely villous, with unequal long purplish red stipitate glandular hairs and sparse, minute prickles; bracts 6–9 mm, palmately laciniate; lobes linear, villous, stipitate glandular. Pedicel 0.8–1.2 cm. Flowers ca. 8 mm in diam. Calyx purplish red, abaxially densely villous, purplish red stipitate glandular; sepals ovate-lanceolate, 5–10 × 2.5–5 mm, margin entire, apex shortly acuminate. Petals white, sometimes absent. Stamens many, shorter than sepals; filaments linear. Pistils relatively few, shorter than stamens, glabrous. Aggregate fruit purplish black, globose, 4–6 mm in diam., glabrous. Fl. May–Jun, fr. Jul–Aug.

- Forests, montane valleys; low to medium elevations. Guangdong, Guangxi, Guizhou, Hunan.

狭苞悬钩子 xia bao xuan gou zi

Shrubs scandent. Branchlets grayish brown or purplish brown, pubescent, with intermixed glandular hairs initially, gradually glabrescent, with sparse, curved prickles. Leaves simple; petiole 1–1.5 cm, sparsely villous, with intermixed glandular hairs, with minute prickles; stipules caducous, free, linear or lanceolate, margin entire, villous, with intermixed glandular hairs; blade ovate-lanceolate or oblong-lanceolate, 7–12 × 2–4 cm, abaxially densely yellowish tomentose, intermixed villous along veins, with small curved prickles along midvein, adaxially glabrous, rarely slightly soft hairy along midvein, base deeply cordate, margin unevenly sharply serrate, undivided, apex acuminate. Inflorescences terminal or axillary, narrowly cymose-paniculate or short subracemes; rachis and pedicels villous, with glandular hairs, sometimes with minute prickles; bracts linear, villous, with intermixed glandular hairs, margin entire. Pedicel 5–8 mm. Flowers not more than 1 cm in diam. Calyx abaxially densely tomentose, intermixed yellowish villous and with purplish red glandular hairs; sepals erect in fruit, ovate or ovate-lanceolate, margin entire, apex acuminate. Petals suborbicular, small, much shorter than sepals, puberulous. Stamens numerous; filaments short, basally broadened and flattened. Pistils 20; apex of ovary and base of style soft hairy. Aggregate fruit with few drupelets, enclosed in calyx. Fl. May–Jun, fr. Jul–Aug.

- Forests in mountainous areas; 1900–2200 m. W Sichuan.


黔桂悬钩子 qian gui xuan gou zi

Shrubs climbing. Branchlets grayish brown to purplish brown, villous, with sparse, curved small prickles, sometimes with glandular hairs. Leaves simple; petiole 3–4(–6) cm, villous, with intermixed long glandular hairs and sparse, slightly curved minute prickles; stipules caducous, free, small, 4–6 mm, margin laciniate, lobes linear, with soft hairs and intermixed glandular hairs; blade ovate to narrowly ovate, 6–8 × 2–5 cm, palmately 5-veined, lateral veins 4 or 5 pairs, abaxially densely gray tomentose, with intermixed long soft hairs and glandular hairs to 2–3 mm along veins, adaxially villous, with intermixed glandular hairs along veins, base cordate, margin undulate-lobed, lobes obtuse, irregularly or totally sharply serrate, apex obtuse to acute. Inflorescences terminal, cymose panicles, sometimes subcorymbose, to 25 cm; rachis and pedicels densely villous, with intermixed brownish purple long glandular hairs; bracts 3–5 mm, laciniate, villous, with intermixed glandular hairs. Pedicel 5–10 mm. Flowers 1–1.2 cm in diam. Calyx brownish red, villous, with long brownish purple glandular hairs; tube shallowly cupular; sepals erect in fruit, ovate to ovate-lanceolate, 8–11 × 2–5 mm, margin entire, apex acuminate to caudate. Petals white, small, inconspicuous, much shorter than sepals, narrow. Stamens many, longer than petals and shorter than sepals; filaments yellowish, linear. Pistils ca. 15–20, shorter than stamens, glabrous. Aggregate fruit red when immature, purplish black at maturity, 7–10 mm in diam., with few drupelets. Fl. Jun–Aug, fr. Sep–Oct.

- Ravines, thickets, forest; low elevations. Guangxi, Yunnan [Vietnam].

This species is used medicinally. The fruit are edible.


怒江悬钩子 nu jiang xuan gou zi

Shrubs scandent, to 2 m tall. Branchlets brown to grayish brown, terete, yellowish villous, with sparse, curved minute prickles, with sparse, stipitate glands to 2 mm. Leaves simple; petiole 3–5 cm, yellowish villous, sparsely stipitate glandular, with sparse, curved minute prickles; stipules caducous, free, to 1 cm, sparsely villous and stipitate glandular, apex laciniate, lobes linear or lanceolate; blade broadly ovate or orbicular-ovate, 8–13 × 7–10 cm, lateral veins 4–6 pairs, abaxially densely gray tomentose, yellowish villous along veins, adaxially sparsely villous, base cordate, margin distinctly lobed; lobes with dense sharp serrations, apex acute to acuminate. Inflorescences terminal, pyramidal cymose panicles, with spreading branches, 10–25 cm, many flowered; rachis and pedicels densely yellowish villous, sparsely stipitate glandular; bracts 6–8 mm, margin laciniate; lobes linear, villous, stipitate glandular. Pedicel 1–1.5 cm. Flowers ca. 1 cm in diam. Calyx abaxially densely yellowish villous, with sparse, stalked glands; tube short, ca. 7 mm; sepals triangular-lanceolate, 8–11 × 4–5 mm, margin usually laciniate, caudate; lobes lanceolate to linear-lanceolate, erect in fruit. Petals white, oblong, 3.6–2.35 mm, glabrous, base shortly clawed, apex dentate or not. Stamens many, shorter than sepals, glabrous; filaments linear. Pistils nearly as long as stamens; style and ovary glabrous. Aggregate fruit red, glabrous, with few drupelets, enclosed in calyx; pyrenes rugose, reticulate. Fl. Jun–Jul, fr. Aug–Sep.

- Ravines, forest margins; 1800–2500 m. Yunnan.


绿春悬钩子 lu chun xuan gou zi

Shrubs scandent. Branchlets purplish brown, yellowish villous, with short glandular hairs, with sparse, curved prickles. Leaves simple; petiole 2.5–4 cm, yellowish tomentose, with intermixed short glandular hairs and sparse, curved prickles; stipules caducous, 5–8 mm, palmately lobed, lobes linear, with soft hairs and intermixed short glandular hairs; blade broadly ovate to orbicular-ovate, 7–11 × 6–8 cm, palmately 5-veined, lateral veins 4 or 5 pairs, thickly leathery or subleathery, abaxially densely yellowish tomentose, intermixed villous along veins, adaxially sparsely villous, with intermixed short glandular hairs, glandular hairs deciduous in age, base cordate, margin undivided or undulate, unevenly sharply serrate, teeth abruptly pointed, to 1–2 mm, apex acute to shortly acuminate or obtuse. Inflorescences terminal, pyramidal cymose panicles with spreading branches, to 20 cm, many flowered; rachis and pedicels yellowish villous, with intermixed short glandular hairs; bracts 4–6 mm, with soft hairs and intermixed short...
glandular hairs, apex lobed; lobes linear. Pedicel 1–2 cm. Flowers not more than 1 cm in diam. Calyx abaxially densely yellowish tomentose, with intermixed short glandular hairs; tube puberulent; sepals erect after anthesis, lanceolate, 6–10 mm, margin entire, apex acuminate. Petals elliptic, small, much shorter than sepal, glabrous, base clawed, apex acute. Stamens numerous, slightly shorter than or nearly as long as petals; filaments linear. Pistils 10–16, slightly longer than or nearly as long as stamens, glabrous. Aggregate fruit purplish black, globose, 1–1.5 cm in diam., glabrous, with many drupelets; pyrenes rugose. Fl. Jun–Aug.; fr. Aug–Oct. 2n = 28*.

- Mountainous regions and summits, foothills, slopes, roadsides, thickets, montane valleys; below 1500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangsu, Jiangxi, Taiwan, Zhejiang.

The name Rubus megalothyrsus needs to be lectotypified in order to place the name into the synonymy of either R. tephrodes var. tephrodes or var. ampliflorus.

1a. Plants without glandular hairs and bristles or sometimes only partly sparsely stipitate glandular or bristly ........................................ 103d. var. ampliflorus

1b. Plants with glandular hairs or bristly.

2a. Plants only with glandular hairs

1–1.5 mm, without bristles ...... 103c. var. holadenus

2b. Plants with glandular hairs and bristles.

3a. Plants ± with short glandular hairs less than 3 mm and bristles 1–3 mm .............. 103a. var. tephrodes

3b. Plants with dense long glandular hairs and bristles to 5 mm .......... 103b. var. setosissimus

103a. Rubus tephrodes var. tephrodes

灰毛悬钩子 (原变种)  hui bai mao mei (yuan bian zhong)

Rubus tephrodes C. Kuntze.

Plants ± with short glandular hairs and bristles 1–3 mm.

- Slopes, roadsides, thickets; below 1500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Taiwan.

103b. Rubus tephrodes var. setosissimus

Handel-Mazzetti, Symb. Sin. 7: 492. 1933.

长腺灰毛莓 chang xian hui bai mao mei

Rubus farinaceus Cardot.

Plants with long dense glandular hairs and bristles to 5 mm.

- Mountain summits, foothills, montane valleys; below 1500 m. Guangdong, Guizhou, Hunan, Jiangxi.


硬腺灰毛莓 ying xian hui bai mao mei


- Broad-leaved evergreen forest margins, moist places along roadsides, thickets on sunny slopes; 1700–2000 m. S Yunnan.

無腺灰毛莓 *wu xian hui bai mei*


Plants without glandular hairs and bristles, rarely only partly sparsely stipitate glandular or bristly.

- Mountainous regions; low elevations. Guangdong, Guangxi, Guizhou, Hunan, Jiangsu, Jiangxi, Zhejiang.


角裂悬钩子 *jiao lie xuan gou zi*

Shrubs, climbing. Branchlets grayish brown, terete, soft hairy, glabrescent, with sparse, curved prickles. Leaves simple; petiole 3–7 cm, densely villous, with sparse, curved minute prickles; stipules free, 1–1.4 cm, pilose, narrowly or palmately lobed; lobes lanceolate or linear; blade ovate to narrowly ovate, 8–14 × 5–12 cm, lateral veins 4 or 5 pairs, abaxially densely gray to yellowish gray tomentose and villous; sepals ovate, 5–7 × 3–5 mm, apex acute, base shortly clawed. Stamens many; filaments linear. Pistils many, much longer than or nearly as long as sepals; style and ovary glabrous. Aggregate fruit red when immature, black at maturity, subglobose, ca. 8 mm in diam., with several drupelets; pyrenes slightly rugose. Fl. Jun.–Jul, fr. Aug.–Sep.

Mixed forests, forest margins; 1400–3000 m. Guangxi, Guizhou, Sichuan, Xizang, Yunnan [NE India, NE Myanmar].


截叶悬钩子 *jie ye xuan gou zi*

Shrubs erect or scandent, to 2 m tall. Branchlets grayish brown or reddish brown, densely yellowish tomentose-villous, with sparse, curved minute prickles. Leaves simple; petiole 2–4 cm, densely yellowish tomentose-villous, with sparse, curved minute prickles; stipules free, broadly obovate, 0.8–1.4 × 0.8–1.4 cm, villous, palmately lobed; lobes lanceolate; blade broadly triangular-villous, 7–14 × 4.5–11 cm, lateral veins 4 or 5 pairs, abaxially densely gray or yellowish tomentose and intermixed villous along veins, adaxially villous along veins, base truncate, margin undivided, rarely shallowly undulate, irregularly serrate, apex acuminate. Inflorescences terminal or axillary, narrow panicles or subracemes, axillary ones subcorimbos or flowers several in a cluster; rachis and pedicels yellowish villous; bracts 0.8–1.2 cm, villous, narrowly or palmately lobed; lobes linear or lanceolate. Pedicel 1–1.5 cm. Flowers 6–8 mm in diam. Calyx abaxially densely yellowish villous and intermixed tomentose; sepals ovate, 6–8 × 3–5 mm, apex acute, outer sepals palmately or pinnately laciniate; lobes linear, erect in fruit. Petals white, suborbicular or obovate, much longer than or nearly as long as sepals. Stamens numerous, 2 whorls; filaments linear, glabrous. Pistils many, much longer than stamens; ovary glabrous. Aggregate fruit red, subglobose, 7–9 mm in diam., glabrous, enclosed in calyx; pyrenes rugose. Fl. May–Jul, fr. Aug.–Sep.

- Montane valleys, shrubby hillsides, forests on shaded slopes, ravines; 500–2100 m. Guizhou, Guangdong, Guangxi, Hunan, Yunnan.


西南悬钩子 *xi nan xuan gou zi*

*Rubus bahanensis* Handel-Mazzetti; *R. qinglongensis* Q. H. Chen & T. L. Xu; *R. sepalanthus* Focke.

Shrubs climbing. Branchlets brownish to purplish brown, terete, yellowish gray villous, with curved minute prickles. Leaves simple; petiole 5–10 mm, gray or yellowish gray villous; stipules caducous, free, broadly obovate or flabellate, 0.9–1.1 cm, palmately laciniate lobed, lobes linear to linear-lanceolate, villous; blade oblong, ovate-oblong, or elliptic, 6–11 × 3.5–6 cm, lateral veins 5 or 6 pairs, abaxially densely gray or yellowish gray tomentose and villous along veins, adaxially villous, more densely so along veins, base rounded, rarely subtruncate, margin unevenly serrate, serrations apiculate, sometimes divided basally, apex acuminate. Inflorescences terminal or axillary, cymose panicles, 10–20 cm, many flowered; rachis and pedicels gray or yellowish gray villous, occasionally with sparse, minute glandular hairs; bracts obovate or subflabellate, 6–9 mm, villous, deeply lobed; lobes linear or lanceolate. Pedicel 7–11 mm. Calyx densely gray or yellowish gray tomentose and villous; sepals erect in fruit, ovate, 4–6 × 3–4 mm, apex long acuminate. Petals usually absent. Stamens many, somewhat shorter than or nearly as long as sepals; filaments linear. Pistils 10–15(–20), shorter than stamens, often glabrous. Aggregate fruit red when immature, black at maturity, subglobose, ca. 8 mm in diam., with several drupelets; pyrenes slightly rugose. Fl. May–Jun, fr. Aug.–Sep.

- Ravines, roadsides, montane valleys, forests; 1400–2100 m. SE Yunnan.


毛萼莓 *mao e mei*

Shrubs scandent, semievergreen. Branchlets brownish or dark brown to blackish brown, soft hairy when young, glabrescent, with sparse, curved prickles. Leaves simple; petiole 4–7 cm, glabrous or hairy, with sparse, slightly curved prickles;
**107a. Rubus chroosepalus var. chroosepalus**

**毛萼莓** (原变种) 毛萼莓

*Rubus chroosepalus var. omeiensis* Matsuda; *R. moutouakensis* H. Léveillé; *R. petaloideus* H. Léveillé.

Branchlets soft hairy when young, glabrescent. Petioles glabrous; leaves gray or yellowish white tomentose abaxially. Inflorescences sericeous-villous.

Thickets on slopes, forest margins; 300–2000 m. Fujian, Guangdong, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan [Vietnam].

107b. Rubus chroosepalus var. araneosus


**110. Rubus jianensis** L. T. Lu & Boufford, nom. nov.


**107a. Rubus chroosepalus var. chroosepalus**

**毛萼莓** (原变种) 毛萼莓

*Rubus chroosepalus* var. *omeiensis* Matsuda; *R. moutouakensis* H. Léveillé; *R. petaloideus* H. Léveillé.

Branchlets soft hairy when young, glabrescent. Petioles glabrous; leaves gray or yellowish white tomentose abaxially. Inflorescences sericeous-villous.

Thickets on slopes, forest margins; 300–2000 m. Fujian, Guangdong, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan [Vietnam].


**110. Rubus jianensis** L. T. Lu & Boufford, nom. nov.


**110. Rubus jianensis** L. T. Lu & Boufford, nom. nov.


**110. Rubus jianensis** L. T. Lu & Boufford, nom. nov.


**110. Rubus jianensis** L. T. Lu & Boufford, nom. nov.


**110. Rubus jianensis** L. T. Lu & Boufford, nom. nov.


ially densely gray or grayish yellow tomentose, slightly villous along veins, adaxially glabrous, base cordate, margin undivided or shallowly undulate, irregularly coarsely sharply serrate, apex acuminate. Inflorescences terminal, cymose panicles; rachis and pedicels yellowish sericeous-villosus; bracts similar to stipules, apex deeply lobed; lobes lanceolate, sericeous-villosus. Pedicel 1–1.4 cm. Flowers 1–1.4 cm in diam. Calyx abaxially densely yellowish sericeous-villosus, usually without glandular hairs; sepals ovate or ovate-lanceolate, margin entire, apex acute to acuminate. Petals absent. Stamens many; filaments linear. Pistils ca. 14–20; ovary glabrous. Aggregate fruit red, semiglobose, 1 cm or less in diam., glabrous, enclosed in calyx; pyrenes reniform, distinctly rugose. Fl. May–Jun, fr. Jul–Aug.

- Slopes, foothills, montane valleys; 700–900 m. C and SW Jiangxi.


网纹悬钩子 wang wen xian gong zi

Shrubs climbing, to 2 m tall, long stoloniferous. Branches grayish brown to dark reddish brown, glabrous, with sparse, somewhat curved prickles or nearly unarmad. Leaves simple; petiole 1–4 cm, shortly petiolate at bases of inflorescences, glabrous, with sparse, slightly curved prickles; stipules caducous, free, oblong or liguliform, 1–1.4 cm, glabrous or subglabrous, apex divided; blade broadly ovate, rarely ovate-oblong, 9–12 × 6–9 cm, palmately veined from base, abaxially densely gray tomentose, adaxially glabrous, base rounded to shallowly cordate, margin irregularly coarsely sharply serrate, apex shortly cuneate. Inflorescences terminal, cymose panicles, much branched, pyramidal, to 10–22 cm; rachis and pedicels tomentose; bracts 1–1.2 cm, tomentose, apex divided. Pedicel 0.7–1.5 cm. Flowers 6–8 mm in diam. Calyx purple, abaxially densely gray tomentose; tube shorter, shallowly petaliform; sepals erect or reflexed after anthesis, ovate or ovate-lanceolate, 4–6(–7) × 2–3 mm, margin entire, rarely with 2 or 3 teeth, apex acuminate. Petals usually absent. Stamens many, in 1 whorl, shorter than sepals; filaments linear, glabrous. Pedicils slightly shorter than stamens, glabrous. Aggregate fruit black at maturity, subglobose, less than 1 cm in diam., glabrous. Fl. Jun–Jul, fr. Aug–Sep.

- Slopes, forests, forest margins, river banks; 1200–3300 m. Sichuan, Yunnan.


黄脉莓 huang mai mei

Shrubs climbing, to 3 m tall. Branchlets grayish brown, gray or yellowish gray tomentose, gradually glabrescent, with sparse, minute prickles. Leaves simple; petiole (1–)2–3 cm, tomentose, with sparse, minute prickles; stipules free, ovate to ovate-lanceolate, 7–9(–25) mm, soft hairy, margin and apex deeply laciniate, lobes linear; blades narrowly ovate to ovate-lanceolate, 7–12 × 4–7 cm, lateral veins 7 or 8 pairs, brownish yellow, prominently raised abaxially, abaxially densely gray or yellowish white tomentose, adaxially villous along veins, base truncate to shallowly cordate, margin often lobed, with irregular, rough, sharp teeth, apex acuminate. Inflorescences terminal and axillary, cymose panicles, 12–24 cm; rachis and pedicels tomentose; bracts lanceolate or ovate-lanceolate, 5–7(–25) mm, apex and margin deeply lobed; lobes linear, soft hairy. Pedicel to 1.2 cm. Flowers less than 1 cm in diam. Calyx abaxially tomentose, gradually glabrescent; tube petaliform; sepals ovate, 6–7 × 3–5 mm, apex acuminate, outer sepals shallowly lobed, margin scarious, persistently tomentose. Petals white, obovate, 3–4 × 2.5–3.5 mm, shorter than sepals, puberulous, base clawed. Stamens many, nearly as long as petals; filaments linear. Pistils 10–35, slightly longer than stamens, glabrous. Aggregate fruit dark red, subglobose, glabrous; pyrenes rugulose. Fl. Jun–Jul, fr. Aug–Sep.

- Forests, mountainous areas, montane valleys, ravines, roadsides, fallow fields; 500–2000 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan [Thailand].

1a. Petioles 2–3 cm; stipules and bracts less than 1 cm; pedicel and abaxial surface of calyx without glandular hairs .............................................. 112a. var. xanthoneurus

1b. Petioles 1–2.5 cm; stipules and bracts 1–2.5 cm; pedicel and abaxial surface of calyx with glandular hairs or not.

2a. Pedicel and abaxial surface of calyx with glandular hairs ...... 112b. var. glandulosus

2b. Pedicel and abaxial surface of calyx without glandular hairs ................................ 112c. var. brevipetiolatus

112a. Rubus xanthoneurus var. xanthoneurus

黄脉莓原变种 huang mai mei (yuan bian zhong)

Rubus dielsianus Focke; R. gentilianus H. Léveillé & Vaniot; R. lambertianus Seringe subsp. xanthoneurus (Focke) Focke; R. lambertianus var. xanthoneurus Focke; R. spinipes Hemsley.

Petiole 2–3 cm; stipules and bracts less than 1 cm. Pedicel and abaxial surface of calyx without glandular hairs.

- Forests on slopes, ravines, roadsides, fallow fields; 1300–2000 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan [Thailand].


腺毛黄脉莓 xian mao huang mai mei

Petiole 1–2.5 cm; stipules and bracts 1–2.5 cm. Pedicel and abaxial surface of calyx with glandular hairs.

- Forests, mountainous areas, roadsides; 800–1100 m. Guangxi, Guizhou.


短柄黄脉莓 duan bing huang mai mei

Petiole ca. 1 cm; stipules and bracts longer than pediolo. Pedicel and abaxial surface of calyx without glandular hairs.

- Montane valleys, mixed forests; 500–1500 m. Guizhou.
113. Rubus paniculatus Smith in Rees, Cycl. 30: Rubus no. 41. 1819.

圆锥悬钩子 yuan zhui xuan gou zi

Shrubs scendent, to 3 m tall. Branchlets brownish to reddish brown, terete, yellow gray tomentose-villosus, gradually glabrescent, with sparse, minute prickles. Leaves simple; petiole 2–4 cm, yellowish gray or gray tomentose-villosus, usually unarmed; stipules oblong or ovate-lanceolate, to 8–11 mm, villous, margin laciniate lobed above middle, lobes linear; blade ovate to narrowly ovate, 9–15 × 6–10 cm, lateral veins 5–7 pairs, abaxially densely yellowish gray to gray tomentose, villos along veins or glabrescent, adaxially villous, more densely so along veins, base cordate, margin undulate or inconspicuously lobed, irregularly coarsely serrate to doubly serrate, apex acuminate. Inflorescences terminal or axillary, terminal ones cymose panicles, laxy spreading, 10–24 cm, axillary inflorescences smaller, subracemes; racis and pedicels yellowish gray or gray tomentose-villosus; bracts elliptic or oblong to lanceolate, 7–9 mm, villous, apex lobed or not divided. Pedicel to 1.5 cm. Flowers to 1.8 cm in diam. Calyx abaxially tomentose and villous; sepals ovate-lanceolate, 5–7 × 2–4 mm, apex acute to caudate-acuminate, outer sepals lobed, inner sepals entire. Pedals white to yellowish white, oblong, 6–8 mm in diam. Stamens many, shorter than petals; filaments linear, glabrous. Pistils longer than stamens, glabrous. Aggregate fruit dark red to blackish purple, globose, glabrous; pyrenes distinctly rugose. Fl. Jun—Aug, fr. Sep—Oct.

Forests, ravines, stream sides; 1500–3200 m. Xizang, Yunnan [Bhutan, N India, Kashmir, Nepal, Sikkim].

1a. Leaves abaxially persistently tomentose, margin coarsely serrate 113a. var. paniculatus

1b. Leaves abaxially tomentose when young, glabrescent in age, margin sharply serrate 113b. var. glabrescens

113a. Rubus paniculatus var. paniculatus

圆锥悬钩子(yuan zhui xuan gou zi) yuan zuh xuan gou zi(yuan bian zhong)

Rubus paniculatus f. tiliaceus (Smith) H. Hara; R. tiliaceus Smith.

Leaves abaxially persistently tomentose, margin coarsely serrate.

Mixed forests on slopes, ravines, stream sides; 1500–3200 m. Xizang, Yunnan [Bhutan, N India, Kashmir, Nepal, Sikkim].

113b. Rubus paniculatus var. glabrescens

圆锥悬钩子 tuo mao yuan zhui xuan gou zi

Leaves abaxially tomentose when young, glabrescent in age, margin sharply serrate.

● Forests; ca. 1700 m. NW Yunnan.

114. Rubus neoviburnifolius L. T. Lu & Boufford, nom. nov.

荚蒾叶悬钩子 jia mi ye xuan gou zi

Replaced synonym: Rubus viburnifolius Focke, Biblioth. Bot. 17(Heft 72): 75. 1910, not Franchet (1895), nor (Greene) Rydberg (1913); R. evadens Focke; R. nanopetals Cardot; R. viburnifolius Focke var. apetalus Y. Gu & W. L. Li.

Shrubs climbing. Branches brownish to dark brown, terete, robust, gray to yellowish gray tomentose, with sparse, somewhat curved prickles. Leaves simple; petiole 1–2.5 cm, gray to grayish yellow tomentose-villosus, with sparse, minute prickles; stipules caducous, lanceolate, 5–7 mm, deeply lobed, lobes linear, villous; blade broadly ovate to suborbicular, rarely narrowly ovate, 6–11 × 5–9.5 cm, lateral veins usually 5 pairs, abaxially gray to yellowish gray tomentose and villous along veins, adaxially pilose, more densely so along veins, base truncate to subcordate, margin undulate or inconspicuously 3-lobed, irregularly abruptly pointed-serrate, apex acute or shortly pointed. Inflorescences terminal or axillary, terminal ones cymose panicles, short, 7–14 cm, compact, many flowered, axillary ones subracemes, shorter, sometimes flowers few in clusters; racis and pedicels densely to grayish yellow tomentose-villosus; bracts unequal in length, those in basal part of inflorescence smaller, linear-lanceolate, 3-divided. Pedicel 0.8–1.5 cm. Flowers 8–10 mm in diam. Calyx yellowish tomentose and villous; sepals ovate-lanceolate, 5–8 × 3–5 mm, often undivided. Pedals white, spatulate or elliptic, smaller than sepals, glabrous, base clawed. Stamens many, somewhat longer than petals; filaments linear. Pistils fewer than stamens, slightly longer than or ca. as long as stamens, glabrous. Aggregate fruit red, 6–8 mm in diam., glabrous, with few drupelets; pyrenes rugose. Fl. late spring–summer, fr. summer–autumn.

● Dry slopes, mixed forests; 1200–3000 m. S Yunnan.


砂悬钩子 gao sha xuan gou zi

Rubus alceifolius Poiret var. emigratus Koidzumi (1913), not Focke (1904); R. formosensis Matsumura (1901), not Kuntze (1875); R. polyanthus H. L. Li; R. tephrodes Hance var. setosissimus Koidzumi (1939), not Handel-Mazzetti (1933).

Shrubs scrambling. Branches robust, grayish soft hairy and tomentose, with reddish glandular hairs 2–3 mm and few prickles; prickles ca. 2 mm, curved, base dilated; petiole 1–2 cm, tomentose, with minute prickles and glandular hairs; stipules free, 8–10 mm, margin lacerate to pinnatipartite; lobes linear, with soft hairs and intermixed sparse, glandular hairs; blade suborbicular or broadly ovate, 4–6 × 4.5–7 cm, 5-veined, veins prominent abaxially, slightly impressed adaxially, abaxially gray or grayish yellow tomentose, adaxially dark and slightly hirsute especially along veins, base broadly to deeply cordate, margin 5-lobed, unevenly sharply serrate, apex acute or obtuse. Inflorescences terminal, cymose panicles, much branched, 8–15(–20) cm, many flowered; rachis and pedicels densely tomentose; bracts 5–8 mm, margin lacerate to pinnatipartite; lobes linear to linear-lanceolate, puberulous, with few glandular hairs. Pedicel 1–2 cm. Flowers ca. 1 cm in diam. Calyx yellowish tomentose, with sparse, intermixed glandular hairs; tube

Rubus alceifolius var. diversilobatus (Merrill & Chun) T. T. Yu & L. T. Lu; R. bullatifolius Merrill; R. fimbriferus Focke; R. fimbriiferus var. diversilobatus Merrill & Chun; R. gilvus Focke; R. hainanensis Focke; R. lacinioatipulatus Hayata ex Koidzumi; R. mongolloii H. Lévillé & Vaniot; R. multibracteatus H. Lévillé & Vaniot var. demangei H. Lévillé.

Shrubs scendent, to 5 m tall, with arching or climbing branches. Branchlets brown or reddish brown, densely spreading straight tomentose-villosus, with sparse, recurved prickles to 5 mm; petiole 3–4.5 cm, yellowish gray to rust colored tomentose-villosus, with sparse, minute prickles; stipules 1–1.5 cm, margin densely grayish appressed tomentose; sepals triangular-ovate, 1–1.5 cm, margin finely crenulate; petals broadly obovate, 3–4.5 mm, yellowish gray to rust colored tomentose, apex with few long hairs at apex of anthers. Pistils numerous, longer than stamens; ovary and style glabrous. Fruit not seen. Fl. Jul–Sep(–Dec).


Rubus platysepalus var. gracilior Handel-Mazzetti.

Shrubs, to 2 m tall. Branchlets brown or reddish brown, terete, yellowish villous, with sparse, broad-based, recurved prickles. Leaves simple; petiole 3–4.5 cm, yellowish villous, with sparse, recurved minute prickles; stipules caducous, free, to 1 cm, villous, pinnatifid or pinnatifidly parted near to base, lobes linear or lanceolate; blade broadly ovate, 6–10 × 5–8.5 cm, palmately 5–veined, papery, abaxially yellowish gray tomentose, villous along brown to rust colored veins, with sparse, minute prickles along midvein, adaxially appressed strigose-pilose, base deeply cordate, margin 5–7–lobed; apex acutely or obtuse, terminal lobe longer than lateral lobes, irregularly coarsely serrate. Inflorescences terminal or axillary, terminal ones cymose panicles, 10–20 cm or more, loosely flowered; axillary inflorescences subcymes, shorter; rachis and pedicels yellowish villous, with sparse, curved minute prickles; bracts 7–9 mm, pinnatifid or pinnatifidly parted; ligules linear or linear-lanceolate, pedicel 5–8 cm. Flowers 8–10 mm in diam. Calyx abaxially yellowish villous; tube 4–5 mm; sepals broadly ovate or broadly triangular-ovate, 5–8 × 3–5 mm, apex acuminately, outer sepals acuminately, inner sepals entire, abaxially with tomentose margin. Petals white, broadly ovate, 4–5.5 mm and ca. as broad, pubescent, base clawed, apex obtuse. Stamens many, slightly shorter than or nearly as long as petals; filaments linear, dilated toward base, glabrous or with few long hairs at apex of anthers. Pistils numerous, longer than stamens; ovary whitish pubescent; styles glabrous. Fruit unknown. Fl. Jun–Aug.

- Thickets, roadsides; low elevations. Guangxi, W Hunan (Wu gang Xian).


Rubus arachnoideus var. nigrifrons (Y. C. Liu & F. Y. Lu) S. Y. Ying.

Subshrubs. Branchlets densely grayish appressed tomentose, with few small prickles. Leaves simple; petiole 1.5–2 cm, grayish tomentose; stipules 4–6 mm, much lacerate, grayish tomentose; blade ovately to broadly ovate, 5–7 × 4–6 cm, palmately 5–veined, margins raised abaxially, slightly impressed adaxially, abaxially densely grayish appressed tomentose, adaxially dark brownish, glabrous or slightly pubescent along veins, base broadly cordate, margin unevenly dentate, 3–5–lobed, terminal lobe 3–4 × 3–3.5 cm, lateral lobes smaller, apex obtuse or acute. Inflorescences terminal, cymose panicles, much branched, to 17 × 13 cm; rachis and pedicels grayish tomentose. Pedicel 0.8–2 cm, bracts linear or linear-lanceolate, slightly lacerate, grayish tomentose. Calyx cupular, 5–6 mm in diam., abaxially grayish tomentose; sepals triangular or triangular-ovate, 4–6 × 2–3 mm, apex acute. Petals white, broadly obovate or obovate-spatulate, 4–5 × 3–4 mm, both surfaces sparsely pubescent, base shortly clawed; torus densely villous. Stamens many; filaments free or connate at base, ca. 3 mm, glabrous. Pistils glabrous; styles 3–4 mm. Fruit not seen. Fl. Jul–Sep(–Dec).

- Broad-leaved forests; (300–)1500–1800 m. E Taiwan.

王玉新黄连子 yu li xuan gou zi

Shrubs. Branchlets pilose, densely prickly; prickles to 4 mm, slender, somewhat curved. Leaves simple; petiole 5–8 cm, densely hirsute and prickly; stipules ovate to ovate-oblong, 6–12 mm, pinnatifid or deeply laciniate; lobes linear, 7–8 mm, abaxially sparsely hirsute, adaxially glabrous; blade broadly cordate-ovate, 5–8 × 4.5–9 cm, thinly leathery, 5-veined, veins prominent abaxially, slightly impressed to flat adaxially, abaxially yellowish brown, tomentose, with intermixed long hairs, adaxially nearly glabrous except hirsute along veins, base broadly cordate, margin unevenly serrate, shallowly 5-lobed, terminal lobe 1.7–3.5 × 1.5–3.5 cm, longer than lateral lobes, apex obtuse to shortly acute. Inflorescences subbracteate, short, 3–5-flowered; rachis and pedicels densely hirsute; prickly; bracts orbicular-ovate, laciniate, abaxially puberulent, adaxially glabrous. Pedicel ca. 5 mm. Calyx cupular, abaxially densely tomentose and hirsute; sepals long ovate, 5–8 mm, margin entire, apex with 1–3 bristles. Petals orbicular, ca. 5 mm, glabrous. Stamens many; filaments glabrous. Pistils glabrous, styles ca. 7 mm. Fruit unknown. Fl. Jun–Jul–(Oct).

1. 1000–1400 m. E Taiwan.

No specimens have been seen by the present authors. Specimens under this name at HAST have been annotated by Naohiro Naruhashi as Rubus tephrodes (Ching-I Peng, pers. comm.).


黄穗悬钩子 huang sui xuan gou zi

Shrubs 2–3 m tall. Branchlets brownish to dark brown, te-rete, densely yellowish villous, with sparse, curved small prickles. Leaves simple; petiole 3.5–7 cm, densely yellowish villous, with sparse, curved minute prickles; stipules caducous, free, brown, 1–1.7 cm, villous, pinnatifid nearly to midvein, lobes linear; blade broadly ovate, 7–15 × 6–12 cm, palmately 5-vei ned, lateral veins 2 or 3 pairs, abaxially densely yellow tomen-tose, with intermixed long hairs along veins, glabrescent, with only sparse long hairs along veins in age, adaxially villous, base cordate, margin undivided, 5-divided, or somewhat undulate, irregularly coarsely sharply doubly serrate, apex abruptly long pointed or shortly acuminate. Inflorescences terminal or axil-lary, narrow cymose panicles or subcymes, terminal ones 12–26 cm, axillary ones shorter; rachis and pedicels densely yellow villous, with sparse, minute prickles; bracts 0.8–1.5(–2.3) cm, deeply lobed; lobes lanceolate or linear-lanceolate, villous. Pedicel 5–10 mm. Flowers 1–1.5 cm in diam. Calyx abaxially densely yellow villous, intermixed tomentose; sepals often erect in fruit, lanceolate, 1–1.2 cm × 3–6 mm, apex shortly caduate, outer sepals apically shallowly 2- or 3-laciniate. Petals white, suborbicular or obovate, 8–11 × 4–6 mm, base long clawed. Stamens many, slightly shorter than petals; filaments slightly broad at base. Pistils numerous, longer than stamens, glabrous. Aggregate fruit semiglobose, 8–10 mm in diam., glabrous, enclosed in calyx; pyrenes rugulose. Fl. Jun–Jul, fr. Aug–Sep.

1. Mixed forests on slopes, ravines, mountainous regions; 1700–2500 m. W Yunnan.

1. a. Leaves undivided or sometimes undulate; bracts 8–15 mm ............. 120a. var. chrysobotrys

1. b. Leaves often undulate 5-divided; bracts to 23 mm ...................... 120b. var. lobophyllus

120a. Rubus chrysobotrys var. chrysobotrys

黄穗悬钩子(原变种) huang sui xuan gou zi (yuan bian zhong)

Leaves undivided or sometimes 5-divided. Bracts 0.8–1.5 cm.

2. Mixed forests on slopes, ravines; 1700–2500 m. NW Yunnan.

120b. Rubus chrysobotrys var. lobophyllus

梗叶黄穗悬钩子 lie ye huang sui xuan gou zi

Leaves often undulate 5-divided. Bracts to 2.3 cm.

3. Mountainous regions; 2000–2400 m. SW Yunnan.


棕红悬钩子 zong hong xuan gou zi

Shrubs scendent, to 3 m tall. Branchlets brownish to reddish brown, cylindric, with soft hairs, brownish bristles, and sparse, needle-like prickles. Leaves simple; petiole 7–11 cm, brownish, with soft hairs, brownish soft bristles, and slightly needle-like prickles; stipules 1.5–2 cm, palmately 5-veined, pinnatifid or palmately lobed; lobes pinnately divided again into linear or linear-lanceolate lobes, soft hairy, bristly; blade suborbicular, 0.9–1.5 cm in diam., abaxially brownish tomente, with intermixed reddish brown long hairs and sparse, needle-like prickles along veins, adaxially villous only along veins, base cordate, margin 5-lobed; lobes triangular-lanceolate or oblong-lanceolate to narrowly elliptic-lanceolate, apex acute, terminal lobe longest, lobes near base shorter, triangular, irregularly sharply serrate. Inflorescences terminal, narrow panicles or subcymes, 6–8(–10) cm, few flowered, or flowers in clusters in leaf axils; rachis and pedicels with dense soft hairs, brownish bristles, and sparse, needle-like prickles; bracts to 1.5 cm, palmatipartite; lobes linear or linear-lanceolate, soft hairy, bristly. Pedicel 0.7–1(–2.5) cm. Flowers ca. 1 cm in diam. or more. Calyx abaxially brownish tomentose and bristly; tube shallowly cupular; sepals erect in fruit, broadly ovate or ovate-lanceolate, 0.8–1.2 cm × 5–7 mm, apex caudate, outer sepals apically shallowly laciniate, inner sepals entire. Petals white, broadly elliptic or suborbicular, 5–7 mm in diam., glabrous, base shortly clawed, apex somewhat undulate or erose. Stamens many, longer than or nearly as long as petals; filaments linear or with slightly broadened bases. Pistils 30–40, longer than stamens; style and ovary glabrous. Aggregate fruit orange-red, with few drupellets, glabrous, enclosed in calyx; pyrenes distinctly rugulose. Fl. Jun–Aug, fr. Sep–Oct. 2n = 28*.
ROSACEAE

Shrubs scandent. Branchlets brownish to reddish brown, terete, with soft hairs, bristles, and curved prickles. Leaves simple; petiole 6–8(–10) cm, with soft hairs, brownish bristles, and sparse, curved prickles; stipules caducous, free, brown, 1–1.2 \times 0.7–1 cm, apex pectinately lobed, lobes lanceolate, soft hairy, bristly; blade suborbicular, 9–14 cm in diam., palmately 5-veined, abaxially densely brownish tomentose, with intermixed long hairs and sparse, curved small prickles along veins, adaxially villous along veins, base cordate, margin 5-lobe; lobes broadly triangular to triangular-lanceolate, terminal lobe larger, apex acute to acuminate, irregularly sharply serrate. Inflorescences few flowered, clusters in leaf axils, or terminal and short subracemes, to 6–9 cm; rachis and pedicels with dense soft hairs, brownish bristles, and sparse, minute prickles; bracts to 1.2 cm, apex lobed; lobes lanceolate, soft hairy, bristly. Pedicel 5–10 mm. Flowers 1.2–1.7 cm in diam. Calyx abaxially densely brownish tomentose and bristly; sepals narrowly lanceolate to lanceolate or ovate-lanceolate, 6–10 × 4–7 mm, apex acute or shortly acuminate to ciliate, outer sepals often laciniate above middle; lobes linear, inner sepals entire. Petals white, suborbicular or broadly elliptic, slightly shorter than or nearly as long as sepals, glabrous, base shortly clawed. Stamens many, somewhat shorter than petals; filaments linear. Pistils slightly longer than stamens; style and ovary glabrous. Aggregate fruit red, subglobose, glabrous, with many drupelets, enclosed in calyx; pyrenes prominently rugulose. Fl. Jul–Aug, fr. Sep–Oct.

Shrubs to 3 m tall. Branchlets brownish to purplish brown, terete, stout, yellow tomentose and with sparse, curved small prickles. Leaves simple; petiole 3–6 cm, densely yellow tomentose, with sparse, minute prickles; stipules caducous, free, brown, 1–1.5 × 1.5–2.5 cm, apex pectinately lobed; lobes lanceolate or narrowly elliptic-lanceolate, 6–10 × 4–7 mm, apex acute or shortly acuminate to ciliate, outer sepals often laciniate above middle; lobes linear, inner sepals entire. Petals white, suborbicular or broadly elliptic, slightly shorter than or nearly as long as sepals, glabrous, base shortly clawed. Stamens many, somewhat shorter than petals; filaments linear. Pistils slightly longer than stamens; style and ovary glabrous. Aggregate fruit red, subglobose, glabrous, with many drupelets, enclosed in calyx; pyrenes prominently rugulose. Fl. Jul–Aug, fr. Sep–Oct.


Shrubs scandent. Branchlets brownish to reddish brown, terete, with soft hairs, bristles, and curved prickles. Leaves simple; petiole 3–6 cm, densely yellow tomentose, with sparse, minute prickles; stipules caducous, free, brown, 1–1.5 × 1.5–2.5 cm, apex pectinately lobed; lobes lanceolate or narrowly elliptic-lanceolate, 6–10 × 4–7 mm, apex acute or shortly acuminate to ciliate, outer sepals often laciniate above middle; lobes linear, inner sepals entire. Petals white, suborbicular or broadly elliptic, slightly shorter than or nearly as long as sepals, glabrous, base shortly clawed. Stamens many, somewhat shorter than petals; filaments linear. Pistils slightly longer than stamens; style and ovary glabrous. Aggregate fruit red, subglobose, glabrous, with many drupelets, enclosed in calyx; pyrenes prominently rugulose. Fl. Jul–Aug, fr. Sep–Oct.
tuse or acute. Inflorescences terminal and axillary, terminal ones narrow cymose panicles or subracemes, 7–14 cm, axillary ones racemes or flowers few in clusters in leaf axils; rachis and pedicels densely yellow or yellowish white sericeous-villos; bracts similar to stipules in shape, 1–1.5 cm, palmately laciniate; lobes lanceolate. Pedicel 1–1.5 cm, rarely longer. Flowers 1.5–2.5 cm in diam. Calyx abaxially densely yellow or yellowish white sericeous-villos; tube broadly pelviform; sepals erect in fruit, 0.9–1.5(–2.4) cm × 4–7 mm, margin sometimes slightly tomentose, apex acuminate; outer sepals larger, palmately to pinnately divided, rarely undivided, inner sepals narrower, not or occasionally lobed. Petals white, obovate or spatulate, 0.8–1.4 cm × 5–8 mm, glabrous, base clawed. Stamens many; filaments broad, complanate; anthers with few hairs. Pistils numerous, longer than stamens; ovary glabrous or sparsely villous; proximal bracts subflabellate, those on pedicel villous, apex margin distinctly 5-lobed, lobes apically acute or ± obtuse, unevenly densely serrate. Inflorescences terminal and axillary, terminal ones narrow cymose panicles or subracemes, axillary ones subracemes or flowers in clusters in leaf axils; rachis and pedicels densely gray or yellowish brown tomentose and villous; proximal bracts subflabellate, those on pedicel elliptic, apex margin or apically divided, thinly tomentose, soft hairy. Pedicel 1.5–3(–4) cm. Flowers 1–1.5 cm in diam. Calyx densely tomentose and villous; sepals broadly ovate, 4.5–5 mm, about as broad as long, margin entire or slightly lobed, apex acuminate. Petals white or yellowish white, obovate or suborbicular, ca. 5 mm, about as broad as long. Stamens many, glabrous; filaments linear. Pistils numerous; style and ovary glabrous. Aggregate fruit red, globose, to 2 cm in diam.; pyrenes prominently rugose. Fl. Mar–Jun, fr. Aug–Sep.

Slopes, river valleys, roadsides, forests; 300–2700 m. Guangdong, Guangxi, Guizhou, Yunnan [Cambodia, Laos, Thailand, Vietnam].

1a. Sepals to 1.5 cm, palmately to pinnately divided, lobes usually undivided .................................................. 123a. var. pluribracteatus
1b. Sepals to 2.4 cm, palmatifipartite above middle, lanceolate lobes divided again ........................................ 123b. var. lobatisepalus

123a. Rubus pluribracteatus var. pluribracteatus

大乌泡（原变种）da wu pao (yuan bian zhong)

Rubus andropogon H. Léveillé; R. clinopehalus Focke; R. major Focke; R. mallodes Focke.

Sepals to 1.5 cm, palmately to pinnately lobed; lobes usually undivided.

Slopes, river valleys, roadsides, forests; 300–2700 m. Guangdong, Guangxi, Guizhou, Yunnan [Cambodia, Laos, Thailand, Vietnam].

123b. Rubus pluribracteatus var. lobatisepalus (T. T. Yu & L. T. Lu) L. T. Lu & Boufford, comb. nov.

裂萼大乌泡 lie e da wu pao


Sepals to 2.4 cm, palmatifipartite above middle; lobes lanceolate, divided again.

- Forest margins; below 2500 m. W Yunnan.


网脉悬钩子 wang mai xuan gou zi

Shrubs scandent, to 1 cm tall. Branchlets brown, gray to yellowish gray tomentose, with soft hairs and sparse, curved minute prickles, rarely unarmed. Leaves simple; petiole 4–9 cm, gray to yellowish gray tomentose, with soft hairs and sparse, minute prickles; stipules subflabellate, pectinately lobed; lobes divided again, with lanceolate lobules, tomentose, soft hairy; blade broadly ovate to suborbicular, 12–20 × 10–18 cm, palmately 5-veined, lateral veins 5–7 pairs, prominent abaxially, abaxially densely yellowish gray tomentose, with long hairs along veins, adaxially pilose, densely so along veins, base cordate, margin distinctly 5-lobed, lobes apically acute or ± obtuse, unevenly densely serrate. Inflorescences terminal and axillary, terminal ones narrow cymose panicles or subracemes, axillary ones subracemes or flowers in clusters in leaf axils; rachis and pedicels densely gray or yellowish brown tomentose and villous; proximal bracts subflabellate, those on pedicel elliptic, apex margin or apically divided, thinly tomentose, soft hairy. Pedicel 1.5–3 cm. Flowers 1–1.5 cm in diam. Calyx densely tomentose and villous; sepals broadly ovate, 4.5–5 mm, about as broad as long, margin entire or slightly lobed, apex acuminate. Petals white or yellowish white, obovate or suborbicular, ca. 5 mm, about as broad as long. Stamens many, glabrous; filaments linear. Pistils numerous; style and ovary glabrous. Aggregate fruit red, globose, 1–1.5 cm in diam. Fl. Jul–Aug, fr. Sep–Oct.

Broad-leaved evergreen forests in montane valleys, ravines, thickets on slopes; 600–2100 m. SE Xizang [NW India, Nepal, Sikkim].

125. Rubus setchuenensis Bureau & Franchet, J. Bot. (Morot) 5: 46. 1891.

川莓 chuan mei

Rubus cavaleriei H. Léveillé & Vaniot; R. clemens Focke; R. lyi H. Léveillé; R. omeiensis Rolfe; R. pacatus Focke; R. pascatus var. alpus Focke; R. setchuenensis var. omeiensis (Rolfe) Handel-Mazzetti; R. singulifolius Focke.

Shrubs 2–5 m tall. Branchlets yellowish brown when young, brown or reddish brown in age, terete, densely yellowish tomentose-villos, gradually glabrescent, unarmed. Leaves simple; petiole 5–7 cm, yellowish tomentose-villos, often unarm; stipules caducous, free, ovate or ovate-lanceolate, rarely narrowly ovate, 7–11 mm and nearly as broad, tomentose-villos, apex palmately laciniate; blade suborbicular or broadly ovate, 7–15 cm in diam., palmately 5-veined, lateral veins 2 or 3 pairs, raised abaxially, abaxially densely gray tomentose, sometimes hairs gradually deciduous, adaxially scabrous, glabrous or soft hairy along veins, base cordate, margin 5–7-lobed; lobes shallowly divided again, apex obtuse, rarely acute, unevenly shallowly obtusely dentate. Inflorescences terminal or axillary, narrow cymose panicles, 8–14 cm, to 20 cm in fruit, axillary inflorescences sometimes, sometimes flowers few in clusters in leaf axils; rachis and pedicels densely yellowish brown tomentose-villos; bracts similar to stipules in shape, 5–9 × 3–5 mm, tomentose-villos, apex palmate-laciniate. Pedicel ca. 1 cm. Flowers 1–1.5 cm in diam. Calyx abaxially yellowish tomentose, intermixed soft hairs; sepals erect in fruit, rarely reflexed, ovate-lanceolate, margin entire or outer sepals shallowly laciniate apically, apex caudate. Petals purplish red, obovate or suborbicular, 4–6 mm in diam., much shorter than sepals, glabrous, base clawed. Stamens many, shorter than petals; filaments linear, glabrous. Pistils longer than stamens; style and ovary glabrous. Aggregate fruit black, semiglobose, ca. 1 cm in diam., glabrous, often enclosed in persistent calyx; pyrenes small, smooth. Fl. Jul–Aug, fr. Sep–Oct. 2n = 28*.
• Slopes, roadsides, forest margins, thickets; 500–3000 m. Guangxi, Guizhou, Hubei, Hunan, Sichuan, Yunnan.

This species often forms dense, impenetrable thickets on deforested slopes.


峨眉悬钩子 e mei xuan gou zi

Shrubs. Branchlets brown to purplish brown, terete, densely tomentose-villosous, usually unarmed. Leaves simple; petiole 4–9 cm, tomentose, unarmed or with few small prickles; stipules caducous, free; blade broadly ovate, rarely suborbicular, 10–18 × 8–17 cm, palmately 5-veined, lateral veins 3 or 4 pairs, prominent abaxially, leathery, abaxially densely yellowish tomentose, soft hairy along veins, adaxially scabrous, glabrous, base cordate, margin 7–11-lobed; lobes triangular, margin irregularly sharply serrate, apex acute. Inflorescences terminal and axillary, cymose panicles, axillary ones smaller; rachis and pedicels sharply serrate, apex acute. Fl. Jun–Jul, fr. Aug–Sep. 2n = 28*.

• Dry places, rocks, stream sides, sparse forests in valleys; low to high elevations. Guangdong, Guangxi, Taiwan.


羽萼悬钩子 yu e xuan gou zi

Shrubs lianoid, to 2 m tall, stoloniferous. Branchlets brown to purplish brown, tomentose-villosous, with curved minute prickles, sometimes with glandular hairs. Leaves simple; petiole 3–7 cm, tomentose-villosous, with minute prickles; stipules broadly flabellate, 1–1.5(–2) cm, membranous, pinnate or palmately parted nearly to base; lobes lanceolate or linear, villous; blade orbicular to broadly ovate, 7–14 cm in diam., 5-veined, veins distinctly raised abaxially, slightly impressed adaxially, papery, abaxially densely gray tomentose and villous, with minute needle-like prickles along veins, adaxially prominently rugose, sparsely villous, base cordate, margin 5–7-lobed; lobes irregularly coarsely serrate to doubly serrate, apex obtuse or acute. Inflorescences terminal and axillary, short subracemes, 3–5 cm, 1- or few flowered, or flowers several in clusters in leaf axils; rachis and pedicels gray or yellowish tomentose-villosous; bracts narrower than stipules, 1–1.5 cm, villous, enclosed in persistent calyx; pyrenes conspicuously rugulose. Fl. Jun–Jul, fr. Aug–Sep.

• Mountains; to medium elevations. W Sichuan.
**ROSACEAE**


Shrubs erect or creeping, to 3 m tall. Branchlets brown or reddish brown, yellow sericeous-villous, gradually glabrescent, with sparse, curved minute prickles. Leaves simple; petiole 2–3 cm, densely yellow sericeous-villous, with sparse, curved prickles; stipules caducous, broadly ovate to oblong, 6–8 mm, abaxially yellow sericeous-villous, laciniate, lobes lanceolate; blade narrowly ovate, rarely elliptic, 10–13 × 6–8 cm, lateral veins 8–10 pairs, raised abaxially, abaxially densely rusty yellow tomentose, with long silky rusty yellow hairs along veins, adaxially glabrous, base rounded, margin undivided, sparsely shallowly sharply serrate, apex acuminate. Inflorescences terminal and axillary, terminal ones cymose panicles, 4–8 cm, axis and axillary ones subracemes, shorter; rachis and pedicels rusty yellow sericeous-villous, with sparse, minute prickles; bracts broadly ovate to oblong, 5–7 mm, yellow sericeous-villous, margin laciniate; lobes lanceolate. Pedicel not more than 1 cm. Flowers 1–1.4 cm in diam. Calyx abaxially densely rusty yellow sericeous-villous; sepals erect after anthesis, narrowly ovate to ovate-lanceolate, 6–8 × 4–5 mm, apex acute, outer sepals divided, inner sepals entire, margin tomentose. Petals white, suborbicular to broadly ovate, shorter than...
sepals, base shortly clawed. Stamens many; filaments linear; anthers villous. Pistils numerous, longer than stamens, glabrous.


● Slopes, sunny valleys, roadsides, thickets, waste places; low elevations. S Yunnan.


麻栗坡悬钩子 ma li po xuan gou zi

Shrubs to 2 m tall. Branchlets dark brown to purplish brown, sparsely pubescent when young, glabrescent, with sparse, curved small prickles. Leaves simple; petiole 2.5–4 cm, sparsely pubescent, with minute prickles; stipules caducous, free, narrowly obovate, yellowish villose, apex palmatipartite, lobes lanceolate or linear-lanceolate; blade ovate, 6–11 × 3–6 cm, lateral veins 4 or 5 pairs, raised abaxially, slightly impressed adaxially, abaxially densely rusty yellow tomentose, with long hairs along veins, adaxially glabrous, base cuneate to rounded, margin undivided, sharply serrulate, apex caudate. Inflorescences terminal and axillary, short subracemes, to 8 cm, few flowered, sometimes flowers several in clusters or flowers solitary in leaf axils; rachis and pedicels yellowish villous; bracts narrowly obovate or broadly obovate, palmatipartite apically; lobes lanceolate or linear-lanceolate. Pedicel 1–1.5 cm. Flowers ca. 1 cm in diam. Calyx abaxially yellow-villous; sepals erect in fruit, lanceolate, 7–8 × 3–4 mm, margin entire or outer sepals lanceinate, tomentose, apex acuminate. Petals suborbicular, much shorter than sepals, glabrous, base shortly clawed. Stamens slightly shorter than or nearly as long as petals; filaments broad, complanate. Pistils 10–20 or slightly more, glabrous; styles much longer than stamens. Aggregate fruit small, with few drupelets, enclosed in persistent calyx; pyrenes prominently rugose. Fl. Jul–Sep. fr. Oct–Dec.

● Foothills, rocky mountains, forest clearings; 1100–1500 m. SE Yunnan.


锈叶悬钩子 xiu ye xuan gou zi

Shrubs more than 1 m tall. Branchlets brownish to dark brown, terete, densely rust colored tomentose, with sparse, minute prickles. Leaves simple; petiole 4–6.5 cm, densely rust-brown tomentose, with sparse, minute prickles; stipules free, obovate-lanceolate, to 1.5 cm, densely rust-brown tomentose, margin pinnately incised; lobes linear or linear-lanceolate; blade broadly ovate, 12–20 × 8–16 cm, thick, lateral veins 4 or 5 pairs, prominently raised abaxially, impressed adaxially, abaxially rust-brown tomentose, adaxially so only along veins, base cordate, margin unevenly sharply doubly serrate, apex acuminate. Inflorescences terminal or axillary, cymose-subpaniculate, compact, many flowered, terminal ones 5–10 cm, axillary ones 4–6 cm; rachis, pedicels, and abaxial surface of calyx densely rust-brown tomentose; bracts 1.3–1.5 cm, tomentose, margin lacinate or undivided. Pedicel ca. 1 cm. Flowers 7–10 mm in diam. Sepals erect after anthesis, ovate to ovate-lanceolate, 3–5 mm, apex acute to acuminate; outer sepals usually divided apically, inner sepals entire. Petals broadly obovate or suborbicular, shorter than sepals, glabrous, base shortly clawed, apex premeorse. Stamens often short, rarely nearly as long as petals; filaments linear. Pistils numerous, longer than stamens; ovary glabrous. Fruit unknown. Fl. Jul–Aug.

● Forest margins; 1300–2000 m. NW and S Yunnan.


桂滇悬钩子 gui dian xuan gou zi

Rubus liboensis T. L. Xu.

Shrubs scandent, to 5 m tall. Branchlets brown or reddish brown, terete, soft hairy when young, glabrescent, with sparse, curved minute prickles. Leaves simple; petiole 2–4 cm, villous when young, glabrescent, with sparse, minute prickles; stipules caducous, free, oblong or ovate-lanceolate, 6–9 mm, yellow tomentose-villous, apex palrnately lobed, lobes lanceolate; blade ovate to broadly ovate, rarely suborbicular, 8–11 × 5–9 cm, lateral veins 4–6 pairs, raised abaxially, abaxially densely rusty yellow tomentose, with long hairs along veins, adaxially glabrous, base truncate to shallowly cordate, margin undulate or slightly lobed, irregularly coarsely abruptly pointed-serrate, apex acute to shortly acuminate. Inflorescences terminal and axillary, short subracemes, loose, few flowered, sometimes flowers several in clusters in leaf axils or solitary; rachis and pedicels densely yellow tomentose-villous; bracts broadly obovate to oblong, 5–8 mm, yellow tomentose-villous, apex palrnately lobed; lobes lanceolate. Pedicel 3–7 mm. Flowers 6–9 mm in diam. Calyx abaxially densely yellow sericeous-villous; sepals erect in fruit, lanceolate, 5–8 × 2.5–4 mm, margin tomentose, apex acuminate; outer sepals apically often lobed, inner sepals entire. Petals suborbicular or obovate, 4–6 × 3.5–5 mm, shorter than sepals, puberulous, base shortly clawed, apex incised. Stamens many, shorter than petals; filaments broader toward base. Pistils longer than stamens; ovary and style glabrous. Aggregate fruit red, glabrous, with few drupelets, enclosed in persistent calyx; pyrenes shallowly rugose. Fl. Jun–Jul. fr. Aug–Sep.

● Forests, hills, montane valleys; below 900 m. W Guangxi, S Guizhou, Yunnan.


绣毛莓 xiu mao mei

Shrubs scandent, to 2 m tall. Branchlets brown to dark reddish brown, rust colored tomentose, with sparse, minute prickles. Leaves simple; petiole 2.5–5 cm, tomentose-villous, with sparse, minute prickles; stipules broadly obovate, 1–1.4(–2.5) × 0.9–1.3 cm, villous, margin pectinately or irregularly palrnately lobed, lobes lanceolate or linear-lanceolate; blade narrowly or broadly ovate to suborbicular, 7–14(–20) × 5–11(–19) cm, abaxially rust colored tomentose, with long hairs along veins, adaxially glabrous or sparsely soft hairy along veins, prominently rugose, base cordate, margin 3–5(–7)-lobed or -parted; terminal lobe longer, larger, lanceolate or ovate-lanceolate, much longer than or nearly as long as lateral lobes, margin unevenly coarsely serrate to doubly serrate, apex obtuse or acute. Inflorescences terminal, short subracemes, 5–8 cm, or flowers
several in clusters in leaf axils; rachis and pedicels rusty villous; bracts obovate, 6–12 × 7–11 mm, villous, pectinately or palmately lobed; lobes linear or linear-lanceolate. Pedicel 3–6 mm. Flowers 1–1.5 cm in diam. Calyx abaxially densely rusty villous; sepals ovate-orbicular or ovate-lanceolate to lanceolate, 6–8 × 4–7 mm, outer sepals apically often palmately lobed; lobes lanceolate, inner sepals entire, margin tomentose. Petals white, oblong to suborbicular, nearly as long as sepals, glabrous, base shortly clawed. Stamens shorter than petals; filaments broad, complanate; anthers glabrous or api- cally hairy. Pistils longer than stamens, glabrous. Aggregate fruit dark red, subglobose, 7–10 mm in diam.; pyrenes rugose. Fl. Jun–Jul, fr. Aug–Sep.

- Mountainous regions, slopes, sparse forests, thickets, valleys, stream sides, moist places, near water courses; 300–1500 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang.

1a. Leaf blade narrowly ovate, margin lobed or slightly undulate, terminal lobe much longer than lateral lobes.
2a. Leaf blade prominently lobed; stipules and bracts to 1.4 cm; sepals ovate-orbicular. 135a. Rubus reflexus var. reflexus
2b. Leaf blade slightly undulate or inconspicuously lobed; stipules and bracts to 2.5 cm; sepals lanceolate to ovate-lanceolate. 135b. Rubus reflexus var. orogenes
1b. Leaf blade broadly ovate to suborbicular, margin prominently lobed to parted, terminal lobe only slightly longer than or nearly as long as lateral lobes.
3a. Leaf blade 5–7-parted, segments lanceolate to oblanceolate. 135e. Rubus reflexus var. lanceolobus
3b. Leaf blade 3–5-lobed.
4a. Leaf blade 8–13 × 7–12 cm. 135c. Rubus reflexus var. hui
4b. Leaf blade 14–20 × 12–19 cm. 135d. Rubus reflexus var. macrophyllus

135a. Rubus reflexus var. reflexus
锈毛莓(原变种) xiu mao mei (yuan bian zhong)

Rabus esquirolii H. Léveillé.

Leaf blade prominently lobed; stipules and bracts to 1.4 cm. Sepals ovate-orbicular.

- Slopes, thickets in valleys, sparse forests; 300–1000 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Yunnan, Zhejiang.

135b. Rubus reflexus var. orogenes

长叶锈毛莓 chang ye xiu mao mei


浅裂锈毛莓 qian lie xiu mao mei


Leaf blade 8–13 × 7–12 cm, margin 3–5-lobed. 2n = 42*.

- Thickets on slopes, moist places in sparse forests, stream sides in montane valleys; 300–1500 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang.


大叶锈毛莓 da ye xiu mao mei

Leaf blade 14–20 × 12–19 cm, margin 3–5-lobed.

- Montane valleys; below 1300 m. SE Yunnan (Pingbian Xian).


深裂悬钩子 shen lie xuan gou zi

Leaf blade 5–7-lobed, lobes lanceolate or oblanceolate.

- Valleys, near water courses, sparse forests; low elevations. Fujian, Guangdong, Guangxi, Hunan.


攀枝莓 pan zhi mei

Rabus maschalanthus Cardot.

Shrubs scendent or creeping. Branchlets brown or reddish brown, densely gray tomentose when young, glabrescent, with sparse, curved minute prickles. Leaves simple; petiole 3–6 cm, densely gray tomentose when young, glabrescent, with sparse, curved minute prickles; stipules caducous, free, brown, 7–12 mm, yellow tomentose-villous, apex palmately lobed, lobes lanceolate; blade ovate or narrowly ovate, 7–15 × 5–9 cm, palmately 5-veined, lateral veins 4 or 5 pairs, raised abaxially, papery, abaxially densely rusty yellow tomentose, adaxially glabrous, base deeply cordate, margin often undivided or slightly undulate, unevenly obtusely serrate, apex acute to shortly acuminate. Inflorescences short racemes, 2.5–5 cm, few flowers or flowers several in clusters; rachis and pedicels densely yellow tomentose-villous; bracts brown, 6–11 mm, tomentose-villous, palmately divided apically; lobes lanceolate. Pedicel 1–2 cm. Flowers 1–1.2 cm in diam. Calyx abaxially densely yellow tomentose-villous; tube cupular; sepals reflexed after anthesis, ovate-lanceolate, 5–8 × 3–5 mm, apex shortly acuminate to acuminate; outer sepals broader than inner sepals, margin 2- or 3-lobed, inner sepals with entire margin. Petals white, suborbicular, much shorter than sepals, basally puberulous. Stamens many, glabrous or slightly pilose; filaments somewhat longer than petals, apex subulate; anthers glabrous. Pistils slightly...
longer than stamens; styles and ovaries often glabrous. Aggregate fruit black at maturity, semiglobose, 1–1.3 cm in diam., glabrous; pyrenes smooth or slightly rugose. Fl. May–Jun, fr. Jul–Aug.

- Waste places on hills, rock cliffs, slopes, valleys; 900–1500 m. Fujian, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Taiwan (Lan Yu).


骸叶悬钩子 ji ye xuan gou zi

Rubus rufolanatus H. T. Chang.

Shrubs evergreen, scandent, to 12 m tall. Branches grayish brown, terete, long flagelliform; branchlets brownish, densely gray tomentose, glabrescent, with sparse, short prickles; petiole 2–5 mm, densely tomentose, unarmed or occasionally with minute prickles; stipules caducous, free, oblong, 6–9 mm, palmatifidly nearly to base, lobes linear-lanceolate, soft hairy; blade oblong-lanceolate or ovate-lanceolate, 6–12 × 2.5–4 cm, lateral veins 5–8 pairs, prominent abaxially, subleathery, abaxially densely red brown tomentose, adaxially dark green, glabrous, base deeply cordate, margin usually with 2 distinct lobes near base; lobes serrulate, apex obtuse or acute. Inflorescences terminal or axillary, short racemes or corymbose, 3–5 cm, 3–8-flowered; rachis and pedicels densely reddish brown sericeous-villous; bracts caducous, oblong, 5–8 mm, soft hairy, palmatifidly nearly to base, but bracts apically on inflorescences often shorter, divided into 2 or 3 linear lobes. Pedicel 0.8–1.5 cm. Flowers ca. 1.5 cm in diam. Calyx abaxially pubescent or subglabrous; tube shallowly cupular; sepals triangular-ovate, 4–6 × 1.5–3 mm, margin entire, apex acuminated to shortly caudate. Petals greenish, oblong, shorter than sepals, apex obtuse. Stamens numerous, shorter than petals; filaments broad, complanate, glabrous. Pistils ca. 15–20, shorter than or nearly as long as stamens; ovary and style glabrous. Fruit unknown. Fl. Jun–Jul.

- Dense forests; ca. 1700 m. NW Yunnan.

139. Rubus pirifolius Smith, Pl. Icon. Ined. 3: t. 61. 1791.

梨叶悬钩子 li ye xuan gou zi

Shrubs climbing, to 8 m tall. Branches grayish brown to dark purplish brown, terete; branchlets brown or reddish brown, soft hairy, glabrescent, with few complanate curved prickles. Leaves simple; petiole to 1 cm, hairy, with sparse prickles; stipules caducous, free, linear-lanceolate, 7–8 mm, hairy, apex laciniate into 3–5 lobes; blade ovate, ovate-oblong, or elliptic-oblong, 6–11 × 3.5–5.5 cm, venation pinnate, lateral veins 5–8 pairs, prominent abaxially, slightly impressed adaxially, papery, both surfaces nearly glabrous except densely hairy along mid-vein and lateral veins, hairs deciduous in age, base rounded or shallowly cordate, margin unevenly coarsely serrate, apex acute to acuminate. Inflorescences terminal and axillary, terminal ones cymose panicles, 10–14 cm, axillary ones panicles or subracemes, smaller; rachis and pedicels densely grayish yellow pubescent or subglabrous, unarmored or with few small prickles; bracts early caducous, linear-lanceolate, 6–7 mm, hairy, apex divided into 3 or 4 lobes. Pedicel 4–12 mm. Flowers 1–1.5 cm in diam. Calyx abaxially pubescent or subglabrous; tube shallowly cupular; sepals triangular-lanceolate or ovate-lanceolate, 6–8 × 2–3.5 mm, margin entire or apically 2- or 3-laciniate. Petals white, elliptic to obovate, 3–5(–7) mm, shorter than sepsals, glabrous. Stamens many, slightly longer than petals; filaments linear. Pistils 5–10(–17); ovary often with many long hairs abaxially, rarely glabrous; styles to 6(–8) mm, glabrous, rarely with some hairs basally. Aggregate fruit red, 1–1.5 cm in diam., with several druplets, usually glabrous; druplets 4–6 × 3–5 mm; pyrenes rugose. Fl. Apr–Jul, fr. Aug–Oct. 2n = 42.

Mountainous regions, sheltered sites on mountains, forests, forest margins, stream sides; below 2100 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Sichuan, Taiwan, Yunnan, Zhejiang [Cambodia, Indonesia, Laos, Malaysia, Philippines, Thailand, Vietnam].

This species is used medicinally.

1a. Leaf blade shallowly cordate; inflorescences and abaxial surface of calyx subglabrous or sparsely hairy ........................................ 139d. var. cordatus

1b. Leaf base rounded; inflorescences and abaxial surface of calyx densely hairy.

2a. Leaf blade adaxially and sepal abaxially tomentose .................. 139c. var. tomentosus

2b. Leaf blade hairy adaxially; sepal abaxially densely hairy.

3a. Leaf blade hairy only along

This species is used medicinally.
Leaves simple; petiole 1–2 cm, slightly brown, slightly angled, thinly pubescent, glabrescent, with sparse, curved minute prickles. Leaves simple; petiole 7–10 mm, pubescent, with sparse, curved minute prickles; stipules free, brown, oblong-lanceolate or elliptic-lanceolate, 1–1.4 cm × 3–5 mm, margin entire or sparsely shallowly serrate; blade oblanceolate, 7–13 × 2–3 cm, lateral veins 8–11 pairs, prominent abaxially, abaxially sparsely pubescent only along veins, with remote curved minute prickles along midvein, abaxially glabrous except pubescent along midvein, base rounded, margin coarsely serrate. Pedicels and abaxial surface of calyx puberulous; leaf margin coarsely serrate. Pedicels and abaxial surface of calyx puberulous; leaf margin sharply serrulate. Pedicel and abaxial surface of calyx usually glabrous; leaf margin sharply serrulate. Pedicel and abaxial surface of calyx puberulous; leaf margin coarsely serrate. Pedicel and abaxial surface of calyx usually glabrous; leaf margin sharply serrulate. Pedicel and abaxial surface of calyx puberulous; leaf margin coarsely serrate. Pedicel and abaxial surface of calyx usually glabrous; leaf margin sharply serrulate. Pedicel and abaxial surface of calyx puberulous; leaf margin coarsely serrate. Pedicel and abaxial surface of calyx usually glabrous; leaf margin sharply serrulate. Pedicel and abaxial surface of calyx puberulous; leaf margin coarsely serrate.

Shrubs. Branchlets brownish to dark brown, terete, pubescent, glabrescent, with sparse, curved minute prickles. Leaves simple; petiole 7–10 mm, pubescent, with sparse, curved minute prickles; stipules free, brown, oblong-lanceolate or elliptic-lanceolate, 1–1.4 cm × 3–5 mm, margin entire or sparsely shallowly serrate; blade oblanceolate, 7–13 × 2–3 cm, lateral veins 8–11 pairs, prominent abaxially, abaxially sparsely pubescent only along veins, with remote curved minute prickles along midvein, abaxially glabrous except pubescent along midvein, base rounded, margin coarsely serrate, apex acuminate. Inflorescences terminal or axillary, narrow cymose panicles, sometimes subcorymbose, less than 8 cm; rachis and pedicels usually glabrous, occasionally sparsely pubescent; bracts linear or lanceolate, 3–5 mm, margin entire or dentate. Pedicel 1–2 cm. Flowers ca. 1 cm in diam. Calyx abaxially glabrous; tube shallowly cupular; sepals erect in fruit, ovate, 4.5 × 2–4 mm, inner sepals tomentose marginally, margin undivided, apex shortly acuminate. Petals white, broadly elliptic or oblong, 4.5 × 2–3 mm, glabrous, base shortly clawed. Stamens many; filaments slightly broadened basally, shorter than petals. Pistils ca. 10–20, shorter than stamens; ovary glabrous. Aggregate fruit red, glabrous, with few larger drupelets, enclosed in persistent calyx; pyrenes rugose. Fl. Jul–Sep, fr. Oct–Nov. 2n = 28.

Thickets, bamboo thickets, sparsely forested slopes, stream sides, roadsides; 1000–1500 m. Guizhou, Yunnan [Bhutan, India, Nepal, Sikkim, Vietnam].

140a. Rubus acuminatus var. acuminatus

尖叶悬钩子 (原变种) jian ye xuan gou zi (yuan bian zhong)

R. brevipedatus Elmer; R. floribundopaniculatus Hayata; R. parvipetalus Odashima; R. philippinensis Focke ex Elmer; R. rotundifolius Reinwardt ex Miquel.

Leaf base shallowly cordate. Inflorescences and abaxial surface of calyx subglabrous or sparsely hairy. Leaf base rounded; blade adaxially and sepals abaxially densely hairy. Leaf base rounded; blade densely hairy adaxially, especially more densely so along veins. Leaf base shallowly cordate. Inflorescences and abaxial surface of calyx densely hairy. Leaf base rounded; blade hairy only along veins adaxially, glabrate in age. Inflorescences and abaxial surface of calyx densely hairy. Leaf base rounded; blade hairy only along veins adaxially, glabrate in age. Inflorescences and abaxial surface of calyx densely hairy. Leaf base rounded; blade adaxially and sepals abaxially densely hairy. Leaf base rounded; blade densely hairy adaxially, especially more densely so along veins. Leaf base rounded; blade hairy only along veins adaxially, glabrate in age. Inflorescences and abaxial surface of calyx densely hairy. Leaf base rounded; blade densely hairy adaxially, especially more densely so along veins. Leaf base rounded; blade adaxially and sepals abaxially densely hairy. Leaf base shallowly cordate. Inflorescences and abaxial surface of calyx subglabrous or sparsely hairy. Leaf base shallowly cordate. Inflorescences and abaxial surface of calyx subglabrous or sparsely hairy. Leaf base shallowly cordate. Inflorescences and abaxial surface of calyx subglabrous or sparsely hairy. Leaf base shallowly cordate. Inflorescences and abaxial surface of calyx subglabrous or sparsely hairy. Leaf base shallowly cordate. Inflorescences and abaxial surface of calyx subglabrous or sparsely hairy.
ROSACEAE

cel 5–8 mm. Flowers 7–9 mm in diam. Calyx abaxially pubescent; sepals ovate-lanceolate, margin tomentose, apex acuminate; outer sepals often lacinate at apex, lobes lanceolate or linear, inner sepals entire. Petals elliptic or spatulate, shorter than sepals, base narrowly long clawed. Stamens many, unequal in length; filaments linear. Pistils ca. 10–15, nearly as long as stamens; style and ovary glabrous. Fl. summer, fr. unknown.

- Thickets; low elevations. Guangxi.


云南悬钩子 yun nan xuan gou zi

Shrubs. Branchlets purplish brown, terete, glabrous, with sparse, curved prickles. Leaves simple; petiole 1–2 cm, thinly pubescent, with remote, curved minute prickles; stipules early caducous, 6–8 mm, pubescent, margin lacinate, lobes linear or lanceolate; blade elliptic or oblong, 6–12 × 3–7 cm, lateral veins 7 or 8 pairs, slightly raised abaxially, glabrous except veins on both surfaces pubescent, base subtruncate to slightly cordate, margin unevenly coarsely serrate, apex shortly acuminate. Inflorescences terminal or axillary, terminal ones narrow cymose panicles, 10–14 cm, many flowered, axillary ones subracemes, shorter; rachis and pedicels densely pubescent; bracts caducous, lanceolate, 5–7 mm, pubescent, apex acuminated. Pedicel ca. 1 cm. Flowers 7–10 mm in diam. Calyx abaxially thinly pubescent; sepals ovate or triangular-ovate, 2.5–3.5 × 2–3 mm, margin tomentose, undivided, apex obtuse, rarely acute. Petals obovate or oblong, 3–4 × 2.5–3.5 mm, thinly pubescent basally, base clawed. Stamens many, nearly as long as or slightly shorter than petals; filaments linear, broader toward base. Pistils ca. 10–15, longer than stamens; style and ovary glabrous. Fruit unknown.

- Mountainous regions; low elevations. NW Yunnan.

143. Rubus poliophyllus Kuntze, Meth. Sp.-Beschr. Rubus, 68. 1879.

毛叶悬钩子 mao ye xuan gou zi

Shrubs scandent, 2–5 m tall. Branchlets brownish to purplish brown, yellowish sericeous-villous, glabrescent, with remote complanate curved prickles. Leaves simple; petiole 0.4–1 cm, longer on old branches, yellowish sericeous-villous when young, glabrate in age; stipules free, 8–10 mm, pinnate-laciniate; lobes lanceolate or linear, sericeous-villous; blade oblong, ovate-oblong, or elliptic, 8–14 × 4–6.5 cm, lateral veins 7 or 8 pairs, veins brown, raised abaxially, impressed adaxially, thick, abaxially yellowish sericeous-villous, glabrescent, adaxially sericeous-villous only along veins, base subtruncate to shallowly cordate, margin with unequal sharp teeth, apex acuminate. Inflorescences terminal and axillary, cymose panicles, 12–25(–27) cm, many flowered, axillary ones shorter, racemose; rachis and pedicels densely yellowish sericeous-villous; bracts 5–9 mm, margin lacinate above middle, lobes linear to lanceolate, sericeous-villous. Pedicel (0.3–)1–2 cm. Flowers 0.7–1.5 cm in diam. Calyx abaxially densely yellowish sericeous-villous; tube shallowly cupular; sepals 5 or 6, ovate or ovate-lanceolate, 4–6 × 3–5 mm, margin tomentose and entire, apex acuminate to caudate. Petals white, ovate to elliptic, 4–5 mm, puberulent, apex acute. Stamens numerous, slightly shorter than or nearly as long as petals; filaments linear, basally pubescent. Pistils 20–25(–42), somewhat longer than stamens, glabrous. Aggregate fruit red, subglobose, 8–10 mm in diam., glabrous, with few drupelets, persistent sepals green; pyrenes coarsely rugose. Fl. Mar–Apr, fr. Apr–Jun.

Sunny slopes, sparse mixed forests, roadsides; 600–1500 m. Yunnan [Sikkim].


1a. Petiole ca. 10 mm; pedicel 10–20 mm; flowers ca. 15 mm in diam.; pistils 20–25

1b. Petiole 4–6 mm; pedicel 3–7 mm; flowers 7–10 mm in diam.; pistils 25–42

143a. Rubus poliophyllus var. poliophyllus

毛叶悬钩子(原变种) mao ye xuan zou zi (yuan bian zhong)

Rubus distentus Focke.

Petiole ca. 1 cm. Pedicel 1–2 cm. Flowers ca. 1.5 cm in diam. Pistils 20–25.

Sunny slopes, sparse mixed forests; 600–1500 m. Yunnan [Sikkim].


西盟悬钩子 xi meng xuan gou zi


- Forests on roadsides; ca. 1200 m. SW Yunnan (Ximeng Xian).

144. Rubus forrestianus Handel-Mazzetti, Symb. Sin. 7: 490. 1933.

贡山蓬蘽 gong shan peng lei

Shrubs lianoid, to 2 m tall. Branchlets brownish, terete, densely pubescent and glandular, with curved minute prickles. Leaves simple; petiole 2–3.5 cm, densely pubescent and glandular, with sparse, curved minute prickles; stipules caducous, free, to 1 cm, deeply lobed, lobes linear to linear-lanceolate, with short hairs and glands; blade broadly ovate or oblong-ovate, 5–12 × 4–9 cm, both surfaces sparsely pubescent and densely glandular, abaxially with sparse, curved small prickles along midvein, base cordate, margin 3–5-lobed or slightly undulate, densely sharply serrate, apex shortly acuminate. Inflorescences terminal and axillary, terminal ones cymose panicles, 7–12 cm, axillary ones subracemes, sometimes flowers several in clusters in leaf axils; rachis and pedicels densely pubescent and glandular; bracts 6–8 mm, lobed; lobes linear to linear-lanceolate, pubescent, glandular. Pedicel 4–8 mm. Flowers 6–8 mm in diam. Calyx tube shallowly campanulate; sepals triangular-lanceolate or ovate-lanceolate, 5–7 × 2–3 mm, margin entire, apex caudate. Petals white, spatulate or rhombic-elliptic,
4–6 × 3–4 mm, both surfaces pubescent, base broadly shortly clawed, apex obtuse to ± acute. Stamens many, slightly shorter than petals; filaments broad, complanate. Pistils few, slightly shorter than or ca. as long as stamens; style and ovary usually glabrous. Aggregate fruit red, subglobose, 5–7 mm when immature, glabrous, with few drupelets; pyrenes 1.5–2 mm, rugulose. Fl. May–Jun, fr. Jul–Aug.

● River valleys; 1000–2000 m. W Yunnan.


疏松悬钩子 shu song xuan gou zi

Shrubs climbing. Branchlets brownish to purplish black, tomentose-villosous, nearly unarmed or with sparse, curved minute prickles. Leaves simple; petiole 3–5 cm, tomentose-villosous, with sparse, minute prickles; stipules caducous, narrower, margin distinctly laciniate, lobes linear, hairy; blade narrowly ovate, 7–11 × 4–7 cm, lateral veins 6 or 7 pairs, abaxially densely pilose, axially less densely so, base cordate, margin undivided or 3–5-lobed, irregularly thinly serrate, apex acute to shortly acuminate. Inflorescences usually terminal, cymose panicles, lax, to 20 cm; rachis and pedicels tomentose-villosous; bracts caducous, margin laciniate, lobes lanceolate or linear, hairy. Pedicel 1–2 cm. Flowers ca. 1 cm in diam. Calyx abaxially tomentose-villosous; sepals ovate or ovate-triangular, 4–6 mm and nearly as broad, apex acute to shortly acuminate; outer sepals pinnately laciniate, lobes linear to lanceolate, inner sepals usually entire. Petals white, obovate to elliptic, slightly longer than sepals, base slightly pubescent and shortly clawed. Stamens many, slightly shorter than petals; filaments linear, hairy in basal part. Pistils to 50, somewhat shorter than stamens; ovary glabrous. Aggregate fruit small, enclosed in persistent calyx. Fl. Jul–Aug, fr. Sep–Oct.

● Montane valleys, slopes, sparse forests; 800–1800 m. Yunnan.

146. Rubus lambertianus Seringe in Candolle, Prodr. 2: 567. 1825.

高梁泡 gao liang pao

Shrubs lianoid, semideciduous, to 3 m tall. Branchlets brown or reddish brown, terete, thinly pubescent or subglabrous, with sparse, curved minute prickles. Leaves simple; petiole 2–4(–5) cm, thinly pubescent or subglabrous, with sparse, minute prickles; stipules caducous, free, to 1 cm, laciniate-parted nearly to base, lobes linear to lanceolate, thinly pubescent or subglabrous; blade broadly ovate, rarely oblong-ovate, 5–10(–12) × 4–8 cm, 5-veined, abaxially pilose, more densely so along veins, rarely glabrous, with sparse, minute prickles along midvein, adaxially pilose or hairy only along veins, base cordate, margin distinctly 3–5-lobed or undulate, serrulate, apex acuminate. Inflorescences terminal or axillary, terminal ones usually cymose panicles, 10–15 cm, axillary ones often subracemes, shorter, sometimes flowers few in clusters in leaf axils; rachis and pedicels thinly pubescent, subglabrous, or glabrous; bracts 6–9 mm, margin laciniate lobed; lobes linear, puberulous. Pedicel 5–10 mm. Flowers 7–9 mm in diam. Calyx abaxially thinly pubescent; sepals ovate-lanceolate or triangular-lanceolate, 5–8 × 2.5–4 mm, margin entire, apex acuminate, margin of inner sepals gray tomentose. Petals white, obovate, glabrous, slightly shorter than or nearly as long as sepals, base clawed. Stamens many, somewhat shorter than petals; filaments broad, complanate. Pistils ca. 15–20, slightly shorter than or ca. as long as stamens, glabrous. Aggregate fruit red at maturity, subglobose, 6–8 mm in diam., glabrous, with many drupelets; pyrenes small, ca. 2 mm, prominently rugose. Fl. Jul–Aug, fr. Sep–Nov. 2n = 28.

Slopes, roadsides, montane valleys, stony ravines, grasslands, thickets, sparse forests, forest margins, moist places; 200–2500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Thailand].

Rubus urophyllus Y. C. Liu & F. Y. Lu (Quart. J. Chin. Forest. 9(2): 133. 1976) was treated in Fl. Taiwan is an uncertain species that might be only varietally distinct from R. lambertianus.

1a. Leaf blade and inflorescences thinly pilose.

2a. Branchlets, petioles, inflorescences, and abaxial surface of calyx without glandular hairs and bristles ........................................ 146a. var. lambertianus

2b. Branchlets, petioles, inflorescences, and abaxial surface of calyx with glandular hairs or bristles ............................. 146b. var. paykouangensis

1b. Leaf blade glabrous or slightly pilose only along veins adaxially; inflorescences glabrous or subglabrous.

3a. Inflorescences without glandular hairs .......................... 146c. var. glaber

3b. Inflorescences wholly or partly, or abaxial surface of calyx with minute glandular hairs .......... 146d. var. glandulosus

146a. Rubus lambertianus var. lambertianus

高梁泡（原变种） gao liang pao (yuan bian zhong)

Rubus ochlanthus Hance; R. pycnanthus Focke.

Leaf blade and inflorescences thinly pubescent. Branchlets, petioles, inflorescences, and abaxial surface of calyx without glandular hairs and bristles.

Slopes, roadsides, montane valleys, grasslands, thickets, forest margins; low to medium elevations. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Taiwan, Yunnan, Zhejiang [Japan].


毛叶高梁泡 mao ye gao liang pao


Leaf blade and inflorescences thinly pubescent. Branchlets, petioles, inflorescences, and abaxial surface of calyx with glandular hairs or with intermixed bristles.

Thickets on slopes; 300–2200 m. Guangxi, Guizhou, Hunan, Yunnan [Thailand].

光滑高梁泡 guang hua gao liang pao

Rubus amplexus Focke; R. hakonensis Franchet & Savatier; R. lambertianus subsp. hakonensis (Franchet & Savatier) Focke; R. lambertianus var. hakonensis (Franchet & Savatier) Rehder.

Leaf blade glabrous or slightly pilose only along veins adaxially. Inflorescences glabrous or subglabrous, without glandular hairs.

Slopes, stony ravines, forest margins; 200–2500 m. Gansu, Guizhou, Hubei, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang [Japan].


腺毛高梁泡 xian mao gao liang pao

Rubus adenothyrsus Cardot; R. gelatinosus Sasaki; R. lambertianus var. mekongensis Handel-Mazzetti; R. lambertianus var. minimiflorus (H. Léveillé) Cardot; R. lambertianus var. morii (Hayata) S. S. Ying; R. minimiflorus H. Léveillé; R. morii Hayata; R. tiponensis Hosokawa.

Leaf blade glabrous or slightly pilose only along veins adaxially. Inflorescences wholly or partly glabrous or subglabrous. Abaxial surface of calyx with minute glandular hairs. 2n = 28*.

Sparse forests in valleys, moist places in thickets; mostly below 2000 m. Guizhou, Hubei, Sichuan, Taiwan, Yunnan [Japan].


悬钩 wu ci

Rubus echinoides F. P. Metcalf; R. labbei H. Léveillé & Vaniot.

Shrubs scandent, 0.5–1.5 cm tall. Branchlets grayish brown or brownish, with soft hairs and curved minute prickles, sometimes with sparse, short glandular hairs. Leaves simple; petiole 2–4 cm, soft villous, with sparse, short glandular hairs; stipules narrower, 0.8–1.2 cm, margin fimbriately to pinnately lobed; lobes linear-lanceolate, soft villous, with sparse, short glandular hairs; blade ovate-orbicular, rarely ovate, 6–9 × 5–7 cm, lateral veins 5 pairs, raised abaxially, slightly impressed adaxially, abaxially soft villous, more densely so along veins, abaxially sparsely soft hairy, base deeply cordate, margin 3–5-lobed, rarely undulate, coarsely serrate, apex triangular-acute, rarely obtuse. Inflorescences terminal or axillary, narrow cymose panicles or subracemes, 6–12 cm, sometimes flowers several in leaf axils or solitary; rachis and pedicels tomentose-villous, with sparse, short glandular hairs; bracts 7–10 mm, fimbriately to pinnately lobed; lobes linear, soft villous, with sparse, short glandular hairs. Pedicel 5–8 mm. Flowers 1–1.5 cm in diam. Calyx abaxially tomentose-villous and with dense, short needle-like prickles; sepals broadly ovate, 6–8 × 3–5(–6) mm, apex acuminate; outer sepals pinnately divided, lobes lanceolate, inner sepals entire or only apically slightly lobed. Petals white, spatulate-obovate, 7–9 × 5–6 mm, base soft hairy, clawed. Stamens many, shorter than petals; filaments broadened and flattened, villous; anthers glabrous. Pistils numerous, shorter than or nearly as long as stamens; style and ovary glabrous. Aggregate fruit red, subglobose, 1–1.2 cm in diam. Fl. Jun–Aug, fr. Sep–Oct.

- Slopes, montane valleys, dense forests, thickets; 1000–1500 m. Guangxi, Guizhou, Yunnan.


贡山悬钩子 gong shan xuan gou zi

Shrubs 1–1.5 m tall, stipitate glandular or not. Branchlets dark brown to purplish brown, slightly angled, pubescent, with minute prickles. Leaves simple; petiole 5–11 cm, pubescent, with minute prickles; stipules and bracts early caducous; blades ovate-orbicular, 10–17 × 15–20 cm, lateral veins 3 or 4 pairs, prominent abaxially, impressed adaxially, both surfaces pubescent, more densely so along veins, base deeply cordate, margin lobed; lobes triangular, margin irregularly coarsely serrate, apex acute. Inflorescences terminal or sometimes axillary, narrow cymose panicles or subracemes, to 18 cm, densely or sparsely flowered, axillary flowers usually several in clusters; rachis and pedicels pubescent, with needle-like prickles or not. Pedicel 1.5–2.5 cm. Calyx abaxially densely gray pubescent, with needle-like prickles or not; tube pelviform or shallowly cupular; sepals erect after anthesis, lanceolate or ovate-lanceolate, 8–10(–12) × 4.5–(–6) mm, apex caudate; outer sepals apically shallowly 2- or 3-laciniate, inner sepals entire. Aggregate fruit red, subglobose, 1.4–1.8 cm in diam., glabrous, enclosed in persistent calyx. Fl. summer, fr. Sep–Oct.

- Bamboo thickets on slopes, forested slopes; below 3500 m. NW and SE Yunnan.

1a. Plants not stipitate glandular ........ 148c. var. eglandulosus

1b. Plants stipitate glandular.

2a. Rachis, pedicels, and abaxial surface of calyx pubescent, with needle-like prickles .................. 148a. var. gongshanensis

2b. Rachis, pedicels, and abaxial surface of calyx pubescent, without needle-like prickles ............ 148b. var. qiujiangensis

148a. Rubus gongshanensis var. gongshanensis

贡山悬钩子 (原变种) gong shan xuan gou zi (yuan bian zhong)

Plants stipitate glandular. Rachis, pedicels, and abaxial surface of calyx pubescent, with needle-like prickles.

- Bamboo thickets on slopes; below 3500 m. NW Yunnan.


无刺贡山悬钩子 wu ci gong shan xuan gou zi

Plants stipitate glandular. Rachis, pedicels, and abaxial surface of calyx pubescent, without needle-like prickles.
 ROSACEAE

- Forested slopes; below 3500 m. NW Yunnan.


无腺贡山悬钩子 wu xian gong shan xuan gou zi

Plants not stipitate glandular.

- Slopes; 1800–2000 m. SE Yunnan.


勐腊悬钩子 meng la xuan gou zi

Shrubs ca. 1 m tall. Branchlets grayish brown or reddish brown, cylindrical, brownish yellow pubescent, soft bristly, with sparse, curved minute prickles and glandular hairs; petiole 2–3 cm, pubescent, soft bristly, with sparse, curved minute prickles and glandular hairs; stipules free, brownish, to 1 cm, pubescent, soft bristly, deeply pinnate-laciniate; lobes linear; blade narrowly ovate or broadly oblong, 7–13 × 5–8 cm, lateral veins 5 or 6 pairs, both surfaces pubescent, soft bristly, with sparse, curved minute prickles along veins, base deeply cordate, margin undivided or somewhat undulate, densely thin sharply serrate, apex acute. Inflorescences terminal or axillary, subracemes or narrow panicles, 6–10 cm, few flowered; rachis and pedicels densely pubescent, sparsely soft bristly, with glandular hairs; bracts oblong-lanceolate, 5–6 mm, apex cuneate; outer sepals with gray pubescent margin, apex acute. Petals white, elliptic, shorter than or nearly as long as sepals. Stamens many, shorter than petals; filament slightly shorter than or ca. as long as stamens, glabrous. Aggregate fruit red, subglobose, 6–8 mm in diam., glabrous; pyrenes rugose. Fl. Jul–Aug, fr. Sep–Oct. 2n = 28*.

- Slopes, fallow fields, dense forests in valleys, thickets; 800–2500 m. Anhui, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

The fruit are sweet and edible, the roots are used in medicine, and tannin is extracted from the roots and stems.


耳叶悬钩子 er ye xuan gou zi

Shrubs to 2 m tall. Branchlets dark purplish brown when young, later grayish brown, terete, with sparse, curved prickles. Leaves simple; petiole 1–2 cm, glabrous or slightly pubescent along groove, with sparse, minute prickles; stipules caducous, free, oblong-lanceolate or ovate-lanceolate, 7–9 mm, glabrous, palmatifid, lobes linear; blade lanceolate or oblong-lanceolate, 8–14 × 1.8–3.5 cm, lateral veins 7–10 pairs, prominent adaxially, abaxially glabrous, with sparse, curved small prickles along midvein, adaxially glabrous except slightly hairy along veins, base cordate-aureolate, basal incision narrow, margin thinly sharply serrate, apex acuminate. Inflorescences terminal, narrow cymose panicles, 7–11 cm; rachis and pedicels glabrous; bracts oblong-lanceolate or ovate-lanceolate, 5–8 mm, glabrous, palmatifid; lobes linear. Pedicel 5–10 mm. Flowers 6–8 mm in diam. Calyx abaxially glabrous except sparsely stipitate glandular; sepals erect in fruit, lanceolate or ovate-lanceolate, 6–10 mm, glabrous, margin entire or lobed, sometimes inner sepals with gray tomentose margin, apex caudate. Petals suborbicular, basally pubescent adaxially, apex abruptly pointed. Stamens many; filaments short, slender. Pistils glabrous. Aggregate fruit red, less than 1 cm in diam., glabrous; pyrenes rugose. Fl. Jun–Jul, fr. Jul–Sep.

- Montane valleys, mountain summits, near water courses, dense forests; below 1000 m. S Guangxi.

152. Rubus howii Merrill & Chun, Sunyatsenia 5: 71. 1940.

裂叶悬钩子 lie ye xuan gou zi

Shrubs scandent. Branchlets brown or reddish brown, terete, densely yellowish brown villous, with curved minute prickles. Leaves simple; petiole 1–2 cm, densely yellowish brown villous, with few small prickles; stipules caducous, free, 6–9 mm, deeply lobed, lobes linear, yellowish brown villous; blade oblong to ovate-oblong, 7–14 × 2–5 cm, lateral veins 6–8 pairs, prominent abaxially, impressed adaxially, both surfaces yellowish brown villous along veins, abaxially with sparse, minute prickles along midvein, base cordate, margin irregularly coarse-
Rosaceae


Subshrubs low, nearly creeping. Branchlets reddish brown, slender, villous when young, glabrescent, with sparse, minute needle-like prickles. Leaves simple; petiole reddish brown, 4–6 cm, sparsely villous, with needle-like prickles; stipules free, greenish brown, to 1 cm, palmatipartite; lobes linear, villous; blade suborbicular, 5–10 cm in diam., both surfaces villous, more densely so abaxially, sometimes with sparse, needle-like prickles along veins, base cordate, margin 3–5-lobed; lobes coarsely obtusely serrate, apex obtuse or acute. Inflorescences terminal, short subracemes, few flowered, or flowers solitary in leaf axils; rachis and pedicels densely yellowish villous, with sparse, needle-like prickles; bracts greenish brown, less than 1 cm, palmatipartite; lobes linear, villous; petiole 4–8 cm, pubescent only along veins, base cordate, margin 3–5-lobed; lobes coarsely obtusely serrate, apex obtuse or acute. Flowers 2–3 cm in diam. Calyx abaxially densely yellowish villous and tomentose, or with sparse prickles; sepals erect after anthesis, lanceolate or oblong-lanceolate, 1–1.4 cm × 5–8 mm, apex caudate, outer sepals irregularly laciniate above middle; lobes linear or lanceolate. Petals white or reddish, narrowly obovate, 0.9–1.3 cm × 7–10 mm, base slightly villous, shortly clawed. Stamens many, shorter than petals; filaments broadly ovate-elliptic, rarely suborbicular, 10–17 × 5–10 cm, palmately 5-veined, lateral veins 2–4 pairs, prominently raised abaxially, impressed adaxially, abaxially densely gray or yellowish gray tomentose, adaxially dark green, glabrous, base broadly cuneate to rounded, margin irregularly narrowly lobed above middle; lobes unevenly sharply serrate, apex caudate. Inflorescences terminal or axillary, terminal ones narrow cymose panicles, to 8 cm, axillary ones subracemes, to 2–3 cm, or flowers several in clusters in leaf axils; rachis and pedicels densely gray tomentose; bracts caducous, oblong-lanceolate, (1–)1.5–2.3 cm, tomentose when young, later glabrous, margin laciniate apically, or entire. Pedicel 5–9 mm. Flowers ca. 1 cm in diam. Calyx abaxially densely gray tomentose; tube campanulate; sepals triangular or ovate-lanceolate, 6–9 × 3–5 mm, apex acute or shortly acuminate; outer sepals apically divided or serrate, inner sepals entire. Petals white, obovate, 7–9 × 3–4 mm, base clawed and slightly soft hairy, apex acute. Stamens many, shorter than petals; filaments short, broad, complanate. Pistils 30–50, longer than stamens, glabrous. Aggregate fruit reddish brown, subglobose, 7–9 mm in diam., glabrous. Fl. Jun–Jul, fr. Aug–Sep.


Plants with glandular hairs. Leaf lobes acute apically.

- Mixed forests; ca. 2200 m. S Xizang.


Fruits several in clusters in leaf axils; rachis and pedicels densely gray tomentose; bracts brown, broadly ovate or narrowly ovate, 1–1.8 × 0.9–1.6 cm, soft hairy, margin lobed or serrate above middle.

- Forest margins; ca. 2200 m. S Xizang.


Plants without glandular hairs. Leaf lobes obtuse apically.

- Foothills, coniferous forests on slopes, thickets, forest margins; 2000–3000 m. S Xizang, W Yunnan.

Rubus subumbellatus Cardot.

- Foothills, coniferous forests on slopes, thickets, forest margins; 2000–3000 m. S Xizang, W Yunnan.
Pedicel 5–7 mm. Flowers 1–1.5 cm in diam. Calyx to 2 cm, abaxially densely villous; sepal ovate-lanceolate, apex acuminate, outer sepals usually laciniate apically; lobes lanceolate. Petals broadly ovate or suborbicular, glabrous, base shortly clawed, margin undulate or erose, apex abruptly pointed. Stamens many, much shorter than petals; filaments slightly broadened basally. Pistils 50–70 or more, much longer than stamens, glabrous. Fruit unknown. Fl. May–Jun.

156. Rubus irenaeus


Shrubs 0.5–2 m tall, evergreen. Branchlets brownish, reddish brown, or grayish brown, densely gray tomentose-villous; flowering branches arising from rhizomes, sometimes with small prickles. Leaves alternate, simple; petiole 5–10 cm, densely tomentose-villous, unarmed or with sparse, small prickles; stipules leaflike, brownish, oblong, 2–3 × 1–2 cm, tomentose-villous, broader and incised-laciniate near apex; lobes lanceolate; blade suborbicular, 8–14 cm in diam., palmately 5-veined, veins yellowish brown tomentose, with long hairs along veins, adaxially, impressed adaxially, subleathery, abaxially densely gray tomentose-villous, unarmed or with sparse, minute prickles. Leaves simple; petiole 2–3.5 cm, yellowish brown, terete, slender, slightly arching, soft hairy. Flowers 1.5–2 cm in diam. Calyx abaxially densely tomentose-villous; sepals reflexed in fruit, broadly ovate, 6–10 × (4–)5–7 mm, apex shortly acuminate; outer sepals with margin and apex laciniate; lobes linear-lanceolate, 0.9–1.4 cm × 5–8 mm, apex shortly acuminate; outer sepals apically laciniate, inner sepals entire. Petals white, suborbicular, 7–11 mm in diam., slightly longer than sepals, base clawed. Stamens many, shorter than petals; filaments linear, with slightly broad bases; anthers villous. Pistils 30–60, longer than stamens, glabrous. Aggregate fruit red, globose, 1–1.5 cm in diam., glabrous; pyrenes reticulate. Fl. May–Jun, fr. Aug–Sep.

156a. Rubus irenaeus var. innoxius


Shrubs 40–100 cm tall, evergreen. Branchlets brown or reddish brown, terete, slender, slightly arching, soft hairy, glabrate in age, with sparse, minute prickles. Leaves simple; petiole 4–8 cm, villous when young, glabrescent, with sparse, minute prickles; stipules brownish, oblong, to 2.5 cm, villous, broader and incised-laciniate near apex, lobes lanceolate; blade broadly ovate to narrowly ovate, 8–16 × 5–13 cm, palmately 5-veined, lateral veins 2 or 3 pairs, brownish, distinctly raised abaxially, impressed adaxially, leathery, abaxially densely gray tomentose, adaxially glabrous, base cordate, margin inconspicuously lobed, irregularly abruptly pointed sharply serrate, apex acuminate. Inflorescences terminal, short racemes or corymbose, 3–6-flowered, or flowers solitary in leaf axils; rachis and pedicels densely soft hairy; bracts oblong, to 1.8 cm, villous, apical lobes acute. Leaves simple; petiole 2–3 cm, yellowish brown, terete, slender, slightly arching, soft hairy, glabrate. Flowers 1.5–2 cm in diam. Calyx abaxially soft hairy; sepal ovate-lanceolate, 0.9–1.4 cm × 5–8 mm, apex acuminate; outer sepals with margin and apex laciniate; lobes linear-lanceolate, inner sepals entire. Petals white, suborbicular, slightly longer than or nearly as long as sepals, base shortly clawed, apex slightly incised. Stamens shorter than petals; filaments broad, flat; anthers villous. Pistils numerous, somewhat longer than stamens. Aggregate fruit red, globose, 1.2–1.6 cm in diam., glabrous; pyrenes rugose. Fl. Jun–Jul, fl. Aug–Sep.

157. Rubus pacificus

Hance, J. Bot. 12: 259. 1874.

Shrubs scrambling or scandent, to 0.5 m tall, evergreen. Branchlets dark brown, terete, densely yellowish brown sericeous-villous, unarmed. Leaves simple; petiole 2–3.5 cm, yellowish brown sericeous-villous; stipules free, brownish, suborbicular or broadly ovate, (1–)1.5–2 cm and ca. as broad, sparsely sericeous-villous, margin laciniate, lobes lanceolate; blade suborbicular, 3–7 cm in diam., palmately 5-veined, veins brownish, lateral veins 2 or 3 pairs, prominently raised abaxially, impressed adaxially, thickly leathery, abaxially densely sericeous-villous,
adaxially prominently rugulose, sparsely sericeous-villous, base cordate, margin somewhat undulate or 3–5-lobed; lobes shallowly obtusely serrate, apex obtuse, rarely acute. Inflorescences terminal or axillary, 1-flowered, rarely flowers in clusters of 2 or 3; bracts brownish, suborbicular or broadly ovate, smaller than stipules, with sparse, long silky hairs, margin lacinate; lobes lanceolate. Pedicel ca. 1 cm, yellowish brown sericeous-villous. Flowers 1.5–2 cm in diam. Calyx to 1.5 cm, abaxially yellowish brown sericeous-villous; sepals leaflike, ovate, outer sepals broader, deeply divided or deeply incised-serrate nearly above middle, inner sepals narrower, entire or sparsely serrate, apex acute. Petals broadly ovate, base shortly clawed, margin undulate, apex obtuse or emarginate. Stamens numerous, in 2 or 3 whorls, unequal in length, shorter than petals; filaments linear, slender. Pistils shorter than stamens; style and ovary glabrous. Aggregate fruit red, subglobose, glabrous, with many drupelets, enclosed in leaflike persistent calyx; pyrenes rugose. Fl. Jun–Jul, fr. Aug–Sep.

• Grasslands on mountain summits, margins of dense forests, rock crevices; 1600–2000 m. Guangdong, Guangxi, Hunan, Jiangxi.


五苞悬钩子 da bao xuan gou zi

Shrubs scandent, to 5 m tall. Branchlets brownish to grayish brown, terete, initially gray tomentose, glabrescent, with sparse, curved minute prickles. Leaves alternate, simple; petiole 3–5 cm, grayish yellow tomentose, with sparse, curved minute prickles; stipules free, leaflike, brown, broadly to narrowly ovate, 2–3 × 1.5–2 cm, thinly tomentose when young, margin entire or sparsely shallowly thin serrate; blade suborbicular, 11–15 cm in diam., palmately 5-veined, veins prominent abaxially, both surfaces glabrous except soft hairy along veins, base cordate, margin lobed; lobes unevenly sharply serrate, apex acute or obtuse. Inflorescences terminal and axillary, terminal ones narrow panicles, 10–15 cm, many flowered, axillary ones subracemes, shorter; rachis and pedicels grayish yellow tomentose, subglaucous bracts in basal part of inflorescence broader, broadly ovate or elliptic, 2–2.8 × 1.5–2 cm, those in apical part of inflorescences narrower, elliptic to broadly linear, 1–1.5 × 0.6–1 cm, thinly tomentose, margin narrowly entire, slightly serrate, or lobed apically. Pedicel 0.8–1.5 cm. Flowers ca. 1 cm in diam. Calyx to 1.4 cm, abaxially densely gray tomentose; sepals usually reflexed in fruit, ovate-lanceolate, 5–8 × 2.5–3.5 mm, margin entire, apex acute to shortly acuminate. Petals white, obovate, shorter than sepals. Stamens many, shorter than petals; filaments broad, complanate, glabrous. Pistils 25–50, slightly longer than stamens, glabrous. Aggregate fruit red, subglobose, not more than 1 cm in diam., glabrous; pyrenes rugulose. Fl. Jun–Jul, fr. Aug–Oct.

• Sunny rocky slopes, montane valleys, sparse forests; 900–1500 m. Guangdong, Guangxi.


五叶鸡爪茶 wu ye ji zhao cha

Rubus cochinchinensis Trattinnick var. stenophyllus Franchet; R. playfairianus var. stenophyllus (Franchet) Cardot.

- Clearings on hills, forests; 1000–3000 m. Guizhou, Hubei, Shaanxi, Sichuan.

The young leaves are used for tea.


鸡爪茶 ji zhao cha

Shrubs climbing, to 6 m tall, evergreen. Branchlets brown or reddish brown, densely tomentose at first, subglabrescent, with sparse, slightly curved small prickles. Leaves simple; petiole 3–6 cm, slender, tomentose; stipules oblong or oblong-lanceolate, free, 1–1.8 cm × 3–7 mm, membranous, villous, margin entire or apically with 2 or 3 teeth, apex acuminate; blade 8–15 × 7–14 cm, leathery, abaxially densely gray or yellowish gray tomentose, sometimes with sparse, minute prickles on raised veins, adaxially lucid-green, glabrous, base broadly cuneate to subcordate, palmately 3–5-lobed; lobes lanceolate or narrowly oblong to ovate-lanceolate, 7–11 × 1.5–2.5 cm, margin with sparse, coarse or thin sharp serrations, apex acuminate. Inflorescences terminal or axillary, racemes, 7–12 cm, 9–20-flowered; rachis and pedicels densely gray or yellowish white tomentose and villous, with few minute needle-like prickles; bracts oblong or oblong-lanceolate, 1–1.5 cm × 4–7 mm, membranous, villous, margin entire or apically with few teeth, apex acuminate. Pedicel 5–10 mm. Calyx ca. 1.5 cm, gray or yellowish white tomentose and villous, sometimes with intermixed glandular hairs; sepals reflexed after anthesis, narrowly triangular, 6–10 × 3–5 mm, margin entire, apex acuminate to ciliate. Petals reddish, narrowly ovate, 7–9 × 3–6 mm, both surfaces pilose, base shortly clawed, margin erose or minutely crenate, apex obtuse. Stamens many, nearly as long as petals, villous. Pistils slightly longer than stamens, villous. Aggregate fruit black, subglobose, 1.3–1.5 cm in diam.; persistent styles reddish, villous; pyrenes somewhat reticulate. Fl. May–Jun, fr. Jul–Aug.

- Slopes, montane forests; below 2000 m. Hubei, Hunan.


大叶鸡爪茶 da ye ji zhao cha

Rubus sozostylus Focke, Hooker’s Icon. Pl., ser. 3, 10: sub t. 1952. 1891; R. fargesii Franchet; R. sozostylus var. fargesii (Franchet) Cardot.

Leaf blades palmately 3–5-parted to 1/3–1/2, lobes broader, shorter, ovate-lanceolate, base broader, subcordate to cordate, margin with coarse sharp serrations. Calyx abaxially without glandular hairs.

- Mountainous areas, valleys, sparse forests, thickets; below 2500 m. Guizhou, Hubei, Hunan, Sichuan.


黄平悬钩子 huang ping xuan gou zi

Shrubs climbing. Branchlets dark brown, tomentose at first, gradually glabrescent, finally glabrous, with sparse, curved minute prickles. Leaves simple; petiole 3–4 cm, tomentose, sometimes glabrescent; stipules free, oblong or oblong-lanceolate, 1–1.6 cm × 4–6 mm, membranous, glabrous or sparsely puberulous, usually lobed or with few teeth apically; blade 7–11 cm and ca. as broad, subleathery, abaxially densely pale rust colored tomentose, adaxially glabrous, base truncate to cordate, palmately 3-parted to 2/3; lobes elliptic or oblong, 3.5–8 × 2–4 cm, veins raised abaxially, slightly impressed adaxially, margin with uneven coarse sharp serrations, apex acuminate. Inflorescences terminal, racemes; rachis and pedicels densely pubescent, with sparse, intermixed stipitate glands and with small needle-like prickles; bracts oblong or oblong-lanceolate, smaller than stipules, glabrous or slightly puberulous, margin entire or slightly lobed or with few teeth, apex acuminate. Pedicel 1–1.4 cm. Calyx densely pubescent, with sparse, glandular hairs; sepals reflexed, rarely erect in fruit, narrowly triangular or triangular-lanceolate, margin entire, apex shortly acuminate. Stamens many; filaments linear, basally broad and flat. Pistils numerous, longer than stamens; style and ovary villous. Aggregate fruit red, compressed globose, 1–1.4 cm in diam.; persistent styles villous; pyrenes slightly reticulate. Fl. May–Jun, fr. Jul–Aug.

- Thickets at mountain summits. S. Guizhou.


闽粤悬钩子 min yue xuan gou zi

Shrubs scandent. Branchlets brown or grayish brown, terete, initially yellowish brown tomentose, glabrescent, with sparse, curved minute prickles. Leaves simple; petiole 1–2 cm, tomentose when young, glabrate in age, with sparse, short prickles; stipules caducous, ovate-lanceolate to narrowly ellip-
tic, 6–9 mm, tomentose, apex acuminate; blades broadly ovate, 5–10 × 3–6 cm, lateral veins 7–9 pairs, prominent abaxially, leathery, abaxially densely yellowish brown to rust colored tomentose, adaxially green brown, glabrous, base cordate, margin shallowly obtusely coarsely serrate, apex acuminate. Inflorescences terminal or axillary, racemes, 4–8 cm, few flowered; rachis, pedicels, and calyx yellowish white tomentose-villosus, with sparse, needle-like prickles, with intermixed purplish brown glandular hairs 1–3 mm; bracts caducous, ovate-lanceolate or lanceolate, 4–6 mm, sparsely villous, margin entire or serrate apically. Pedicel 1–3 cm. Flowers 1–1.5 cm in diam. Calyx abaxially gray tomentose-villosus, with intermixed purplish brown glandular hairs 1–3 mm; sepals reflexed in fruit, ovate to triangular-ovate, 5–8 × 2.5–4.5 mm, margin entire, apex acute to shortly acuminate. Petals white, broadly obovate to oblong-lanceolate, 6–9 × 4–6 cm; lateral veins 7–9 pairs, slightly raised abaxially, abaxially usually persistently densely gray tomentose, adaxially glabrous except slightly pubescent along midvein, base rounded or truncate to shallowly cordate, margin unevenly serrate to doubly serrate, rarely incised, apex acuminate. Inflorescences terminal, short racemes, 5–8 cm, (1- or) 5–7-flowered, or flowers several in clusters; rachis and pedicels tomentoso-villosus, with sparse, needle-like prickles, with intermixed purplish brown glandular hairs 1–3 mm; bracts caducous, ovate-lanceolate or lanceolate, 4–6 mm, sparsely villous, margin entire or serrate apically.

164a. var. dunnii

Leaf blades tomentose abaxially, not glabrescent. 

1b. Leaf blades tomentose abaxially when young, glabrescent

Leaf blades tomentose abaxially when young, gradually glabrescent.

164b. var. glabrescens

Leaf blades tomentose abaxially, not glabrescent.

Rubiaceae


木莓 mu mei

Rubus adenanthus Finet & Franchet; R. adenotrichopodus Hayata; R. hupenhensis Oliver; R. swinhoei var. hupenhensis (Oliver) F. P. Metcalfe.

Shrubs scandent. Branchlets brownish to dark reddish brown, initially grayish yellow tomentose, glandular, with sparse, curved minute prickles; flowering branchlets shortly stipitate glandular. Leaves simple; petiole 1–2 cm, grayish yellow tomentose-villosus, glandular, with shortly stipitate glands; stipules oblong-lanceolate, 1–1.5 cm × 3–5 mm, membranous, pubescent, margin entire, apex acute or obtuse; blade ovate or broadly ovate to ovate-lanceolate, 6–9 × 4–6 cm; lateral veins 7–9 pairs, slightly raised abaxially, abaxially usually persistently densely gray tomentose, adaxially glabrous except slightly pubescent along midvein, base rounded or truncate to shallowly cordate, margin shallowly undulate, rarely inconspicuously lobed, with irregular minute sharp serrations, apex shortly acuminate to caudate. Inflorescences terminal, rarely axillary, narrow racemes, 6–10 cm, 6–15–(20) flowered; rachis and pedicels tomentoso-villosus, with shortly stalked glands 1–2 mm; bracts oblong-lanceolate, 0.8–1.4 cm × 3–4 mm, membranous, pubescent, margin entire, apex ± obtuse. Pedicel 1–1.5 cm. Calyx abaxially tomentose-villosus, stipitate glandular, sepals often reflexed in fruit, lanceolate or triangular-lanceolate, 1–1.2 cm, margin entire, apex shortly caudate. Petals white, obovate or orbicular, nearly as long as sepals, slightly pubescent, base clawed. Stamens many, shorter than petals; filaments linear or with broad flat base, glabrous or slightly soft hairy only on anthers. Pistils many, slightly longer than stamens; style and ovary glabrous. Aggregate fruit black at maturity, subglobose, ca. 1.5 cm in diam.; pyrenes reticulate. Fl. May–Jul, fr. Aug–Sep.


华南悬钩子 hua nan xuan gou zi

Shrubs scandent. Branchlets brownish to dark reddish brown, initially grayish yellow tomentose, glandular, with sparse, curved minute prickles; flowering branchlets shortly stipitate glandular. Leaves simple; petiole 1–2 cm, grayish yellow tomentose-villosus, glandular, with shortly stipitate glands; stipules oblong-lanceolate, 1–1.5 cm × 3–5 mm, membranous, pubescent, margin entire, apex acute or obtuse; blade ovate or broadly ovate to ovate-lanceolate, 6–9 × 4–6 cm; lateral veins 7–9 pairs, slightly raised abaxially, abaxially usually persistently densely gray tomentose, adaxially glabrous except slightly pubescent along midvein, base rounded or truncate to shallowly cordate, margin shallowly undulate, rarely inconspicuously lobed, with irregular minute sharp serrations, apex shortly acuminate to caudate. Inflorescences terminal, rarely axillary, narrow racemes, 6–10 cm, 6–15–(20) flowered; rachis and pedicels tomentoso-villosus, with shortly stalked glands 1–2 mm; bracts oblong-lanceolate, 0.8–1.4 cm × 3–4 mm, membranous, pubescent, margin entire, apex ± obtuse. Pedicel 1–1.5 cm. Calyx abaxially tomentose-villosus, stipitate glandular, sepals often reflexed in fruit, lanceolate or triangular-lanceolate, 1–1.2 cm, margin entire, apex shortly caudate. Petals white, obovate or orbicular, nearly as long as sepals, slightly pubescent, base clawed. Stamens many, shorter than petals; filaments linear or with broad flat base, glabrous or slightly soft hairy only on anthers. Pistils many, slightly longer than stamens; style and ovary glabrous. Aggregate fruit black at maturity, subglobose, ca. 1.5 cm in diam.; pyrenes reticulate. Fl. May–Jul, fr. Aug–Sep.

Mixed forests, thickets, slopes, valleys, stream sides; 300–1500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Zhejiang [Ryukyu Islands].


白痳 bai ru

Shrubs scandent. Branchlets brownish to dark reddish brown, initially grayish yellow tomentose, glandular, with sparse, curved minute prickles; flowering branchlets shortly stipitate glandular. Leaves simple; petiole 1–2 cm, grayish yellow tomentose-villosus, glandular, with shortly stipitate glands; stipules oblong-lanceolate, 1–1.5 cm × 3–5 mm, membranous, pubescent, margin entire, apex acute or obtuse; blade ovate or broadly ovate to ovate-lanceolate, 6–9 × 4–6 cm; lateral veins 7–9 pairs, slightly raised abaxially, abaxially usually persistently densely gray tomentose, adaxially glabrous except slightly pubescent along midvein, base rounded or truncate to shallowly cordate, margin shallowly undulate, rarely inconspicuously lobed, with irregular minute sharp serrations, apex shortly acuminate to caudate. Inflorescences terminal, rarely axillary, narrow racemes, 6–10 cm, 6–15–(20) flowered; rachis and pedicels tomentoso-villosus, with shortly stalked glands 1–2 mm; bracts oblong-lanceolate, 0.8–1.4 cm × 3–4 mm, membranous, pubescent, margin entire, apex ± obtuse. Pedicel 1–1.5 cm. Calyx abaxially tomentose-villosus, stipitate glandular, sepals often reflexed in fruit, lanceolate or triangular-lanceolate, 1–1.2 cm, margin entire, apex shortly caudate. Petals white, obovate or orbicular, nearly as long as sepals, slightly pubescent, base clawed. Stamens many, shorter than petals; filaments linear or with broad flat base, glabrous or slightly soft hairy only on anthers. Pistils many, slightly longer than stamens; style and ovary glabrous. Aggregate fruit black at maturity, subglobose, ca. 1.5 cm in diam.; pyrenes reticulate. Fl. May–Jul, fr. Aug–Sep.

Mixed forests, thickets, slopes, valleys, stream sides; 300–1500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Zhejiang [Ryukyu Islands].
Rubus fordii Hance; *R. hirtiflorus* Cardot; *R. prandianus* Handel-Mazzetti.

Shrubs lianoid or scandent, ca. 1 m tall. Branchlets brown or reddish brown, terete, densely gray tomentose, glabrescent, with sparse, curved minute prickles or stipitate glands. Leaves simple; petiole 1–2 cm, gray tomentose at first, gradually glabrescent, with sparse, minute prickles; stipules early caducous, free, oblong or elliptic, villous, stipitate glandular, margin entire or apically laciniate; blade broadly ovate, 6–11 × 4–8 cm; veins 5–7 pairs, prominent abaxially, somewhat impressed adaxially, not leathery, abaxially densely gray or yellowish gray tomentose, adaxially dark brown, glabrous except soft hairy along veins, base cordate, margin lobed, unevenly sharply serrate, apex acuminate. Inflorescences terminal, racemes, 6–9 cm, loosely few flowered; rachis and pedicels tomentose-villosus, with stipitate glands 2–4 mm and sparse, needle-like prickles; bracts caducous, oblong or elliptic, 5–8 mm, membranous, villous, with sparse, intermixed stipitate glandular hairs, margin entire or apically lobed. Pedicel 1.5–2.5 cm. Flowers 1–1.5 cm in diam. Calyx abaxially densely tomentose-villosus, with purplish brown long stalked glands and needle-like prickles; sepals reflexed in fruit, broadly ovate, 1–1.2 cm × 4–6 mm, margin entire, apex caudate. Petals broadly elliptic, 8–11 × 5–7 mm, soft hairy, base shortly clawed, apex oblong. Stamens many, shorter than petals; filaments broad, flat, glabrous. Pistils numerous. Aggregate fruit black, subglobose, 1–1.5 cm in diam., glabrous; drupelets subreniform or semiglobose; pyrenes distinctly rugose. Fl. Apr–May, fr. Jun–Jul.

- Thickets on slopes, forest margins, roadsides, grasslands; 500–1200 m. Guangdong, Hunan, Jiangxi.


*Rubus lichuanensis* var. *latifolius* Cardot; *R. rocheri* H. Léveillé.

Shrubs climbing, ca. 2 m tall. Branchlets dark brown; young shoots rust colored tomentose, glabrate in age, with sparse, curved prickles. Leaves simple; petiole 1.5–2 cm, rusty tomentose, glabrescent; stipules early caducous, lanceolate to oblanceolate-lanceolate, villous; blade ovate to lanceolate, 5–8 × 3–4 cm, abaxially densely rusty tomentose, adaxially pilose, base cordate, margin lobed or undulate, irregularly obtusely coarsely serrate to doubly serrate, apex acuminate. Inflorescences terminal or axillary, racemes, few flowered; rachis and pedicels rusty tomentose-villosus, with short glandular hairs, with sparse, needle-like prickles; bracts caducous, lanceolate to oblanceolate, smaller than stipules, tomentose-villosus. Pedicel 2–3 cm. Flowers more than 1 cm in diam. Calyx abaxially densely rusty tomentose-villosus; sepals erect, rarely reflexed in fruit, narrowly ovate to triangular-ovate, margin entire, apex acute. Stamens many; filaments broad, flat, glabrous. Pistils numerous. Aggregate fruit black, subglobose, 1–1.6 cm in diam., glabrous, with many drupelets; pyrenes prominently rugose. Fl. Apr–May, fr. Jun–Jul.

- Bamboo forests. E Jiangxi (Lichuan Xian).


*Rubus refractus* var. *latifolius* Cardot; *R. rocheri* H. Léveillé.

Shrubs scandent, to 3 m tall. Branchlets brown to blackish brown, villous, glabrescent, with curved minute prickles. Leaves simple; petiole 1.5–3 cm, gray or yellowish gray villous, with sparse, slightly curved prickles; stipules obovate, 7–10 × 5–7 mm, membranous, gray or yellowish gray villous, palmatifid nearly to base; lobes linear to linear-lanceolate; blade narrowly ovate, 6–11 × 3–3.5 cm, abaxially densely gray or yellowish gray tomentose, with intermixed long hairs along veins, adaxially sparsely villous, base deeply cordate, margin lobed, often with 2–4 prominent lobes near base, with uneven coarse sharp serrations to doubly serrate, apex shortly acuminate. Inflorescences terminal and axillary, lax racemes; rachis and pedicels densely gray or yellowish gray villous, with sparse, glandular hairs, unarmed or with few needle-like prickles on pedicel; bracts obovate, 6–9 × 4–6 mm, villous, palmatifid; lobes linear, margin with sparse, glandular hairs. Pedicel 1–2(–3) cm. Flowers 1–1.5(–2) cm in diam. Calyx densely gray to yellowish gray villous, with sparse, glandular hairs; sepals reflexed in fruit, triangular to ovate-triangualr, 8–11 × 4–6 mm, margin entire, apex shortly acuminate. Petals white, broadly ovate to broadly elliptic, 7–10 × 5–8 mm, base shortly clawed, apex obtuse. Stamens many, shorter than petals; filaments broad, flat, glabrous. Pistils numerous, much longer than stamens, glabrous. Fruit unknown. Fl. Mar–Apr.

福建悬钩子 fu jian xuan gou zi

Shrubs scandent. Branchlets brownish green, thinly flocose-tomentose at first, glabrescent, with short retrorse prickles. Leaves simple; petiole 1.5–2.5 cm, yellowish brown tomentose, 1–1.5 cm, slightly shorter than sepals, both surfaces puberulous. Stamens many, shorter than petals; filaments with few hairs at apex of connectives. Pistils longer than stamens; styles to 8 mm, hairy; ovaries hairy apically. Aggregate fruit reddish to red at maturity, globose, 8–10 mm in diam., with persistent styles; drupelets reniform, hairy apically. Fl. May–Aug, fr. Jun–Sept. 2n = 28*.

- Forests; 1400–1600 m. NE Taiwan.


尾叶悬钩子 wei ye xuan gou zi

Shrubs scandent. Branchlets densely grayish yellow to gray tomentose, glabrescent, with sparse, short curved prickles. Leaves simple; petiole 1.5–2.5 cm, yellowish gray to gray tomentose, 1–1.5 cm, membranous, tomentose when young; gradually glabrescent, margin entire, rarely lobed apically; blade oblong-lanceolate to ovate-lanceolate, yellowish brown tomentose when young, glabrescent, margin usually entire. Pedicel 1.5–2.5 cm. Flowers to 2 cm in diam. Calyx abaxially yellowish brown tomentose-villosus, with needle-like prickles; bracts oblong-lanceolate or ovate-lanceolate, yellowish brown tomentose when young, glabrescent, margin usually entire. Pedicel 1–1.5 cm. Calyx abaxially yellowish brown tomentose-villosus, with needle-like prickles; sepals usually erect in fruit, gradually tomentose, 1–1.4 cm × 5–7 mm, apex shortly acuminate. Aggregate fruit red, subglobose, 1–1.2 cm in diam., glabrous; pyrenes rugose. Fl. Apr–May, fr. Jul.

- Slopes, mixed forests; ca. 1400 m. N Fujian (Chong’an Xian), Zhejiang.


长圆悬钩子 chang yuan xuan gou zi

Shrubs climbing. Branchlets grayish brown or brown, yellowish to grayish yellow tomentose, gradually glabrescent, with sparse, curved small prickles. Leaves simple; petiole 0.8–1.5 cm, yellowish or yellowish brown tomentose, glabrate in age, with sparse, curved minute prickles; stipules oblong-lanceolate, ca. 1 cm in diam., tomentose-villosus, when young, glabrescent, margin entire, rarely apically lobed; blade narrowly oblong or oblong-lanceolate, 10–15 × 1.5–3(–4) cm, lateral veins 8–11 pairs, prominent abaxially, leathery, abaxially densely yellowish tomentose, base broadly cuneate to rounded, margin with sparse, shallow sharp serrations, apex ciliate. Inflorescences terminal and axillary, short racemes, axillary ones 3–4 cm, terminal ones longer; rachis and pedicels densely yellowish tomentose; bracts oblong-lanceolate, 5–9 mm, tomentose-villosus, margin entire, rarely lobed. Pedicel 1–1.5 cm. Calyx abaxially densely tomentose-villosus; sepals ovate-lanceolate or triangular-lanceolate, 6–9 mm, margin entire, apiculate to shortly ciliate. Petals suborbicular, shorter than sepals, slightly pubescent basally, claws nearly absent. Stamens many; filaments broad, complanate, soft hairy or long hairy only on anthers. Pistils longer than stamens; style and ovary glabrous. Aggregate fruit red at maturity, subglobose, glabrous; pyrenes rugulose. Fl. May–Jun, fr. Jul–Aug.

- Dense forested slopes, thickets; 1700–2100 m. Guizhou, Yunnan.


柳氏悬钩子 liu shi xuan gou zi


Shrubs scandent. Branchlets brownish green, thinly floccose-tomentose at first, glabrescent, with short retrorse prickles. Leaves simple; petiole 1.5–3 cm, tomentose, with few prickles; stipules oblong-lanceolate, to 1 cm, margin villous, usually apically laciniate; blade oblong-lanceolate to lanceolate, 7–11 × 1.5–2.5 cm, lateral veins 7–9 pairs, midvein distinctly raised and abaxially with prickles, impressed adaxially, thickly papery, abaxially yellowish brown tomentose, adaxially dark, glabrous, base rounded, margin finely remotely serrate, apex acuminate. Inflorescences terminal or axillary, racemes, loosely 2–3-flowered; rachis and pedicels tomentose, prickly; bracts oblong-lanceolate, nearly as long as stipules, with few teeth along margin. Pedicel 1–1.9 cm. Calyx abaxially yellowish brown; tube cupular; sepals narrowly triangular, 3–4 × 2–3 mm, apex cuspidate. Petals pink, rhombic-ovibucular to obovate, 2–3 mm, hairy, apex mucronate. Stamens numerous, shorter than petals; filaments sparsely hairy, anthers with few hairs at apex of connectives. Pistils longer than stamens; styles to 8 mm, hairy; ovaries hairy apically. Aggregate fruit reddish to red at maturity, globose, 8–10 mm in diam., with persistent styles; drupelets reniform, hairy apically. Fl. May–Aug, fr. Jun–Sept. 2n = 28*.

- Slopes, mixed forests; below 2000 m. Guizhou, Yunnan.


半锥莓 ban zui mei

Shrubs scandent. Branchlets brownish green, thinly floccose-tomentose at first, glabrescent, with short retrorse prickles. Leaves simple; petiole 1–1.5 cm, tomentose, with few prickles; stipules oblong-lanceolate, to 1 cm, margin villous, usually apically laciniate; blade oblong-lanceolate to lanceolate, 7–11 × 1.5–2.5 cm, lateral veins 7–9 pairs, midvein distinctly raised and abaxially with prickles, impressed adaxially, thickly papery, abaxially yellowish brown tomentose, adaxially dark, glabrous, base rounded, margin finely remotely serrate, apex acuminate. Inflorescences terminal or axillary, racemes, loosely 7–12-flowered; rachis and pedicels tomentose, prickly; bracts oblong-lanceolate, nearly as long as stipules, with few teeth along margin. Pedicel 1–1.5 cm. Calyx abaxially yellowish brown; tube cupular; sepals narrowly triangular, 3–4 × 2–3 mm, apex cuspidate. Petals pink, rhombic-ovibucular to obovate, 2–3 mm, hairy, apex mucronate. Stamens numerous, shorter than petals; filaments sparsely hairy, anthers with few hairs at apex of connectives. Pistils longer than stamens; styles to 8 mm, hairy; ovaries hairy apically. Aggregate fruit reddish to red at maturity, globose, 8–10 mm in diam., with persistent styles; drupelets reniform, hairy apically. Fl. May–Aug, fr. Jun–Sep. 2n = 28*.

- Forests, roadsides, thickets; 800–2200 m. Fujian, Guangxi, Guizhou, Hubei, Hunan, Zhejiang.

ROSACEAE
ROSACEAE

Shrubs scandent, 2–3 m tall. Branchlets brown to grayish brown, terete, tomentose-villosous when young, gradually glabrescent, with sparse, curved minute prickles. Leaves simple; petiole 1–2 cm, tomentose-villosous, with sparse, curved small prickles; stipules early caducous, free, brown, ovate-lanceolate, 7–8 mm, membranous, tomentose-villosous; blade oblong-ovate, 6–12 × 3–6 cm, lateral veins 8–10 pairs, raised and purplish abaxially, slightly impressed adaxially, papery, abaxially densely gray tomentose, adaxially dark green, glabrous or slightly villous along veins, base subtruncate to shallowly cordate, margin with dense coarse abruptly sharp serrations, apex shortly acuminate. Inflorescences terminal and axillary, racemes, 6–10 cm, few flowered, axillary ones shorter, flowers sometimes several in clusters in leaf axils; rachis and pedicels densely tomentose-villosous; bracts brown, ovate-lanceolate, 7–10(–12) mm, subglabrous, margin entire or with few teeth apically. Pedicel 1.5–3.5 cm. Calyx abaxially densely tomentose-villosous; tube 6–7 mm in diam.; sepalae narrowly ovate or ovate-triangular, 8–11 × 4–6 mm, apex of outer sepals shortly acuminate, laciniate, inner sepals mucronate, entire. Petals white, obovate, 5–7 × 4–6 mm, both surfaces thinly pubescent, base clawed, margin undulate. Stamens many; filaments ca. 5 mm, glabrous; anthers few barbed. Pistils many, glabrous; ovary glabrous; style glabrous. Aggregate fruit purplish black at maturity, semiglobose, 8–10 mm in diam., glabrous; pyrenes slightly rugose. Fl. May–Jun, fr. Jul–Aug.

● Forests; 1700–3000 m. W Yunnan.


早花悬钩子 zao hua xuan gou zi

Shrubs scandent. Branchlets brownish to grayish brown, gray tomentose when young, gradually glabrescent, with sparse, curved minute prickles or nearly unarmed. Leaves simple; petiole (0.3–)1–2 cm, tomentose, usually unarmed; stipules caducous, lanceolate or linear-lanceolate, 0.8–1.4 cm × 2.5–5.5 mm, membranous, appressed villous; blade oblong-ovate or broadly ovate-lanceolate to narrowly lanceolate, 6–12 × (1)–3–5.5 cm, lateral veins 6–9 pairs, prominent abaxially, papery, abaxially densely gray to yellowish gray appressed tomentose, adaxially glabrous, base rounded to subtruncate, margin unevenly incised coarsely sharply serrate or sparsely so, rarely doubly serrate, apex acuminate. Inflorescences terminal, racemes, 4–8 cm, several to more than 10-flowered; rachis and pedicels densely gray to yellowish gray appressed tomentose-villosous; bracts caducous, lanceolate to linear-lanceolate, 0.8–1.2 cm × 2–4 mm, membranous, villous. Pedicel 7–10 mm. Calyx abaxially densely gray to yellowish gray tomentose-villosous; tube pelviform; sepals triangular-ovate to lanceolate, 8–10 × 3–5 mm, margin entire, apex acuminate. Petals white, obovate, 5–7 × 4–6 mm, both surfaces puberulous. Stamens many, shorter than sepals, glabrous or hairy when young, or only anthers slightly villous; filaments inflated at base. Pistils slightly longer than or nearly as long as stamens; ovary glabrous; style glabrous. Aggregate fruit purplish black at maturity, semiglobose, 8–10 mm in diam., glabrous; pyrenes slightly rugose. Fl. May–Jun, fr. Jul–Aug.

● Forests, bamboo forest margins, thickets; 1000–3100 m. Sichuan, Yunnan.

1a. Leaf blade oblong-ovate or broadly ovate-lanceolate, 3–5.5 cm wide, margin with dense serrations; petiole 10–20 mm ...................... 176a. var. preptanthus

1b. Leaf blade narrowly lanceolate, 1–2 cm wide, margin with sparse serrations; petiole 3–5 mm ...................... 176b. var. mairei

176a. Rubus preptanthus var. preptanthus

早花悬钩子(原变种) zao hua xuan gou zi (yuan bian zhong)

Leaf blade oblong-ovate or broadly ovate-lanceolate, 3–5.5 cm wide, margin with dense serrations; petiole 1–2 cm.

● Bamboo forest margins, thickets; 1000–2800 m. Sichuan, Yunnan.


狭叶早花悬钩子 xia ye zao hua xuan gou zi


Leaf blades narrowly lanceolate, 1–2 cm wide, margin with sparse serrations; petiole 3–5 mm.

● Forests, thickets, gravelly slopes; ca. 3100 m. Sichuan, Yunnan.


窄叶悬钩子 tang ye xuan gou zi

Shrubs scandent, 1.5–3.5 m tall. Branchlets brown to purplish brown, soft hairy when young, glabrate in age, with sparse, somewhat curved prickles. Leaves simple; petiole (0.6–)1–1.5 cm, tomentose-villosous at first, later glabrate, sometimes with few small needle-like prickles; stipules caducous, brownish, linear-oblong to ovate-lanceolate, 0.8–1.4 cm, membranous, appressed pubescent when young; blade elliptic or oblong-elliptic, 5–12 × 2.5–5 cm, lateral veins 8–10 pairs, prominent abaxially, abaxially gray appressed tomentose, hairs persistent, but deciduous on fruiting branchlets, adaxially glabrous or pilose along veins, base subrounded, margin inconspicuously shallowly serrate or coarsely serrate, apex acuminate, rarely acute. Inflorescences terminal, racemes, 5–10 cm; rachis and pedicel densely tomentose-villosous, gradually glabrescent, finally glabrous; bracts caducous, linear-oblong, 7–11 mm, pubescent initially, apex acute to shortly acuminate. Pedicel 1–1.5 cm. Flowers to 2.5 cm in diam. Calyx abaxially densely tomentose-villosous; tube pelviform; sepals ovate to triangular-ovate or lanceolate, 8–12(–25) × 3–6 mm, margin entire, apex acuminate. Petals white or white with pink spots, obovate to suborbicular, 0.8–1.2 cm × 7–10 mm, both surfaces thinly pubescent, base shortly clawed. Stamens many; filaments subulate, broadened basally, slightly villous; anthers hirtose. Pistils much longer than stamens; ovary glabrous; styles glabrous, apex clavate. Aggregate fruit purplish black at maturity, compressed globose, glabrous, with many drupelets; pyrenes slightly rugose or somewhat smooth. Fl. May–Jun, fr. Jul–Aug.

● Slopes, ravines, stream sides, montane valleys, forests, thickets;
177a. Rubus malifolius var. malifolius

葉悬钩子（原变种） tang ye xuan gou zi (yuan bian zhong)

Rubus arbor H. Léveillé & Vaniot; R. limprichtii Pax & K. Hoffmann.

Sepals ovate to ovate-lanceolate, to 2.5 mm .................................. 177b. var. longisepalus

177b. Rubus malifolius var. longisepalus T. T. Yu & L. T. Lu,


长悬钩子 chang e tang ye xuan gou zi

Sepals lanceolate or ovate-lanceolate, to 2.5 cm.

- Stream sides, montane valleys, forests; low elevations. N Guangxi (Longsheng Xian, Rongshui Xian, Xing’an Xian).


桑叶悬钩子 sang ye xuan gou zi

Shrubs erect, to 1.5 m tall. Branchlets brownish to reddish brown, terete, tomentose-villous when young, later glabrate, with few small prickles. Leaves simple; petiole 1–2 cm, slender, tomentose-villous when young, glabrate in age, unarmed or with sparse, small prickles; stipules caducous, oblong, 6–10 × 2–4 mm, soft hairy, margin entire or with a few teeth; blade oblong or ovate-oblong, 6–10 × 2.5–5 cm, lateral veins 7–10 pairs, midvein and veins raised abaxially, slightly impressed adaxially, papery, abaxially slightly tomentose-villous along veins, glabrate in age, axially glabrous but hisrate along midvein, base broadly cuneate to subcordate, margin undivided, unevenly sharply serrate, apex acuminate. Inflorescences terminal, corymbose racemes, 3–6 cm, 5–9-flowered; rachis and pedicels tomentose-villous, with small prickles, with few to many shortly stalked glands; bracts narrowly oblong to ovate, 6–9 × 2–4 mm, soft hairy, margin apically divided or with few teeth along margin. Pedicel 1.5–2.5 cm. Flowers 1–1.5 cm in diam. Calyx campanulate, abaxially tomentose, unarmed or with sparse, minute needle-like prickles, sometimes with shortly stalked glands; sepals free, slightly spreading after anthesis; petals oblong, 5–7 × 5–6 mm, both surfaces soft hairy, blade of leaflets variable, terminal one rhombic-ovate, 6–10 × 4–6 cm, base cuneate, apex acuminate to cuneate, lateral leaflets suborbicular or ovate, ca. 1/2 as long and wide as terminal one or smaller, both surfaces soft hairy along veins, abaxially with minute prickles along veins, base obliquely rounded, margin sometimes lobed, unevenly obtusely serrate, apex acute or obtuse. Inflorescences terminal, 1-flowered, rarely flowers in clusters of 2 or 3; bracts 7–9 mm, palmatipartite; lobes linear to linear-lanceolate, with glandular hairs and soft hairs. Pedicel 3–4 cm, with soft hairs, glandular hairs, and needle-like prickles. Flowers 3–4 cm in diam. Calyx abaxially with sparse, soft hairs, glandular hairs, and needle-like prickles; sepals erect, triangular-ovate, 1.5–2(–2.5) cm × 5–8 mm, apex cuneate; outer sepals usually apically laciniate; lobes linear, inner sepals sometimes entire. Petals greenish white, suborbicular or oblong, 7–9 mm in diam., much shorter than sepals. Stamens many, much shorter than petals; anthers oblong. Pistils numerous, densely glomerate; ovary densely tomentose-villous. Aggregate fruit somewhat green at maturity, globose, 1.3–2(–2.5) cm in diam., densely brownish yellow tomentose-villous, outer drupelets dry, inner drupelets fleshy; pyrenes furrowed-rugose. Fl. Jun–Jul, fr. Aug–Sep.

Mixed forests, valleys, rocky slopes; 1800–3000 m. SE Xizang, NW Yunnan [Bhutan, N Myanmar, Sikkim].


墨脱悬钩子 mo tuo xuan gou zi

Shrubs small. Branchlets arching, reddish brown, terete, with soft hairs and needle-like prickles. Leaves compound, 3-foliolate, sometimes simple at apex of flowering branchlets; petiole 2–3.5 cm, terminal leaflet shortly petiolulate, lateral leaflets subsessile, with soft hairs and needle-like prickles; stipules free, deeply lobed; lobes linear-lanceolate, soft hairy; blade of leaflets 3.5–7 × 2–4.5 cm, lateral veins 5–7 pairs, slightly raised axially, terminal one rhombic-ovate, apex shortly acuminate, lateral leaflets ovate to elliptic, apex acute, abaxially pubescent and with needle-like prickles along veins, adaxially sparsely appressed pubescent, base cuneate to rounded, margin unevenly coarsely obtusely serrate. Inflorescences axillary, usually 1-flowered in leaf axils; bracts smaller than stipules, deeply lobed; lobes linear-lanceolate, soft hairy. Pedicel ca. 1 cm, pu-
bescent, with needle-like prickles. Flowers 1–1.5 cm in diam. Calyx purplish brown, abaxially sparsely pubescent; tube abaxially with sparse, needle-like prickles; sepals triangular-lanceolate, apex ciliate and with 3 linear lobes, outer sepals sometimes entire. Stamens many; filaments linear or slightly broader basally. Pistils few, shorter than stamens; ovary gray tomentose. Fruit not seen. Fl. Jul–Aug.

- Mixed forests, thickets; ca. 2500 m. SE Xizang (Mêdog Xian).

**1b. Terminal inflorescences subracemes with few flowers or flowers several in clusters or solitary.**

**1a. Terminal inflorescences large broad cymose panicles with numerous flowers.**

2a. Leaves glabrous abaxially, ovate-lanceolate or elliptic-lanceolate, not divided; flowers with petals ............ 185. *R. wuchianus*

2b. Leaves tomentose or pubescent abaxially, narrowly ovate or suborbicular; flowers with or without petals.

3a. Leaves narrowly ovate, abaxially tomentose, margin undivided or slightly undulate; flowers usually apetalous ................................................................. 183. *R. jinfoshanensis*

3b. Leaves suborbicular, abaxially pubescent, margin 3–5-lobed, lobes triangular; flowers with petals ............ 184. *R. lobatus*

1b. Terminal inflorescences subracemes with few flowers or flowers several in clusters or solitary.

4a. Leaves abaxially tomentose.

5a. Leaves 3–5-lobed, suborbicular or broadly ovate, deciduously tomentose, but hairs persistent abaxially in age; stipules broader, 1–1.5 cm, palmately parted ................................. 188. *R. tsangorum*

5b. Leaves undivided or lobed, abaxially persistent tomentose; stipules narrowly ovate to ovate-lanceolate, 1.5–2 cm, margin pinnately laciniate lobed.

6a. Leaves ovate to oblanceolate, bristly on both surfaces, not divided or somewhat undulate, coarsely sharply serrate; stipules tomentose, villous; flowers 2–3 cm in diam. ........................................... 186. *R. tricolor*

6b. Leaves suborbicular to ovate, bristly only abaxially, margin 3–5-lobed, sharply serrulate; stipules tomentose; flowers 1–2 cm in diam. ...................................................... 187. *R. multisetosus*

4b. Leaves abaxially pubescent or subglabrous.

7a. Flowers solitary or in clusters of 2–4, terminal or axillary; leaves broadly ovate, undivided, rarely lobed; outer sepals usually not lobed.

8a. Plants with stalked glands; leaves acute to acuminate apically, both surfaces glabrous or nearly so; pedicel 2–4 cm; sepals triangular-lanceolate, 0.8–1.4 cm ................................................... 192. *R. ourosepalus*

8b. Plants without stalked glands; leaves obtuse, rarely acute apically, both surfaces sparsely villous; pedicel 5–10 mm; sepals broadly ovate, 7–8 mm ..................................................... 193. *R. polyodontus*
7b. Flowers 4–12 in terminal subracemes or several in clusters; leaves suborbicular or broadly narrowly ovate, lobed; outer sepals usually divided.

9a. Leaves broadly narrowly ovate, terminal lobe several × as long as lateral lobes, apically shortly acuminate, rarely acute, lateral lobes obsolete; flowers 1–1.5 cm in diam.; sepals narrowly lanceolate; outer sepals 2- or 3-laciniate .................................................. 191. *R. amphidasys*

9b. Leaves orbicular or suborbicular, terminal lobe slightly longer than or as long as lateral lobes, acute, obtuse, or rounded; flowers 1.5–2(–2.5) cm in diam.; sepals palesomely parted to middle or nearly to base; sepals narrowly ovate, narrowly ovate-lanceolate, or broadly ovate-lanceolate to oblong-ovate; outer sepals leaflike, laciniate, pinnately divided, or dissected apically.

10a. Leaves 3–5-lobed, terminal lobe acute apically, lateral lobes obsolete, rarely acute, margin coarsely serrate; stipules palmatipartite nearly to base; sepals narrowly ovate or narrowly ovate-lanceolate; outer sepals leaflike, laciniate or pinnately divided ........................................ 189. *R. treatleri*

10b. Leaves 5–7-lobed, lobes obtuse to rounded apically, margin sharply serrate; stipules palmatipartite to middle or ca. 1/3 their length; sepals broadly ovate-lanceolate to oblong-ovate; outer sepals dissected apically .................................. 190. *R. fanjingshanensis*


金佛山悬钩子 *jin fo shan xuan gou zi*

Shrubs scandent, 2–5 m tall. Branchlets brownish to dark brown, tomentose, bristly, with purplish puberulous hairs, sometimes with intermixed glandular hairs. Leaves simple; petiole 2–3.5 cm, tomentose, bristly, bristles purplish red, or with intermixed glandular hairs; stipules caducous, free, lanceolate or ovate-lanceolate, 7–9 mm, margin laciniate, tomentose, bristly; blade narrowly ovate, 8–12 × 5–9 cm, veins yellowish brown, raised abaxially, abaxially densely yellowish gray tomentose, bristly along midvein, adaxially glabrous or soft hairy only along veins, base cordate, margin unevenly coarsely sharply serrate, undivided or slightly undulate, apex shortly acuminate. Inflorescences terminal or axillary, terminal ones cymose panicles, to 24 cm, many flowered, axillary ones smaller; rachis and pedicels bristly, bristles purplish red, tomentose or with glandular hairs; bracts lanceolate, 5–9 mm, margin shallowly laciniate, tomentose, bristly. Pedicel 5–8 mm. Flowers 1–1.5 cm in diam. Petals usually absent. Sepals lanceolate or ovate-lanceolate, 6–9 × 2–4 mm, both surfaces yellowish gray tomentose, margin entire, apex acuminate. Stamens many, shorter than sepals; filaments linear. Pistils less than 20, slightly shorter than or nearly as long as stamens; ovary glabrous. Fruit unknown. Fl. Jun–Jul.

- Rocky slopes, forest margins; 1600–2100 m. Chongqing (Jinfo Shan), SE Yunnan (Hekou Xian).


五裂悬钩子 *wu lie xuan gou zi*

Shrubs scandent, 1–2 m tall. Branchlets brownish, terete, densely villous, bristly, unevenly glandular hairy, with sparse, small basally broad prickles. Leaves simple; petiole 4–8 cm, with reddish purple glandular hairs, bristly, villous; stipules caducous, free, brown, 1–1.5 cm, villous, with glandular hairs, palmatipartite; lobes lanceolate or linear-lanceolate; blade suborbicular, 10–20 cm in diam. and ca. as long, palmately 5-veined, lateral veins 4 or 5 pairs, both surfaces soft hairy, with reddish brown glandular hairs and bristles along veins, base cordate, margin 3–5-lobed; lobes triangular, terminal lobe slightly larger than lateral lobes, irregularly sharply serrate, apex acute to shortly acuminate. Inflorescences terminal or axillary, terminal ones cymose panicles, large, to 20 cm, axillary ones narrow panicles or subracemes, shorter; rachis, pedicels, and abaxial surface of calyx with dense reddish brown glandular hairs, bristles and long hairs; bracts 1–1.4 cm, villous, with glandular hairs, palmatipartite; lobes lanceolate or linear-lanceolate. Pedicel 0.8–1.5 cm. Flowers 1–1.5 cm in diam. Sepals erect in fruit, narrowly lanceolate, 1–1.5 cm, margin slightly tomentose, apex caudate, outer sepals often shallowly laciniate; lobes linear. Petals white, broadly obovate, shorter than sepals, base clawed. Stamens many; filaments linear; anthers villous. Ovary glabrous; styles longer than stamens. Aggregate fruit subglobose, red, ca. 1 cm in diam., glabrous, enclosed in calyx; pyrenes slightly rugose. Fl. Jun–Jul, fr. Aug–Sep.

- Roadsides in mountains, valleys, thickets; to low medium elevations. Guangdong, Guangxi.

185. *Rubus wuzhianus* L. T. Lu & Boufford, nom. nov.

锯叶悬钩子 *ju ye xuan gou zi*


Shrubs scrambling, lianoid. Branchlets purplish brown, terete, with dense purplish red long bristles and stalked glands, with sparse, hooked minute prickles. Leaves simple; petiole 1–2 cm, with dense purplish red long bristles and with sparse, small prickles; stipules caducous, free, brown, oblong, 1–1.8 cm, apex entire or with few teeth; blade lanceolate or elliptic-lanceolate, 12–17 × 5–9 cm, lateral veins 7–9 pairs, both surfaces glabrous, abaxially with minute hooked prickles along veins, base cordate, margin irregularly coarsely sharply serrate, apex caudate. Inflorescences terminal, lax cymose panicles, large; rachis and pedicels with dense purplish red long bristles and stalked glands; bracts oblong or ovate-lanceolate, 1–1.6 cm, margin entire or serrate. Pedicel 2–4 cm. Flowers 1.2–2 cm in diam. Calyx abaxially densely yellowish tomentose, purplish red bristly, with stalked glands; sepals reflexed after anthesis, ovate-lanceolate, to 1 cm, apex caudate, outer sepals apically 2- or 3-laciniate, inner sepals entire. Petals white, suborbicular or broadly elliptic, thinly pubescent, base barely clawed. Stamens
many; filaments linear or somewhat broader basally; anthers sericeous-villosus. Pistils nearly as long as or slightly longer than stamens; ovary soft hairy apically, glabrescent. Aggregate fruit reddish black, subglobose, glabrous; pyrenes coarsely rugose. Fl. May–July, fr. July–Aug.

- Montane thickets, forest margins in valleys; 1000–1500 m. Hubei, Hunan.


薀莓 san se mei

Shrubs 1–4 m tall, with climbing or creeping branches. Branchlets brown to dark reddish brown, terete, tomentose, yellow-brown bristly or with intermixed glandular hairs. Leaves simple; petiole 1.5–3.5 cm, tomentose, bristly, with glandular hairs; stipules persistent, free, ovate-lanceolate to narrowly oblong, 1–2 cm × 4–8 mm, margin pinnate-laciniate; lobes lanceolate, tomentose, with intermixed long hairs along veins, hairs deciduous, sometimes sparsely bristly; blade ovate to oblong, 6–12 × 3–8 cm, veins raised abaxially, abaxially yellowish gray tomentose, yellowish brown bristly along veins, adaxially dark green, glabrous but sparsely bristly between veins, base subcordate to cordate, margin undivided or slightly undulate, unevenly coarsely sharply serrate, apex shortly acuminate. Inflorescences terminal, short subracemes, 3–5 cm, several flowered or flowers solitary in leaf axils; rachis and pedicels tomentose, purplish red bristly, or with glandular hairs; bracts narrowly ovate or ovate-lanceolate, 0.9–1.6 cm × 4–7 mm, pinnate-laciniate; lobes linear to lanceolate, abaxially tomentose-villosus, bristly, initially with glandular hairs. Pedicel 5–10 mm. Flowers 2–3 cm in diam. Calyx abaxially yellowish brown tomentose, bristly; sepals lanceolate, 0.8–1.2 cm × 4–6 mm, margin entire or laciniate, apex acuminate. Petals white, obovate or obovate-oblong, 7–9 × 5–7 mm, base shortly clawed, apex emarginate or shortly pointed. Stamens many, shorter than petals. Petals longer than stamens, glabrous. Aggregate fruit bright red, subglobose, 1.5–1.7 cm in diam.; pyrenes rugose. Fl. Jun–Jul, fr. Aug–Sep. 2n = 28*.

- Slopes, forests, thickets; 1800–3600 m. Sichuan, Yunnan.


刺毛悬钩子 ci mao xuan gou zi

\textit{Rubus polytrichus} Franchet (1890), not Pregel (1882).

Shrubs low, to 50 cm tall, with creeping branches. Branchlets brown to grayish brown, terete, tomentose, yellow-brown bristly or with intermixed stipitate glands. Leaves simple; petiole 1.5–3 cm, tomentose, bristly, or stipitate glandular; stipules persistent, free, ovate-lanceolate or narrowly ovate, 1–1.6 cm × 5–9 mm, abaxially tomentose, bristly, shallowly pinnate-laciniate; blade ovate to suborbicular, 3–6 × 3–5.5 cm, veins raised abaxially, abaxially densely yellowish white tomentose, yellowish brown bristly along veins, adaxially glabrous, base cordate, margin 3–5-lobed, sharply doubly serrulate, apex acute. Inflorescences terminal, short subracemes, 3–5 cm, several flowered, or flowers solitary in leaf axils; bracts ovate-lanceolate or narrowly ovate, 0.8–1.5 cm × 4–8 mm, tomentose when young, bristly, laciniate. Pedicel 5–10 mm. Flowers 1–2 cm in diam. Calyx abaxially tomentose, bristly or stipitate glandular; sepals erect at anthesis, later enclosing fruit, lanceolate, 0.9–1.4 cm × 3.5–6 mm, apex acuminate, outer sepal usually laciniate apically, inner sepals entire. Petals white, broadly ovate to oblong, 7–11 × 5–8 mm, abaxially sparsely tomentose, base shortly clawed. Stamens many, shorter than petals; filaments broad, complanate. Pistils slightly shorter than or nearly as long as stamens; ovary glabrous. Aggregate fruit subglobose, glabrous, with many drupelets and persistent styles; pyrenes slightly rugose. Fl. Jun–Jul, fr. Aug–Sep.

- Montane forests and valleys, grasslands, roadsides, near water courses; 2200–3000 m. NW Yunnan.


东南悬钩子 dong nan xuan gou zi

Shrubs lianoid, low, 0.3–1.5 m tall. Branchlets brownish to dark brown, terete, villous, unevenly with purplish red glandular hairs and bristly, sometimes with sparse, needle-like prickles. Leaves simple; petiole 4–8 cm, villous, with purplish red glandular hairs; stipules free, 1–1.5 cm, palmatipartite; lobes linear or linear-lanceolate, villous, with glandular hairs; blade suborbicular or broadly ovate, 6–14 cm in diam., abaxially thinly tomentose, with intermixed long hairs and sparse, glandular hairs along veins, glabrescent, adaxially villos, with sparse, intermixed glandular hairs along midvein, base deeply cordate, margin distinctly 3–5-lobed, lateral lobes broadly triangular, apex obtuse or acute, terminal lobe slightly larger than lateral lobes, broadly triangular-ovate, margin unevenly coarsely sharply serrate, apex acute or shortly acuminate. Inflorescences terminal or axillary, subracemes, 5–20-flowered, terminal ones 8–13 cm, lateral ones shorter; rachis, pedicels, and abaxial surface of calyx villous and with purplish red glandular hairs; bracts 0.8–1.2 cm, palmatipartite; lobes linear, villous, with glandular hairs. Pedicels unequal in length, longer ones to 2.5 cm, shorter ones 5–6 mm. Flowers 1–2 cm in diam. Calyx tube cupular, ca. 5 mm; sepals erect in fruit, narrowly triangular-lanceolate, 7–12 × 3–5 mm, apex long acuminate and deeply divided into 2 or 3 lanceolate lobes. Petals white, broadly obovate, 6–7 mm, base barely clawed. Stamens ca. 5 mm; filaments linear. Pistils many, much longer than stamens; ovary glabrous. Aggregate fruit red, subglobose, glabrous; pyrenes distinctly rugose. Fl. May–Jul, fr. Aug–Sep.

- Sparse montane forests and thickets; 200–1200 m. Anhui, Fujian, Guangdong, Guizhou, Hunan, Jiangxi, Zhejiang.


滇西北悬钩子 dian xi bei xuan gou zi

\textit{Rubus arcuatus} Kuntze; \textit{R. rosulans} Kuntze; \textit{R. tonglooen-sis} Kuntze.

Shrubs low, 0.5–1 m tall. Branches grayish brown, brown or blackish brown, villous, purplish red stipitate glandular, with sparse, needle-like prickles. Leaves simple; petiole 2.5–5.5 cm, with dense purplish red stipitate glands, long hairs, and sparse, needle-like prickles; stipules free, 1–1.5 cm, palmatipartite nearly to base; lobes linear to linear-lanceolate, villous, stipitate
united drupelets, crowned with persistent calyx; pyrenes sub-
pistils numerous, glabrous; torus raised, long hairy. Aggregate
mm, apex caudate. Stamens many, 3–4 mm; filaments some-
sected apically; lobes linear to linear-lanceolate, 2–5 × 1–1.5
8–11 mm. Calyx tube cupular; sepals 5, broadly ovate-lanceo-
glands; bracts similar to stipules, but smaller. Fruiting pedicel
8–11 mm in diam. Calyx tube cupular, ca. 5 mm; sepals
narrowly ovate or narrowly ovate-lanceolate, 0.8–1.5 cm × 5–7
mm, apex acuminate, outer sepals leaflike, margin laciniate or
pinnately divided into lanceolate lobes, inner sepals entire. Pet-
als pink, suborbicular, 8–11 mm in diam., barely clawed. Sta-
mens many, shorter than petals; filaments broad, flat. Pistils
nearly as long as stamens; ovary and style glabrous. Aggregate
fruit red, globose, 8–10 mm in diam., enclosed in calyx; pyre-

Forests, forest margins; 2300–3400 m. S Xizang (Yadong Xian),
NW Yunnan [Bhutan, Nepal, Sikkim].

190. Rubus fanjingshanensis L. T. Lu ex Boufford et al., J. Arnol

梵净山悬钩子 fan jing shan xuan gou zi

Shrubs trailing, small. Branchlets brown to brownish, dark
brown in age, terete, villous, with thin needle-like prickles
slightly dilated at base, with stalked glands. Leaves simple;
petiole 4–8 mm, villous, with needle-like prickles, stipitate
 glandular; stipules free, 1.4–1.8 × 1–1.4 cm, both surfaces vil-
 lous, with glandular hairs, palmatipartite 1/3–1/2 to base; lobes
lanceolate to triangular-lanceolate, 3–7 × 1–3 mm; blade orbi-
cular or suborbicular, 7–11 × 6.5–11 cm, veins raised abaxially,
abaxially pale, adaxially dark green, both surfaces appressed
villous, more densely so abaxially, veins glabrescent, sparsely
hair in age, abaxially with needle-like prickles, sometimes
with sparse, intermixed stalked glands, base deeply cordate,
margin 5(–7)-lobed; lobes obtuse to rounded, terminal lobe
slightly longer than or ca. as long as lateral lobes, margin irreg-
ularly sharply serrate. Inflorescences not seen; infructescences
terminal, short racemes, 4–5 cm, or clusters in leaf axils; rachis,
fruits pediculo, and abaxial surface of calyx villose, with nee-
dle-like prickles, sometimes with sparse, intermixed stipitate
glands; bracts similar to stipules, but smaller. Flowering pedicel
8–11 mm. Calyx tube cupular; sepals 5, broadly ovate-lanceo-
late to oblong-ovate, 0.8–1.4 cm × 4–6 mm, outer sepals di-
sected apically; lobes linear to linear-lanceolate, 2–5 × 1–1.5
mm, apex caudate. Stamens many, 3–4 mm; filaments some-
what broadened basally; anthers globose or shortly oblong.
Pistils numerous, globose, torus raised, long hairy. Aggregate
fruit red, subglobose, 7–10 mm in diam., glabrous, with many
united drupelets, crowned with persistent calyx; pyrenes sub-
reniform, 1.5–2.5 × 1–1.8 mm, distinctly rugose. Fl. not seen,

- Mountains; 2000–2300 m. NE Guizhou (Fanjing Shan, Jiang-
kou Xian).


周毛悬钩子 zhou mao xuan gou zi

_Rubus chaffanjonii_ H. Léveillé & Vaniot.

Shrubs trailing, small. 0.3–1 m tall. Branchlets reddish brown,
with dense reddish brown stipitate glands, soft bristles, and long yellowish hairs, usually unarmed. Leaves simple;
petiole 2–5.5 cm, with reddish brown glandular hairs, soft
bristles and yellowish villous; stipules free, 0.8–1.5 cm, deeply
laciniate; lobes lanceolate or linear, with long glandular
hairs, villous; blade broadly to narrowly ovate, 5–11 × 3.5–9
cm, both surfaces villose, base cordate, margin 3–5-lobed, ter-
nal lobe much larger and longer than lateral lobes, apex
shortly acuminate, rarely acute, lateral lobes obtuse, unevenly
sharply serrate. Inflorescences terminal or axillary, subracemes,
6–12 cm, 5–12-flowered, rarely flowers in clusters of 3–5; ra-
chis, pedicels, and abaxial surface of calyx with dense reddish
brown long glandular hairs, soft bristles, and yellowish long
hairs; bracts 6–9 mm, lobed; lobes linear or lanceolate, vil-
lous, stipitate glandular. Pedicel 5–14 mm. Flowers 1–1.5 cm
in diam. Calyx tube ca. 5 mm; sepals erect in fruit, narrowly
lanceolate, 1–1.7 cm × 3–5 mm, apex caudate, outer sepals usually
2- or 3-laciniate. Petals white, broadly ovate to oblong, 4–7 ×
3–5 mm, base barely clawed, margin premorse or coarsely ser-
rate. Stamens many; filaments broad, complanate. Pistils longer
than stamens; ovary glabrous. Aggregate fruit dark red, com-
gressed globose, ca. 1 cm in diam., glabrous, enclosed in persist-

- Slopes, roadsides, shrub and bamboo thickets; 400–1600 m.
Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi,
Sichuan, Zhejiang.

1914.

宝兴悬钩子 bao xing xuan gou zi

Shrubs lianoid, small. 0.4–1 m tall. Branchlets brown or
reddish brown, with needle-like prickles, glandular hairs, and
sparsely, soft hairs. Leaves simple; petiole 2.5–5.5 cm, with nee-
dle-like prickles, glandular hairs, and soft hairs; stipules free,
7–10 mm, palmatipartite nearly to base; lobes linear-lanceolate
or linear, with glandular hairs, intermixed with soft hairs; blade
broadly ovate, 5–11 × 3.5–8 cm, both surfaces glabrous or sub-
glabrous, with sparse, needle-like prickles along veins, base
cordate, margin undivided, rarely lobed, sharply serrate, with
sparsely, glandular hairs, apex acute to acuminate. Inflorescences
terminal and axillary, 1-flowered or flowers in clusters of 2–4;
bracts 5–8 mm, palmatipartite nearly to base; lobes linear or
subulate, soft hairy and stipitate glandular. Pedicel 2–4 cm, with
needle-like prickles, stipitate glandular and soft hairy. Flowers
1–1.5 cm in diam. Calyx abaxially with needle-shaped prickles,
stipitate glands, and soft hairs; tube peltiform; sepals erect in
fruit, triangular-lanceolate, 0.8–1.4 mm, margin entire, rarely 2-
lobed, apex subulate-acuminate. Petals white, ovate, 5–8 × 4–5
mm, base with claws nearly absent, apex acute. Stamens many,
aranged in several whorls; filaments broad, flat. Pistils shorter
than stamens; apex of ovary and base of style thinly pubescent
when young, gradually glabrescent. Aggregate fruit red, dry,
ROSACEAE

1b. Stipules pectinately or pinnately laciniate; leaves broadly ovate to suborbicular.

1a. Stipules undivided, margin or apex toothed or entire; leaves orbicular-ovate or suborbicular, abaxially soft hairy.


多齿悬钩子 duo xian gou zi

Shrubs low, 20–40 cm tall. Branches grayish brown to dark brown, creeping, rooting at nodes; branchlets sparsely villous, with straight needle-like prickles. Leaves simple; petiole 2–3(–5) cm, villous, with straight needle-like prickles; stipules free, to 8 mm, villous, deeply divided nearly to base; lobes linear to linear-lanceolate; blade broadly ovate, 3–8 × 2.5–6 cm, both surfaces sparsely villous, abaxially with sparse, needle-like prickles along midvein, base cordate, margin undivided or slightly incised, unevenly serrate, apex obtuse, rarely acute. Inflorescences terminal or axillary, 1-flowered or flowers in clusters of 3 or 4; bracts 5–7 mm, villous, deeply lobed; lobes linear to linear-lanceolate. Pedicel 5–10 mm. Calyx to 1.2 cm, sparsely villous, with needle-like prickles; sepals broadly ovate, 7–8 × 3–5 mm, margin tomentose, entire, apex caudate-acuminate or with leaflike appendages. Petals rose, ovate, 5–6 mm and ca. as broad, glabrous. Stamens ca. 30; filaments ca. 2 mm. Pistils more than 10; ovary soft hairy apically. Aggregate fruit dry, consisting of few drupelets, enclosed in persistent calyx; pyrenes smooth. Fl. Jul–Aug, fr. Sep–Oct.

● Bamboo thickets, forest margins; 2300–3200 m. NW Yunnan.


齿叶悬钩子 chi e xuan gou zi

Dalibarda calycina (Wallich ex D. Don) Seringe.

Herbs creeping, 15–20 cm tall, main stems creeping, to 2–3 m long, rooting at nodes, with erect sparsely branched or unbranched laterals. Stems with sparse, needle-like prickles or nearly unarmed, with sparse hairs. Leaves simple; petiole 5–10 cm, villous, with needle-like prickles; stipules ovate, rarely obovate, 0.8–1.3 cm × 6–11 mm, margin shallowly coarsely serrate, rarely entire; blade orbicular-ovate or suborbicular, 2.5–6 cm in diam., both surfaces pilose when young, gradually glabrescent, hairy only along veins in age, abaxially with needle-like prickles along veins, base deeply cordate, margin undulate or shallowly 3–5-lobed, irregularly coarsely serrate, apex obtuse or rounded. Inflorescences usually terminal, 1- or 2-flowered; bracts ovate, 6–10 × 5–9 mm, coarsely serrate, very rarely entire. Pedicel 3–5 cm, usually villous, with needle-like prickles. Flowers to 3 cm in diam. Calyx abaxially with soft hairs and straight subulate prickles; tube broadly pelviform, 3.5–5 mm in diam.; sepals leaflike, narrowly ovate to elliptic, 0.8–1.4 cm × 6–11 mm, outer sepals broader, pinnately lobed or incised-serrate, inner sepals narrower, margin coarsely incised-serrate, sometimes entire. Petals white, obovate to elliptic, slightly shorter than sepals, adaxially puberulous, base clawed. Stamens ca. 30–40, shorter than petals; filaments to 6 mm; anthers ca. 1 mm. Pistils ca. 30–50(–70), slightly shorter than stamens; ovary glabrous; styles to 5 mm, glabrous. Aggregate fruit red to dark red, globose, 0.9–1.4 cm in diam., con-
ROSACEAE


Slopes, forests, forest margins; 1200–3000 m. Sichuan, S Xizang, Yunnan [Bhutan, NE India, Indonesia (Java), N Myanmar, Nepal, Sikkim].


匍匐悬钩子 pu fu xuan gou zi

Subshrubs creeping, (5–)10–20 cm tall. Stems prostrate, rooting at nodes, soft hairy, bristly, usually unarmed. Leaves simple; petiole 2–5 cm, with soft reddish brown bristles and hairs; stipules ovate to elliptic, free, 8–10 mm, hairy, margin entire or rarely apically with few serrations, apex obtuse or acute; blade orbiculate-ovate or suborbicular, 2–4 × 1.5–5 cm, both surfaces pilose, gradually glabrescent, abaxially soft bristly along veins, base deeply cordate, margin undulate or 3–5-lobed, unevenly sharply serrate, apically obtuse or rounded. Inflorescences usually terminal, 1-flowered or flowers in clusters of 2 or 3; bracts usually 2, opposite at middle of pedicel, ovate to elliptic, 5–8 mm, hairy, margin entire or apically lobed. Pedicel 3.5–6 cm, reddish brown or soft hairy and soft hairs. Flowers 1.5–2.3 cm in diam. Calyx abaxially with dense, reddish brown soft bristles and hairs; tube cupular; sepals ovate-lanceolate, 0.8–1.3 cm × 4–5 mm, margin entire or outer sepals apically lobed, apex cuneate. Petals pink, suborbicular or broadly obovate, 0.8–1.4 cm × 7–10 mm, base clawed, apex obtuse. Stamens many, shorter than petals; filaments broad, flat. Pistils nearly equal to stamens in length; style and ovary glabrous. Aggregate fruit red, subglobose, 1–1.5 cm in diam., glabrous, enclosed in persistent calyx; pyrenes smooth. Fl. Jul–Aug, fr. Sep–Oct.

Forests on rocky slopes, rocky stream sides in mountains; 2800–3300 m. SE Xizang, NW Yunnan [Bhutan, Sikkim].


高山悬钩子 gao shan xuan gou zi

Rubus calycinoides Hayata ex Koidzumi (1913), not Kunze (1879); R. calycinoides Hayata var. macrophyllus H. L. Li; R. elmeri Focke; R. hayatae-koidzumi Narash.; R. pentalobus Hayata; R. rolfei var. lanatus Hayata.

Subshrubs low, with creeping stems and ascending leafy shoots. Stems prostrate, rooting at nodes, densely tomentose-villosus, with sparse, small prickles, sometimes nearly unarmed, glabrate in age. Leaves simple; petiole nearly as long as leaf blade, tomentose-villosus, with sparse, needle-like prickles; stipules free, obovate to ± oblong, 7–12 mm, membranous, margin pectinately or palmately laciniate ca. 1/2 to middle at apex, abaxially hairy, adaxially glabrous; blade broadly ovate to suborbicular, 2–6(–9) × 2.5–5.5(–9) cm, venation pedate, lateral veins 4 or 5 pairs, raised abaxially, impressed adaxially, leathery, abaxially brownish gray tomentose, with long hairs and sparse, needle-shaped prickles along veins, adaxially dark greenish brown, usually sparsely hairy when young, later glabrous, bullate between veins, base cordate, basal incision to 1 cm deep, margin 3–5-lobed; lobes obtuse, unevenly crenate. Inflorescences terminal and axillary, 1- or few flowered; rachis and pedicels densely tomentose-villosus, with sparse, needle-like prickles; bracts obovate to ± oblong, 8–10 mm, apex palmately or pectinately laciniate, hairy. Pedicel 5–9 mm. Flowers to 2 cm in diam. Calyx 1–1.5 cm, abaxially tomentose-villosus; sepals ovate or triangular-lanceolate, 8–10 × 4–7 mm, apex laciniate; lobes linear-lanceolate. Petals white, suborbicular or obovate, 7–10 × 6–8 mm, adaxially puberulous, base clawed. Stamens many; filaments to 5 mm; anthers to 1 mm, with few long hairs, rarely glabrous. Pistils fewer than stamens, glabrous. Aggregate fruit yellow to orange or reddish, globose, 1–1.4 × ca. 1 cm, fleshy, with reddish persistent calyx; druplets obliquely ellipsoidal; pyrenes rugose; seeds reniform. Fl. Jun–Jul, fr. Aug–Sep. 2n = 28*, 42*.

Open places, mixed forests; 1300–3800 m. Taiwan [Philippines].


梳齿悬钩子 shu chi xuan gou zi

Rubus allophyllus Hemsley, p.p.

Shrubs creeping, 20–40 cm tall. Stems reddish brown to purplish brown, slender, soft hairy, sometimes sparsely soft bristly. Leaves simple; petiole 3–6 cm, villous or with sparse, intermixed soft bristles; stipules free, broadly ovate, 5–10 × 4–8 mm, sparsely soft hairy, apically lobed; lobes lanceolate; blade suborbicular, 3–6 × 3.5–6.5 cm, both surfaces villous, gradually glabrescent, with only sparse hairs along veins in age, base deeply cordate, margin 2- or 3-lobed, crenate or doubly serrate, apex obtuse. Inflorescences terminal, 2–3 cm in diam., 1- or 2-flowered; bracts broadly ovate, 5–8 × 4–6 mm, sparsely soft hairy, pectinately lobed; lobes lanceolate. Pedicel 2–4 cm, villous, soft bristly or stipitate glandular. Calyx abaxially densely minutely tomentose and with rigid bristles, sometimes with intermixed stipitate glands; sepals reflexed after anthesis, lanceolate, 1–1.4 cm × 3–4 mm, margin long cuneate. Petals white, oblong, slightly shorter than sepals, base long clawed. Stamens many, shorter than petals. Pistils slightly shorter than or nearly as long as stamens, glabrous. Aggregate fruit with few drupelets. Fl. Jun–Jul, fr. Aug–Sep.

● Slopes, forests; 2000–3300 m. C Sichuan (Emei Shan).


黄泡 huang pao

Rubus pectinellus var. trilobus Koidzumi.

Herbs or subshrubs, 8–20(–30) cm tall. Stems creeping, brown or brownish, rooting at nodes, villous, ± prickly. Leaves simple; petiole 3–6 cm, villous, with needle-like prickles; stipules free, 6–9 mm, villous, deeply digitately lobed; lobes linear-lanceolate; blade suborbicular, 2.5–4.5 × 3–5(–7) cm, venation pedate, lateral veins (1 or)2 pairs, raised abaxially, both surfaces pilose, abaxially with needle-like prickles along veins, base deeply cordate, margin sometimes undulate-lobed or 3-lobed, unevenly dentate or doubly serrate, apex obtuse. Inflorescences 1-flowered, rarely flowers 2 or 3 in axils of apical leaves; bracts 5–8 mm, villous, palmately lobed; lobes linear-lanceolate. Pedicel 2–4 cm, villous, with needle-like prickles.
1b. Leaves compound, 3–5-foliolate; stems, petioles and pedicels villous, bristly, with glandular hairs or soft hairy; tube ovoid-globose; sepal ovate to ovate-lanceolate, unequal in length, outer sepals broader, 0.9–1.3 cm × 6–9 mm, deeply divided or incised, inner sepals narrower, with few teeth or entire. Petals white, obovate or elliptic, 0.8–1.2 cm × 6–8 mm, glabrous, base clawed. Stamens many, much shorter than petals. Pistils shorter than stamens; apex of ovary and base of style slightly puberulous, glabrescent. Aggregate fruit red, globose, 1–1.5 cm in diam., glabrous, with reflexed sepals; pyrenes nearly smooth or somewhat rugulose. Fl. May–Jun, fr. Jul–Aug. 2n = 42.

Montane forests and valleys, river banks; 700–3000 m. Fujian, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Philippines].


Herbs perennial, creeping, low or dwarf, unarmed, rarely with needle-like prickles. Leaves compound, 3–5-foliolate; stipules persistent, free, at junction of stem and petiole, broad, occasionally narrow, undivided, rarely divided. Flowers bisexual, several in clusters or solitary. Aggregate fruit adnate to torus, falling away from base of torus at maturity, not hollow.

Nine species (two endemic) in China.

1a. Leaves simple, 3–5-lobed to -parted, cordate or reniform-cordate; stems, petioles, and pedicels soft hairy or subglabrous, bristly; petals white .......................................................... 207. R. humulifolius

1b. Leaves compound, 3–5-foliolate; stems, petioles, and pedicels villous, bristly, with glandular hairs or soft hairy; petals white or purplish red. .......................... 199. R. fragarioides

2a. Leaves 5-foliolate, rarely 3-foliolate, lobed or parted; stipules entire.

3a. Leaflets lobed, incised, coarsely sharply serrate, or doubly serrate; sepals ovate-lanceolate; pistils \( 4–6 \) .......................................................... 199. R. fragarioides

3b. Leaflets parted, deeply sharply serrate; sepals broadly ovate; pistils ca. 3 or ca. 24. .......................... 200. R. potentilloides

4a. Pistils ca. 24; stamens ca. 30 in 1 whorl; petals entire or undulate .......................................................... 201. R. clivicola

4b. Pistils ca. 3; stamens ca. 30 in 1 whorl; petals lobed or coarsely serrate ........................................................................ 201. R. clivicola

2b. Leaves 3-foliolate, undivided; stipules entire or divided.

5a. Stipules pectinately divided, lobes lanceolate, shallowly 3–5-toothed; leaflets suborbicular; stems, petioles, and calyx villous, bristly, with glandular hairs; flowers white, solitary; pistils \( 10–15 \) .......................................................... 206. R. rubrisetulosus

5b. Stipules entire; leaflets suborbicular, broadly ovate to broadly obovate, rhombic, or ovate-rhombic; stems, petioles, and pedicel with soft hairs or needle-like prickles, or pubescent, or bristly.

6a. Leaflets rhombic or ovate-rhombic to oblong-rhombic; stems, petioles, and pedicels with soft hairs or needle-like prickles; flowers purplish red or white. .......................... 202. R. arcticus

7a. Leaflets rhombic or obovate-rhombic; stems, petioles, and pedicel pubescent; flowers 1 or 2, purplish red; pistils ca. 20 .......................................................... 202. R. arcticus

7b. Leaflets ovate-rhombic to oblong-rhombic; stems, petioles, and pedicels sparsely pubescent and with needle-like prickles, sometimes with sparse, intermixed glandular hairs; flowers white, several in clusters or corymbbs; pistils 5 or 6 ................................................................ 203. R. saxatilis

6b. Leaflets suborbicular, broadly ovate or broadly obovate; stems, petioles, and pedicels pubescent or bristly; flowers white. .......................... 204. R. fockeanus

8a. Stems, petioles, and pedicels only pubescent; abaxial surface of calyx pubescent or sparsely bristly; petals obovate-oblong to linear-oblong; pistils 4–20 .......................................................... 204. R. fockeanus

8b. Stems, petioles, pedicel, and abaxial surface of calyx villous and reddish brown bristly; petals broadly obovate; pistils 25–70 or more .......................................................... 205. R. nyalamensis


莓叶悬钩子 mei ye xuan gou zi

Herbs low, 6–16 cm tall. Stems greenish brown or brownish, woody, soft hairy. Leaves compound, 5- or 3-foliolate; petiole 3–9 cm, slightly soft hairy; leaflets very shortly petiolulate or subsessile; stipules free, ovate or elliptic, 7–10 × 5–7 mm, apex acute or ± obtuse; blade of leaflets obovate to suborbicular, 2–5 × 1.5–3.5 cm, glabrous or soft hairy, base cuneate, margin usually lobed, incised or coarsely sharply serrate or doubly serrate, apex acute or obtuse. Inflorescences usually terminal, 1–2 cm in diam.; flowering branchlets and pedicels soft hairy. Pedicel 1–3(–5) cm. Calyx abaxially glabrous or soft hairy; tube shallowly cupular; sepals ovate-lanceolate, 6–10 × 2–4 mm, margin entire, apex long acuminate to caudate. Petals white, obovate, 0.8–1.2 cm × 5–6 mm, apex acute. Stamens many, erect, unequal in length, shorter than petals; filaments dilated in basal part. Pistils 4–6, shorter than stamens; ovary usually glabrous. Aggregate fruit 7–9 mm in diam., with several drupelets, persistent calyx lobes erect; drupelets to 4 mm; pyrenes rugose. Fl. May–Jul, fr. Jul–Sep.

High mountains, grasslands, slopes, forests, forest margins; 3000–4200 m. W Sichuan, Xizang, NW Yunnan [Bhutan, NE India, N. Myanmar, Nepal, Sikkim].
ROSACEAE

1a. Blade of leaflets and abaxial surface of calyx usually glabrous; flowering branchlets and pedicels soft hairy

1b. Blade of leaflets and abaxial surface of calyx soft hairy; flowering branchlets and pedicels with soft hairs, without glandular hairs.

2a. Flowering branchlets and pedicels with soft hairs, without glandular hairs

2b. Flowering branchlets, pedicels, or base of calyx with soft hairs and glandular hairs

199a. Rubus fragarioides var. fragarioides

199b. Rubus fragarioides var. pubescens

199c. Rubus fragarioides var. adenophorus

200. Rubus potentilloides

1. Blade of leaflets and abaxial surface of calyx usually glabrous; flowering branchlets and pedicels soft hairy

2. Blade of leaflets and abaxial surface of calyx soft hairy; flowering branchlets and pedicels with soft hairs, with or without glandular hairs.

3. Flowering branchlets and pedicels with soft hairs, without glandular hairs

4. Flowering branchlets, pedicels, or base of calyx with soft hairs and glandular hairs

201. Rubus clivicola

202. Rubus arcticus
lose abaxially, shorter than stamens. Aggregate fruit dark red, semiglobose, not more than 1 cm in diam., with few druplets, persistent sepals reflexed; pyrenes nearly smooth or slightly rugulose. Fl. Jun–Jul, fr. Jul–Aug. 2n = 14.

Slopes, forests, ravines; ca. 1200 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Korea, Mongolia, Russia; N Europe].


石生悬钩子 *shí shēn xián gōu zǐ*

*Cylactis saxatilis* (Linnaeus) A. Löve.

Herbs 20–60 cm tall. Stems greenish brown, terete, slender; sterile stems creeping, with minute needle-like prickles, sparsely pubescent, sometimes with stalked glands. Leaves usually compound and 3-foliolate, rarely simple and divided; petiolar 2–3.5 cm, pilose, with minute needle-like prickles; lateral leaflets subsessile, petiolo of terminal leaflet 1–2 cm; stipules free, on flowering branches ovate or elliptic, 5–8 × 3.5–5 mm, on creeping branches narrower, lanceolate or linear-oblong, pubescent, margin entire; blade of leaflets ovate-rhombic or oblong-rhombic, terminal leaflet 5–7 cm, slightly longer than lateral leaflets, both surfaces pubescent, more densely so along veins abaxially, base subacute or obliquely subacute, margin often coarsely doubly serrate, rarely incised-serrate, lateral leaflets sometimes 2-lobed, apex acute. Inflorescences corymbs or flowers several in clusters; peduncles unequal in length, shorter ones ca. 5 mm, longer ones to 3 cm; bracts ovate or elliptic, rarely linear-oblong, pubescent, margin entire. Pedicel 6–10 mm, pilose, with minute needle-like prickles, often with stalked glands. Flowers less than 1 cm in diam. Calyx turbinate, sometimes pelviform in fruit, abaxially pubescent; sepals ovate-lanceolate, 5–7 × 1.5–2.5 mm, apex acuminate. Petals white, spatulate or oblong, 6–9 × 3–5 mm, glabrous, base clawed, erect. Stamens many, much shorter than petals; filaments erect, base inflated, apex subulate, incurved. Pistils 5–6, nearly equaling stamens. Aggregate fruit red, globose, 1–1.5 cm in diam., glabrous, with larger druplets; pyrenes rugose. Fl. May–Jun, fr. Jul–Aug.

Grassy slopes, forests; 2000–4000 m. Hubei, Sichuan, S Xizang, Yunnan [Bhutan, N Myanmar, Nepal, Sikkim].


聂拉木悬钩子 *niè lā mù xián gōu zǐ*

Herbs perennial, low. Stems creeping, rooting at nodes, slender, with reddish brown soft bristles and soft hairs. Leaves compound, 3-foliolate; petiolo 4–6 cm, petiolo of leaflets 2–5 mm, villous, reddish brown bristly; stipules persistent, free, brown, ovate, membranous, soft hairy, margin entire or apically serrate, apex acute or obtuse; blade of leaflets broadly ovate to suborbicular, 1–3 × 0.8–2.8 cm, both surfaces sparsely villous, abaxially with sparse bristles along veins, base cuneate, lateral leaflets with oblique base, margin doubly serrulate, sometimes lobed, apiculate, sometimes obtuse. Inflorescences terminal or axillary, to 2 cm in diam., 2–4-flowered, rarely 1-flowered; bracts ovate, soft hairy, margin entire or apically deeply divided-serrate. Pedicel 1–4 cm, slender, villous, reddish brown bristly. Calyx abaxially villous and reddish brown bristly; sepals triangular-ovate to ovate-lanceolate, margin often laciniate, rarely entire, apex acute to acuminate. Petals white, broadly ovate, slightly longer than sepals, base shortly clawed. Stamens many; filaments erect, much shorter than petals. Pistils ca. 25–70 or more; ovary glabrous or pubescent axially. Aggregate fruit red, globose, glabrous, with many druplets; pyrenes smooth. Fl. May–Jun, fr. Jul–Aug.

Grasslands on slopes, forests, near water courses; 2000–3000 m. S Xizang.


红刺悬钩子 *hóng cì xián gōu zǐ*

Herbs perennial, dwarf, 10–20 cm tall. Stems brownish or dark purplish red, creeping, rooting at nodes, thinly villous, intermixed bristly or stipitate glandular. Leaves compound, 3-foliolate; petiolo 4–7 cm, slender, thinly villous, sparsely bristly and stipitate glandular, petiolo of leaflets 2–5 mm; stipules free, ovate-oblong or obovate, 6–9 mm, basally attenuate, apex pectinately lobed; lobes lanceolate, sometimes with 3–5 shallow teeth, thinly villous, stipitate glandular; blade of leaflets suborbicular, 2–3.5 cm in diam., both surfaces sparsely appress-sessile prickles, often with stalked glands, base subcuneate or obliquely subcuneate, lateral leaflets subsessile, both surfaces pubescent, more densely so along veins abaxially, base subacute or obliquely subacute, margin often coarsely doubly serrate, rarely incised-serrate, lateral leaflets sometimes 2-lobed, apex acute. Inflorescences corymbs or flowers several in clusters; peduncles unequal in length, shorter ones ca. 5 mm, longer ones to 3 cm; bracts ovate or elliptic, rarely linear-oblong, pubescent, margin entire. Pedicel 6–10 mm, pilose, with minute needle-like prickles, often with stalked glands. Flowers less than 1 cm in diam. Calyx turbinate, sometimes pelviform in fruit, abaxially pubescent; sepals ovate-lanceolate, 5–7 × 1.5–2.5 mm, apex acuminate. Petals white, spatulate or oblong, 6–9 × 3–5 mm, glabrous, base clawed, erect. Stamens many, much shorter than petals; filaments erect, base inflated, apex subulate, incurved. Pistils 5–6, nearly equaling stamens. Aggregate fruit red, globose, 1–1.5 cm in diam., glabrous, with larger druplets; pyrenes oblong, alveolate-pitted. Fl. Jun–Jul, fr. Jul–Aug. 2n = 28.

Stony soils, thickets, forests; below 3000 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi, Xinjiang [Mongolia, Russia; Europe, North America].


凉山悬钩子 *lián shān xián gōu zǐ*

*Rubus allophyllus* Hemsley, p.p.; *R. loropetalus* Franchet; *R. nutans* Wallich var. *fockeanus* (Kurz) Kuntze; *R. radicans* Focke.

Herbs perennial, creeping, without prickles and glands, sometimes with internerved small gland hairs. Stems prostrate, rooting at nodes, slender, pubescent. Leaves compound, 3-foliolate; petiolo 2–5 cm, pubescent, terminal leaflet shortly petioloate, lateral leaflets subsessile; stipules free, elliptic, 5–7 × 3–5 mm, membranous, margin entire, rarely toothed, apex ± obtuse or shortly pointed; blade of leaflets suborbicular to broadly obovate, 2.5–4 × 3.5–5 cm, abaxially pilose along veins, base broadly cuneate to rounded, lateral leaflets with oblique base, margin unevenly coarsely obtusely serrate, apex obtuse. Inflorescences terminal, to 2 cm in diam., 1- or 2-flowered; bracts elliptic, smaller than stipules, membranous, puberulous, margin entire or toothed. Pedicel 2–5 cm, pubescent, sometimes bristly. Calyx abaxially pubescent, or intermixed sparsely reddish brown bristly; sepals 5 or more, ovate-lanceolate to narrowly lanceolate, 7–10 × (2–)3–4 mm, undivided, rarely shallowly laciniate, apex long acuminate. Petals white, obovate-oblong to linear-oblong, 7–11 × 3–5 mm, base clawed. Stamens many, shorter than petals; filaments enlarged toward base. Pistils 4–20, shorter than stamens; ovary glabrous or slightly puberulous; styles glabrous or basally slightly pubescent. Aggregate fruit red, globose, glabrous, with few semiglobose druplets; pyrenes rugose. Fl. May–Jun, fr. Jul–Aug.

Grasslands on slopes, forests, near water courses; 2000–3000 m. S Xizang.
ed villous, base broadly cuneate to rounded, lateral leaflets with distinctly oblique base, margin serrulate or doubly serrate, apex obtuse. Inflorescences terminal and axillary, 1.8–2.5 cm in diam., 1-flowered; bracts similar to stipules, 5–8 mm, palmately lobed; lobes lanceolate or linear, villous, stipitate glandular. Pedicel 2–4 cm, slender, villous, with purplish red bristles and stipitate glands. Calyx abaxially densely and finely villous, purplish red bristly, with stalked glands; sepals narrowly ovate-lanceolate or triangular-lanceolate, 1–1.8 cm × 3–5(–6) mm, margin entire, apex long caudate. Petals white, obovate-oblong or oblong, 1–1.5 cm × 4–6 mm, base gradually attenuate into claw, apex obtuse. Stamens many, shorter than petals; filaments subtly inflated. Pistils ca. 10–15, shorter than stamens, glabrous. Aggregate fruit red, globose, to 1 cm in diam., glabrous; pyrenes prominently rugose. Fl. Jun–Jul, fr. Aug–Sep.

- Montane forests, ravines, waste fields; 2000–3500 m. Sichuan, Yunnan.


rubus chamaemorus

Herbs perennial, dioecious, creeping, dwarf, unarmed. Leaves simple; stipules persistent, free, at junction of stem and petiole, broader, leaflike, undivided. Inflorescences 1-flowered. Aggregate fruit adnate to torus, falling away from base of torus at maturity, not hollow.

One species in China.


Herbs perennial, dwarf, 5–30 cm tall, dioecious, with long branched creeping rhizomes. Stems annual, somewhat woody, simple, erect, 30 cm tall, with few squamous leaves, pubescent, with intermixed sparse, short glandular hairs. Leaves simple; petiole 3–6(–9) cm, pubescent or with sparse, short glandular hairs when young; stipules free, leaflike, brownish, oblong, 5–10 × 4–7 mm, pubescent, with sparse, intermixed short glandular hairs when young, glabrescent; cauline leaf blade reniform or orbicular, 4–9 cm in diam., abaxially pubescent, ± with intermixed short glandular hairs when young, adaxially subglabrous or slightly pilose, base cordate, margin 5–7-lobed; lobes obtuse, with uneven coarse sharp serrations. Inflorescences terminal, 1-flowered. Pedicel 3.5–6 cm, pubescent, with sparse, intermixed short glandular hairs. Flowers unisexual, 2–3 cm in diam., usually stamineate larger than pistillate, to 3 cm in diam. Calyx abaxially pubescent, sometimes with intermixed short glandular hairs; tube 1.5–2 mm; sepals erect, spreading, 4 or 5, oblong, 0.8–1.2 cm × 4–6 mm, apex obtuse or acute. Petals 4 or 5, white, obovate, 1.4–1.8 cm × 7–10 mm, apex retuse. Stamens shorter than petals; filaments long, linear, basally somewhat broadened. Pistils abortive in stamine flowers; in pistillate flowers ca. 20; styles linear, long, but stamens not developed or without anthers in pistillate flowers. Aggregate fruit orange-red or becoming yellowish brown, subglobose, ca. 1 cm in diam., glabrous; pyrenes smooth or slightly rugulose. Fl. May–Jul, fr. Aug–Sep. 2n = 56.

Forests, mossy bogs, mossy tundra. Heilongjiang, Jilin, Liaoning. [Japan, Korea, Russia; C and N Europe, North America].

The edible fruit are harvested commercially and are used in preserves and juices.

The following taxa have been described from or reported for China, but we have seen no specimens and are therefore unable to treat them in this account. Further revision is necessary.


Rubus parapungens H. Hara (Bull. Univ. Mus. Univ. Tokyo 2: 58. 1971; R. horridulus J. D. Hooker, Fl. Brit. India 2: 341. 1878, not P. J. Mueller, 1868; R. pungens Cambessedes var. horridulus H. Hara): a specimen (at E; not seen) from SE Xizang has been identified as this taxon (Eona Aitken, pers. comm.).


Rubus rectangularis Kunze (Meth. Sp.-Beschr. Rubus, 60, 78. 1879), described from China: G. Staunton s.n.


仙女木属 xian nu mu shu

Shrublets evergreen, low and prostrate, hermaphroditic, rarely polygamous. Leaves alternate, petiolate; stipules adnate to petiole, persistent; leaf blade simple, abaxially white, margin entire to subpinnatifid, recurved. Flowers solitary, pedicellate. Hypanthium turbinate or hemispheric. Sepals 5, valvate, persistent; epicalyx segments 5, small, alternate with sepals. Petals 5, yellow, white, or red, orbicular or obovate. Stamens numerous, crowded. Disk lining hypanthium. Carpels numerous, free; style terminal, plumose. Achenes numerous, terminating in a plumose style. x = 9.

Between three and 14 species: mountains of Arctic and N temperate zone; one species in China.


东亚仙女木 dong ya xian nu mu


Shrublets 3–6 cm tall. Roots woody. Stems tufted, prostrate, much branched from base. Stipules adnate to petiole, linear-lanceolate, 4–5 mm, membranous, villous, margin entire, apex acute; petiole 4–20 mm, densely white tomentose and yellow-brown branched villous; leaf blade elliptic, broadly so, or suborbicular, 5–20 × 3–12 mm, subleathery, abaxially white tomentose, yellowish brown branched villous on veins, adaxially pilose or glabrous, veins abaxially elevated, lateral veins in 7–10 pairs, base truncate or subcordate, margin recurved and obtusely serrate, apex rounded. Flowering stems 2–3 cm, elongating to 7 cm in fruit, densely white tomentose, branched villous, and densely glandular hairy. Flowers 1.5–2.5 cm in diam, hypanthium 7–9 mm, sparsely white floccose, densely dark purple branched villous, and dark purple and light yellow glandular hairy. Sepals ovate-lanceolate, 5–6 mm, abaxially dark purple branched villous and white pilose, adaxially villous near apex, apex subacute. Petals white or creamy white, obovate, 8–14 mm, glabrous, apex rounded. Stamens numerous; filaments 4–5 mm, glabrous. Style seriescous. Achenes brown, long ovoid, 3–4 mm, villous, terminating in a plumose style 1.5–2.5 cm. Fl. and fr. Jul–Aug.

1a. Flowers nodding, 2–2.5 cm in diam.; sepals erect, ± purplish; petals yellow with purple stripes, semicordate, base long clawed ....................................................................................................................... 3. G. rivale

1b. Flowers erect, not more than 1.5 cm in diam.; sepals spreading, green; petals yellow, ovate or obovate, base not clawed.

2a. Receptacle hirsulous, hairs ca. 1 mm; cauline leaves 2–6-foliolate, sometimes repeatedly pinnatifid;
terminal leaflet of radical leaves broadly rhombic-ovate or obovate-lanceolate, apex usually acuminate, rarely acute ..................................................................................................................... 1. G. aleppicum

2b. Receptacle hirtellous, hairs 2–3 mm; upper cauline leaves usually simple, entire or 3-lobed; terminal leaflet of radical leaves ovate to broadly obovate, apex rounded, rarely acute .................................................................................. 2. G. japonicum


路边青属 lu bian qing shu

Herbs perennial, rhizomatous, sometimes stoloniferous. Stipules adnate to and sheathing petiole; radical leaves pinnate or pseudopinnate; terminal leaflet largest; lateral leaflets often in alternating larger and smaller pairs; cauline leaves few, often 3-foliolate or bractlike. Flowers solitary or in corymbs, bisexual. Hypanthium turbinate or hemispheric. Sepals 5, valvate, persistent; epicalyx segments 5, small, alternate with sepals. Petals 5, yellow, white, or red, orbicular or obovate. Stamens numerous, crowded. Disk lining hypanthium, smooth or ribbed. Carpels numerous, borne on prominent, usually cylindric receptacle, free; ovule ascending; style fimbriate, jointed; stigma slightly recurved or hooked, minute. Achenes sessile or stipticate, small, hooked at apex of beak. Seed erect; testa membranous; cotyledons oblong. x = 7.

About 70 species: widespread in temperate zones of both hemispheres; three species in China.

Wu Zhengyi (editor’s note) believes that Geum sensu lato may include Acomastylis and even Taibhangia.

1a. Flowers nodding, 2–2.5 cm in diam.; sepals erect, ± purplish; petals yellow with purple stripes, semicordate, base long clawed ....................................................................................................................... 3. G. rivale

1b. Flowers erect, not more than 1.5 cm in diam.; sepals spreading, green; petals yellow, ovate or obovate, base not clawed.

2a. Receptacle hirsulous, hairs ca. 1 mm; cauline leaves 2–6-foliolate, sometimes repeatedly pinnatifid;
terminal leaflet of radical leaves broadly rhombic-ovate or obovate-lanceolate, apex usually acuminate, rarely acute ..................................................................................................................... 1. G. aleppicum

2b. Receptacle hirtellous, hairs 2–3 mm; upper cauline leaves usually simple, entire or 3-lobed; terminal leaflet of radical leaves ovate to broadly obovate, apex rounded, rarely acute .................................................................................. 2. G. japonicum

Geum aleppicum var. bipinnatum (Batalin) Handel-Mazzetti; G. intermedium Besser ex Marschall von Bieberstein (1808), not Ehrhart (1791), nor Willdenow (1806), nor Tenore ex Nyman (1878); G. potaninii Juzepczuk; G. strictum Aiton; G. strictum var. bipinnatum Batalin; G. vidalii Franchet & Savatier.

Roots fascicled, fibrous. Stems erect, 30–100 cm tall, together with petioles spreading rigid hairy, rarely glabrescent. Radical leaves lyrate-pinnate, 5–15 cm including petiole, usually with 2–6 pairs of leaflets, both surfaces sparsely rigid hairy; leaflets unequal, terminal one largest, broadly rhombic-ovate or compressed orbicular, 4–15 × 5–15 cm, base broadly cordate to cuneate, margin usually irregularly coarsely serrate, apex obtuse or acute; cauline leaves: stipules green, leaflike, ovate, large, margin irregularly coarsely serrate; leaf blade pinnate, sometimes repeatedly lobed; terminal leaflet lanceolate or obovate-lanceolate, base cuneate, apex often acuminate or shortly so. Inflorescence terminal, lax. Flowers 1–1.7 cm in diam.; pedicel pubescent or hirtellous. Sepals ovate-triangular, apex acuminately; epicalyx segments lanceolate, minute, ca. 1/2 as long as sepals, abaxially pubescent and villous, apex acuminate, rarely 2-fid. Petals yellow, suborbicular, longer than sepals. Style terminal, twisted at joint ca. 1/4 way from apex; proximal section pilose; distal section deciduous at fruit maturity. Achene aggregate ovoid to ellipsoid; fruiting receptacle hirtellous, hairs 2–3 mm; achenes hirtellous; proximal section of style persistent, glabrous, apex hooked. Fl. and fr. Jul–Oct.

Forests, open places in forests, grassy mountain slopes, river banks, field margins; 200–2300 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Xinjiang, Yunnan, Zhejiang. This species is used medicinally and as a source of oil.


柔毛路边青 rou mao lu bian qing

Roots fascicled, fibrous. Stems erect, 25–60 cm tall, together with petioles yellow pubescent and rigid hairy. Radical leaves lyrate-pinnate, 5–20 cm including petiole, usually with 1 or 2 pairs of lateral leaflets and several segments, both surfaces sparsely strigose; leaflets unequal, terminal one largest, ovate to broadly obovate, lobed or not, 3–8 × 5–9 cm, base broadly cordate or cuneate, margin coarsely obtusely or acutely serrate, apex rounded; cauline leaves: stipules green, herbaceous, margin irregularly coarsely crenate; leaf blade of lower leaves 3-foliolate, of upper ones simple, entire or 3-lobed, segments obtuse or acute at apex. Inflorescence terminal, laxly several flowered. Flowers 1.5–1.8 cm in diam.; pedicel densely rigid hairy and pubescent. Sepals triangular-ovate, apex acuminately; epicalyx segments elliptic-lanceolate, minute, ca. 1/2 as long as sepals, pubescent abaxially, apex acute. Petals yellow, suborbicular, longer than sepals. Style terminal, twisted at joint ca. 1/4 way from apex; proximal section pilose; distal section deciduous at fruit maturity. Achene aggregate ovoid to ellipsoid; fruiting receptacle hirtellous, hairs 2–3 mm; achenes hirtellous; proximal section of style persistent, glabrous, apex hooked. Fl. and fr. May–Oct.

Roots robust, terete. Stems erect, 25–70 cm tall, pilose or hirtellous. Radical leaves lyrate-pinnate, 10–35 cm including petiole, with 2–4 pairs of leaflets, both surfaces scattered strigose; leaflets unequal, terminal one largest, usually rhombic-ovate, lobed, 4–9 × 3–8 cm, base broadly cuneate or subtruncate, margin markedly incised-lobed to 3-parted and coarsely serrate, apex rounded; cauline leaves: stipules green, ovate-elliptic, lobed to parted, herbaceous; leaf blade simple, 3-lobed or 3-parted. Inflorescence usually nodding, laxly 2–4-flowered. Flowers 2–2.5 cm in diam.; pedicel densely yellow pubescent and pilose. Sepals ovate-triangular, apex acuminately; epicalyx segments usually purplish, linear-lanceolate, minute, 1/3–1/2 as long as sepals, apex acuminate. Petals yellow, purple-brown striate, suborbicular, longer than sepals, base abruptly tapered into a rather long claw. Style terminal, filiform, twisted at joint; proximal section yellow villous; distal section deciduous at fruit maturity. Fruitating receptacle hirtellous, hairs 1.5–2 mm; achenes yellow villous; proximal section of style persistent. Fl. and fr. May–Aug.

Thickets, meadows in valleys, ravine gravels; 1200–2300 m. Xinjiang [widespread in Arctic and N temperate zone].


紫萼路边青 zi e lu bian qing

Herbs perennial, low, tufted, with stout rootstock. Radical leaves pinnate; leaflets numerous, margin cleft or toothed; cauline leaves few, reduced. Flowers terminal, solitary or very few in cymes. Hypanthium ± turbinate. Sepals 5, valvate; epicalyx segments smaller, alternate with sepals. Petals 5, yellow. Stamens numerous, inserted at mouth of hypanthium. Carpels numerous, densely hirsute or only sparsely so near apex, apically tapered into persistent, glabrous style; ovule basal; style not elongating in fruit. x = 7.

About 15 species: E Asia, North America; two species in China.


羽叶花属 yu ye hua shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial, low, tufted, with stout rootstock. Radical leaves pinnate; leaflets numerous, margin cleft or toothed; cauline leaves few, reduced. Flowers terminal, solitary or very few in cymes. Hypanthium ± turbinate. Sepals 5, valvate; epicalyx segments smaller, alternate with sepals. Petals 5, yellow. Stamens numerous, inserted at mouth of hypanthium. Carpels numerous, densely hirsute or only sparsely so near apex, apically tapered into persistent, glabrous style; ovule basal; style not elongating in fruit. x = 7.

About 15 species: E Asia, North America; two species in China.
1a. Radical leaves broadly linear in outline, interrupted or compacted pinnate, with 9–13 pairs of leaflets; sepals green, ca. 2 × as long as epicalyx segments; petals glabrous; style glabrous or sparsely pilose at base ................................. 1. A. elata

1b. Radical leaves lyrate pinnate, with 5–10 pairs of leaflets; sepals usually purple-brownish yellow, 3–4 × as long as epicalyx segments; petals abaxially sparsely pilose; style hirsute except at apex ............................................. 2. A. macrosepala


羽叶花  yu ye hua

Rootstock stout, terete. Flowering stems to 40 cm tall, pubescent. Radical leaves 12–24 cm including petiole; stipules green, ovate-lanceolate, herbaceous, margin entire; petiole 1–4 cm, pubescent or pilose, rarely glabrescent; leaf blade broadly linear in outline, interrupted or compacted pinnate; with 9–13 pairs of leaflets, both surfaces pilose or glabrescent; leaflets semioreticulate, 4–25 × 3–22 mm, proximal ones smaller, base broadly cuneate, mostly adnate to axis, margin irregularly crenate and ciliate, apex rounded; cauline leaves reduced and bractlike, oblong-lanceolate, parted. Inflorescence terminal; cy- mose, 2–6-flowered. Flowers 2.8–3.5 cm in diam.; pedicel pub- bescent. Sepals green, ovate-triangular, apex acute; epicalyx segments linear-lanceolate, minute, ca. 1/2 as long as sepals, abaxially pubescent. Petals yellow, broadly obovate, ca. 2 × as long as sepals, glabrous, apex margined. Ovary glabrous, abaxially pilose only near apex, or densely hirsute, apically tapered into style; style terminal, not twisted, glabrous or sparsely pilose at base; stigma minute. Achenes ovoid; style persistent. Fl. and fr. Jun–Aug.

Alpine meadows; 3500–5400 m. Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, Kashmir, Nepal, Sikkim].

1a. Plants 20–40 cm tall; radical leaves interrupted pinnate; cymes 2–6-flowered .............................................. 1a. var. elata

1b. Plants rather low; radical leaves compacted pinnate; cymes 1(–3)-flowered .................. 1b. var. humilis

1a. Acomastylis elata var. elata

羽叶花原变种  yu ye hua (yuan bian zhong)

*Geum elatum* Walllich ex G. Don, Gen. Hist. 2: 526. 1832; *Acomastylis elata var. leiocarpa* (W. E. Evans) F. Bolle; *G. elatum var. leiocarpum* W. E. Evans; *Sieversia elata* (Walllich ex G. Don) Royle.


Alpine meadows; 3500–5400 m. Shaanxi, Sichuan, Xizang [Bhutan, Kashmir, Nepal, Sikkim].

*Acomastylis elata var. elata* is similar to *Coluria longifolia*, but differs in having a persistent style; the latter species has a filiform style evenly thickened throughout its length and deciduous in fruit. The in- dumentum of the achene is variable, even in one individual, and var. *leiocarpa* cannot be distinguished on the basis of having a glabrous or sparsely pilose achene.


矮生羽叶花  ai sheng yu ye hua


Alpine meadows; 3500–5400 m. Qinghai, Xizang, Yunnan [Bhutan, Nepal, Sikkim].


大萼羽叶花  da e yu ye hua


Rootstock stout, terete; lateral roots many. Flowering stems erect or ascending, 30–70 cm tall, pubescent or hirtellous. Radical leaves 10–15 cm including petiole; leaf blade lyrate pinnate, with 5–10 pairs of leaflets, pressed pilose or strigose; terminal leaflet rather large, ovate or reniform, not lobed, 5–6 × 4–7 cm, base deeply cordate, margin irregularly obtusely cre- nate, apex rounded; lateral leaflets smaller than terminal one; cauline leaves: stipules green, oblong-ovate, herbaceous, marg in serrate or subentire; leaf blade simple, obovate or broadly ovate, slightly 5–7-lobed, 10–40 × 5–20 mm. Flower 1(or 2), erect, rarely nodding, 2.5–3.5 cm in diam. Sepals ovate or broadly so, apex acute; epicalyx segments usually purple-brownish yellow, ovate, 1/4–1/3 as long as sepals, abaxially hirsute. Petals yellow, sometimes purple-brown at apex, obovate, nearly equaling sepals, abaxially sparsely pilose, base tapered into a claw, apex margined. Style terminal, filiform, not twisted, hirsute but glabrous distally. Achenes long ellipsoid, 5–6 mm when ripe, hirsute; style erect, short, persistent. Fl. and fr. Aug–Sep.

Meadow and thickets on mountain slopes; 3800–4400 m. Xizang [Bhutan, India, Sikkim].


太行花属  tai hang hua shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial, with stout rhizome, andromonoecious or androdioecious. Radical leaves simple, sometimes with 1 or 2 minute ovate or elliptic lobules on distal part of petiole. Scape with a few 3-sect bracts. Flower 1(or 2), terminal. Hypanthium obconic or turbinate. Sepals 5, valvate; epicalyx segments 5, smaller than sepals. Petals 5, white. Stamens numerous, inserted on margin of hypanthium. Disk annular, glabrous. Carpels shortly stipitate at base of ovary; those in male flowers few, sterile, glabrous; those in female flowers many, spirally inserted on receptacle, pilose; style terminal, elongated; stigma slightly dilated. Achenes pilose. $x = 7^*$. 

太行花 tai hang hua

Petiole 2.5–10 cm, glabrous, or sparsely or markedly pilose; leaf blade ovate, elliptic, cordate-ovate, or rarely triangular-ovate, 2.5–10 × 2–8 cm, abaxially glabrescent or very sparsely pilose on veins at base, adaxially glabrous, base truncate, rounded, subcordate, or rarely broadly cuneate, margin coarsely crenate, undulate crenate, or densely serrate, rarely slightly lobed, sometimes markedly ciliate, apex rounded. Scape 4–15 cm tall, glabrous or sometimes sparsely pilose, with 1–5 opposite or alternate, sterile bracts; bracts 3-sect with segments lanceolate, glabrous. Flower(s) 3–4.5 cm in diam. Hypanthium glabrous. Sepals pale green or often purplish, ovate-lanceolate, glabrous. Petals panthium glabrous. Sepals pale green or often purplish, ovate-lanceolate, glabrous. Fl. and fr. May–Aug.

1b. Taihangia rupestris var. ciliata

太行花（原变种） tai hang hua (yuang bian zhong)

Petiole glabrous or sparsely pilose; leaf blade ovate or elliptic, abaxially glabrescent or very sparsely pilose on veins at base, adaxially glabrous, base truncate or rounded, rarely broadly cuneate, margin coarsely crenate or undulate crenate, apex rounded. Scape 4–15 cm tall, glabrous or sometimes sparsely pilose, with 1–5 opposite or alternate, sterile bracts; bracts 3-sect with segments lanceolate, glabrous. Flower(s) 3–4.5 cm in diam. Hypanthium glabrous. Sepals pale green or often purplish, ovate-lanceolate, glabrous. Petals panthium glabrous. Sepals pale green or often purplish, ovate-lanceolate, glabrous. Fl. and fr. May–Aug.

33. COLURIA R. Brown, Chlor. Melvill. 18. 1823.

无尾果属 wu wei guo shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial, low, rhizomatous, softly tomentose. Leaves mostly radical; leaf blade interrupted pinnatisect; lobes obovate, margin crenate; cauline leaves sessile among connate stipules and entire or 3-fid. Inflorescence erect, few-flowered, bracteate. Hypanthium obconic, eventually elongated, 10-ribbed. Sepals 5, valvate, persistent; epicalyx segments minute. Petals 5, yellow or white, larger than sepals. Stamens numerous, in 2 or 3 series; filaments free, persistent in fruit. Disk lining hypanthium, glabrous. Carpels numerous, inserted on short receptacle; ovule ascending from base of locule; style subterminal, erect, deciduous. Achenes numerous on columnar receptacle, included in hypanthium, compressed, rugose.

Five species: China, Mongolia, Russia; four species (all endemic) in China.

1a. Radical leaf blades lyrately pinnate.
   2a. Carpels and achenes markedly papillate ................................................................. 1. C. henryi

1b. Radical leaf blades pinnate, but not lyrately so.
   3a. Radical leaf blades regularly interrupted pinnate, leaflets in 9–20 pairs, proximal ones smaller, distal ones larger; flowers 1.5–2.5 cm in diam.; carpels numerous; carpels and achenes glabrous ........................................ 3. C. longifolia

3b. Radical leaf blades irregularly interrupted pinnate, leaflets in 4 or 5 pairs, variously sized; flowers ca. 1 cm
in diam.; carpels ca. 4; carpels and achenes markedly papillate ........................................ 4. C. oligocarpa


大头叶无尾果 da tou ye wu wei guo

*Coluria henryi* var. *grandiflora* Cardot; *C. henryi* var. *pluriflora* Cardot.

Rhizome long, slender, covered with remains of old leaves. Radical leaves: stipules ovate, both surfaces pilose or ciliate, margin entire or 1- or 2-serrate; petiole 1–2.5 cm, densely yellow-brown villous; leaf blade lyrately pinnatisect, 5–18 cm; rachis longitudinally ribbed, densely yellow-brown villous; leaflets in 4–10 pairs, laxly arranged at intervals of up to 1 cm; terminal leaflet ovate, broadly so, or oblong-ovate, 3–7 × 1.5–6 cm, yellow-brown villous, base cordate, margin obtusely serrate, apex rounded; lateral leaflets sessile, ovate or oblowlong-ovate, 2–16 × 0.5–11 mm, densely villous, base oblique, margin

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ROSACEAE
triangular dentate, apex acute; cauline leaves: leaf blade ovate, 1–1.5 cm, margin entire or 3-lobed. Flowering stems radical, ascending, 6–30 cm tall, spreading pilose, 1–4-flowered; bracts ovate or oblong, ca. 1.5 cm, both surfaces pilose, margin serrate. Flowers 2–2.5 cm in diam. Hypanthium obconic, 3–5 mm, densely villous. Sepals triangular-ovate, ca. 5 mm, abaxially pilose, adaxially glabrous or sub pilose, apex acute; epicalyx segments minute, lanceolate, 1–2 mm, abaxially pilose, apex acute. Petals yellow or white, obovate, 5–10 mm, glabrous, short clawed, apex emarginate. Filaments 5–6 mm. Carpels numerous; ovary ovoid; style base glabrous. Fl. Apr–Jun, fr. May–Jul.

2. Coluria omeiensis

Plants 10–30 cm tall. Radical leaves 7–15 cm including petiole; leaf blade pinnatisect; rachis hirsute; leaflets sessile, in 4–10 pairs, variously sized, terminal one largest, others becoming smaller toward leaf blade base; terminal leaflet ovate or broadly so, 2–6 × 1.5–4.5 cm, both surfaces sparsely villous, base cordate, margin obtusely incised serrate, apex rounded; lateral leaflets 2–10 × ca. 2 mm, both surfaces hirsute. Flowering stems to 20 cm tall, hirsute, 2–4-flowered; bracts usually 3-lobed, sometimes irregularly lobed, both surfaces hirsute. Flowers 2–3 cm in diam. Sepals triangular-lanceolate or ovate-lanceolate, 6–8 × 3–4 mm, hirsute, apex acuminate; epicalyx segments narrowly oblong, 1–3 × ca. 1 mm, hirsute, apex acuminate. Petals white or yellow, obovate, 1–1.5 × ca. 1 cm. Stamens numerous; filaments 5–6 mm. Carpels numerous; ovary hirsute or hairy; style erect, base hirsute or glabrous. Achenes long ovoid or ellipsoid, 1–1.5 cm, rigidly hairy. Fl. and fr. Apr–Jun.

- 1200–2400 m. Guizhou, Shaanxi, Sichuan.

This species is similar to Coluria henryi, but differs in having the ovary hirsute or hairy (vs. papillate).

1a. Petals yellow; ovary and style base hirsute. ......................... 2a. var. omeiensis

1b. Petals white or yellow; ovary hairy, style base glabrous. ......................... 2b. var. nanzhengensis

2a. Coluria omeiensis var. omeiensis

峨眉无尾果 (原变种) e mei wu wei guo (yuán biàn zhòng)


- About 2400 m. C Sichuan (Emei Shan).

2b. Coluria omeiensis var. nanzhengensis

光柱无尾果 guang zhu wu wei guo

Petals white or yellow. Ovary hairy; style base glabrous. Fl. Apr–May.

- 1200–2300 m. Guizhou, Shaanxi, Sichuan.

3. Coluria longifolia


无尾果 wu wei guo

Coluria elegans Cardot; C. elegans var. imbricata Cardot; C. longifolia f. uniflora T. C. Ku; C. purdomii (N. E. Brown) W. E. Evans; Geum elatum Wallich ex G. Don var. humile Franchet (1890), not (Royle) J. D. Hooker (1878); Potentilla purdomii N. E. Brown.

Radical leaves: stipules ovate, both surfaces pilose or margin ciliate, margin entire or 1- or 2-serrate; petiole 1–3 cm, sparsely villous, base decurrent, membranous; leaf blade interrupted pinnate, 5–10 cm, with 9–20 pairs of leaflets; rachis sulcate, villous; leaflets sessile, proximal ones ovate or oblong, 1–3 × 0.5–1 mm, base oblique, margin entire or obtusely crenate, ciliate; distal leaflets broadly ovate to suborbicular, 0.5–1.5 cm × 3–8 mm, base oblique, margin sharply serrate, yellow ciliate, apex rounded or acute; cauline leaves 1–4, broadly linear, 3-lobed or pinnately lobed, 1–1.5 cm. Flowering stems erect, branched distally, 4–20 cm tall, pubescent; inflorescence cymose, (1 or)2–4-flowered; bracts ovate-lanceolate, 3–4 mm, long ciliate. Flowers 1.5–2.5 cm in diam.; pedicel 1–2.5 cm, densely pubescent. Hypanthium campanulate, ca. 2 mm, together with sepals abaxially densely pubescent and villous. Sepals triangular-ovate, 3–4 mm, apex acute; epicalyx segments oblong, ca. 2 mm, villous and ciliate, apex rounded. Petals yellow, obovate or obcordate, 5–7 mm, glabrous, apex emarginate. Stamens 40–60; filaments persistent, shorter than petals, glabrous, base dilated. Carpels many; ovary cylindric, glabrous; style filiform, glabrous. Achenes black-brown, long globose, ca. 2 mm, glabrous. Fl. Jun–Jul, fr. Aug–Oct.

- Alpine meadows; 2700–4600 m. Gansu, Qinghai, Sichuan, Xizang, Yunnan.

This species is used medicinally.

4. Coluria oligocarpa


汶川无尾果 wen chuan wu wei guo


Rhizome covered with remains of old leaves. Radical leaves few; stipules ovate, tiny, margin long ciliate, apex rounded; petiole 1–2 cm, spreading villous; leaf blade interrupted pinnate, 5–10 cm; leaflets in 4–6 pairs, laxly arranged, sessile, ovobolate-flabellate, nearly 3-lobed, 0.6–1.2 × 0.5–1.5 cm, terminal one largest, lateral ones variously sized, both surfaces and margin densely appressed villous; lobes broadly cuneate at base, margin irregularly serrate, apex rounded; cauline leaves ca. 3, sessile, oblong-ovate, 3-lobed, 1–1.5 cm × 4–5 mm. Flowering stems 2 or 3, erect, branched distally, 15–30 cm tall, pubescent; bracts ovate-lanceolate, 3–5 mm, pilose, margin several serrate, apex acute. Flowers ca. 1 cm in diam.; pedicel 1.5–2 cm. Hypanthium obconic, 2–3 mm, abaxially pubescent. Sepals ovate-triangular, ca. 2 mm, pubescent, margin ciliate, apex rounded; epicalyx segments linear-oblong, ca. 1 mm, margin...
ciliate, apex rounded. Petals white, obovate, 5–7 mm, glabrous, base shortly clawed, apex truncate or emarginate. Filaments shorter than petals, base pilose. Carpels ca. 4; ovary ovoid, apically thickened, papillate; style slightly thickened at base, villos. Achenes brown, ovoid or obovoid, 2–3 mm, densely papillate. Fl. and fr. Apr.

- Ravines, grassy places. Sichuan.


林石草属 *lin shi cao shu*

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial, creeping. Radical leaves alternate; stipules rather large, membranous; leaf blade 3–5-fid or palmately 3–5-foliolate; segments or leaflets crenate or incised at margin. Inflorescence laxly cymose, 1–5-flowered, bracteate. Petals yellow, elliptic to oblong-elliptic, nearly 2 × as long as sepals. Petals yellow, elliptic to rhombic-elliptic, nearly 2 × as long as sepals. Achenes black-brown, cylindric to obliquely obovoid, 2–3 mm, white villous. Fl. and fr. May–Jun.

About six species: N temperate zone; one species in China.


光叶林石草 *guang ye lin shi cao*

**Dasiphora** Fritsch; **Pentaphylloides** Duhamel.

Herbs perennial, rarely biennial, annual, or shrubs, if perennial then with ± tufted, scaly rootstock. Stems erect, ascending, or prostrate. Leaves pinnate or palmately compound; stipules ± adnate to petiole. Inflorescence often cymose or cymose-paniculate, or 1-flowered. Flowers usually bisexual. Hypanthium concave, mostly hemispheric. Sepals 5, valvate, persistent; epicalyx segments 5, minute or absent. Petals 5, white villous or abaxially sparsely pilose, apex acuminate or 2- or 3-serrate; epicalyx segments lanceolate, much shorter than sepals. Achenes numerous, inserted on short, villous receptacle, small; ovule solitary, ascending; style subterminal, filiform, deciduous above articulate base; stigma capitate, entire. Achenes dry or slightly fleshy, hairy, apex scarred. Seed erect; testa membranous. x = 7.

About 500 species: mostly in temperate, arctic, and alpine zones of the N hemisphere, a few in the S hemisphere; 88 species (24 endemic) in China.

1a. Herbs perennial, biennial, or annual; style subterminal, not evenly thickened throughout length; ovary glabrous.

2a. Style conic, thickened at base, gradually attenuate distally

5. **P. sect. Conostylae**

2b. Style clavate, thickened at apex, thin proximally

6. **P. sect. Potentilla**

1b. Shrubs or perennial herbs; style basal, lateral, or subterminal, clavate, filiform, slender, or fusiform; ovary hairy or glabrous.

3a. Shrubs or woody-based perennial herbs; style clavate or filiform; ovary densely hairy, rarely glabrous.
4a. Style basal or lateral, clavate, thickened at apex, thin proximally; ovary densely hairy or only sparsely so at apex or hilum ................................................................. 1. P. sect. Rhopalostylae
4b. Style basal, lateral, or subterminal, filiform, evenly thickened throughout length; ovary densely villous, very rarely glabrous ........................................................................ 2. P. sect. Nematostylae
3b. Herbs perennial; style slender or fusiform; ovary glabrous, very rarely hairy.
5a. Auricles of stipules of radical leaves borne on adaxial side of petiole; flowering stems arising from axils of radical leaves ................................................................. 4. P. sect. Leptostylae
5b. Auricles of stipules of radical leaves borne on lateral side of petiole; flowering stem developing as distal part of main stem ........................................................................ 3. P. sect. Closterostylae


Shrubs or subshrubs. Basal and cauline leaves pinnate, rarely 3-foliolate; leaflets entire or 2-lobed at apex. Ovary densely hairy or only sparsely so at hilum or apex, rarely glabrous; style sub-basal or lateral, clavate, thin proximally, thickened at apex.

About five species: temperate and subarctic regions of N hemisphere; five species in China.
1a. Herbs short or woody based; leaflets usually 2-fid, rarely entire, base not articulate at connection with petiole; ovary pilose around hilum or apex when young, glabrescent at maturity or only sparsely pilose at the apex, glabrous at maturity; style lateral.
2a. Leaflets usually opposite, rarely alternate, both surfaces sparsely pilose or subglabrous ................................................. 4. P. bifurca
2b. Leaflets usually alternate, densely softly gray pubescent .................................................................................. 5. P. imbricata
1b. Shrubs with woody stems above ground; leaflets entire, base articulate at connection with petiole; ovary densely villous; style sub-basil.
3a. Petals white ................................................................................................................................................................. 2. P. glabra
3b. Petals yellow.

4a. Leaves pinnate with 2 pairs of leaflets, rarely 3-foliolate, leaflets oblong, obovate-oblong, or ovate-lanceolate, 3–20 × 3–10 mm ........................................................................................................ 1. P. fruticosa
4b. Leaves pinnate with 2 or 3 pairs of leaflets, basal 2 pairs usually palmately arranged or appearing whorled, rarely leaves 3-foliolate, leaflets lanceolate, linear-lanceolate, or obovate-lanceolate, 5–10 × 2–5 mm ........................................................................ 3. P. parvifolia


金露梅 jìn lù méi

Shrubs erect or sometimes prostrate, usually many branched. Branches covered with reddish brown or gray, peeling bark, villous when young. Stipules broad, thin membranous, abaxially villous or glabrescent; petiole sericeous or pilose; leaf blade pinnate with 2 pairs of leaflets, rarely 3-foliolate; leaflets oblong, obovate-oblong, or ovate-lanceolate, 0.3–2 × 0.3–1 cm, abaxially ± densely hairy, sometimes sparsely so or glabrescent, adaxially sparsely or rather densely appressed hairy, base cuneate, decurrent and adnate to rachis in apical pair of leaflets, margin entire, flat or often ± revolute, apex usually acute. Inflorescence terminal, laxly racemose or corymbose, small, 1- to several flowered. Flowers 1–3 cm in diam. Sepals ovate, acute to shortly acuminate; epicalyx segments lanceolate to obovate-lanceolate, nearly equaling sepals, sparsely sericeous-villous, ovary acute to acuminate. Petals yellow, broadly obovate, nearly equaling sepals, apex rounded. Style sub-basal, clavate, thin proximally, constricted at base of dilated stigma. Achenes brown, subovate, ca. 1.5 mm, abaxially villous. Fl. and fr. Jun–Sep.

Rocks in forests, forest margins, thickets, alpine meadows, dry and grassy mountain slopes, talus slopes; 400–5000 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Asia, Europe, North America].
subglabrous, adaxially sparsely pilose, sericeous, or subglabrous, inco ncipiously elevated reticulate veined, margin flat. Inflorescence terminal, laxly racemose or corymbose, 1- to several flowered. Flowers 2.2–3 cm in diam. Fl. and fr. Jun–Sep.

Forest margins, thickets, grassy mountain slopes, talus slopes; 1000–4000 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Xinjiang, Xizang, Yunnan [Asia, Europe, North America].


Rocks in forests, thickets, grassy mountain slopes; 2600–4600 m. Sichuan, Xizang, Yunnan [Bhutan, Nepal, Sikkim].


Potentilla arbuscula var. albicans (Rehder & E. H. Wilson) Handel-Mazzetti; P. arbuscula var. bulleyana I. B. Balfour ex H. R. Fletcher, P. fruticosa var. vilmostiniana Komarov.


- Forest margins, thickets, alpine meadows, dry mountain slopes; 400–4600 m. Sichuan, Xinjiang, Xizang, Yunnan.


Potentilla arbuscula var. pumila (J. D. Hooker) Handel-Mazzetti.

Shrubs low, tufted. Stems densely fasciculate, slender, 5–10 cm tall. Leaflets elliptic, 3.5–3.4 mm, abaxially densely appressed villous, adaxially subglabrous or sparsely pilose, prominently reticulate veined, margin revolute. Flowers solitary, subsessile or shortly pedicellate, 1.1–1.5 cm in diam. Fl. Jun.

Thickets, alpine meadows, talus slopes; 4200–5000 m. Xizang [Bhutan, Nepal, Sikkim].


Potentilla glabra var. glabra Loddiges, Bot. Cab. 10: t. 914. 1824.

Shrubs 0.3–2 (–3) m tall. Young branchlets sparsely pubescent, older ones covered with grayish brown, peeling bark. Stipules thinly membranous, sparsely pilose or subglabrous; petiole sparsely pilose; leaf blade pinnate with 2 (or 3) pairs of leaflets; leaflets oblanceolate, obovate-elliptic, or ovate-elliptic, 0.5–1.2 cm × 4–8 mm, both surfaces sparsely (rarely densely) pilose, sericeous, or glabrescent, base cuneate or rounded, decurrent and adnate to rachis in apical pair of leaflets, margin entire, flat or slightly revolute, apex obtuse or acute. Flowers 1 to several, terminal on separate branches, 1.5–2.5 cm in diam.; pedicel long, thin, sparsely pilose. Sepals ovate, apex acute or shortly mucronate; epicalyx segments lanceolate, obovate-lanceolate, or ovate, shorter than or nearly equaling sepals, abaxially sparsely pilose. Petals white, obovate, apex rounded. Style sub-basal, clavate, thin at base, constricted at base of dilated stigma. Achenes hairy. Fl. and fr. May–Nov.

Forests, forest margins, thickets, meadows, slopes, alpine talus slopes, ravines, open places, rocky places; 1200–4200 m. Anhui, Gansu, Hebei, Hebei, Nei Mongol, Qinghai, Shaanxi, Shandong, Xinjiang, Xizang, Yunnan [Korea, Mongolia, Russia].

1a. Leaflets abaxially densely white tomentose or sericeous .......................... 2d. var. mandschurica

1b. Leaflets abaxially sparsely white sericeous or glabrescent.

2a. Leaflets adaxially appressed sericeous; pedicels densely white sericeous-villous .................................. 2c. var. veitchii

2b. Leaflets adaxially sparsely pilose; pedicels pilose.

3a. Leaflets elliptic, ovate-elliptic, or obovate-elliptic; flowers 1.5–2.5 cm in diam.; sepals ovate, apex acute or acuminate; petals obovate ........................................ 2a. var. glabra

3b. Leaflets lanceolate or oblanceolate; flowers 2.5–3 cm in diam.; sepals lanceolate, apex long acuminate; petals spatulate-obovate-oblong, base tapered into a long claw .......................... 2b. var. longipetala

2a. Potentilla fruticosa Linnaeus var. dahurica Seringe; P. fruticosa var. mongolica Maximowicz; P. fruticosa var. tangutica Th. Wolf; P. glabra var. rhodocalyx H. R. Fletcher, P. glabra Willdenow ex Schlechtendal.

Leaflets elliptic, obovate-elliptic, or ovate-elliptic, 0.5–1.2 cm × 4–8 mm, both surfaces sparsely pilose or glabrescent, base cuneate or rounded, margin entire, flat or slightly revolute, apex obtuse or acute. Flowers 1.5–2.5 cm in diam. Sepals ovate, apex acute or shortly mucronate; epicalyx segments lanceolate, obovate-lanceolate, or ovate, shorter than or nearly equaling sepals. Petals white, obovate, apex rounded. Fl. and fr. Jun–Nov.

Forests, thickets, meadows on mountain slopes, among rocks in valleys; 1400–4200 m. Anhui, Gansu, Hebei, Hebei, Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, Yunnan [Korea, Mongolia, Russia].


Leaflets lanceolate or oblong-lanceolate. Flowers 2.5–3
cm in diam. Sepals triangular-lanceolate, apex long acuminate; epicalyx segments lanceolate or linear-lanceolate, nearly equaling sepal, apex acuminate. Petals spatulate-obovate-oblong, base tapered into a long claw, apex obtuse; claw ca. 2 × as long as sepals.

- Alpine talus slopes; ca. 4200 m. NW Yunnan (Weixi Xian).


- Forest margins, alpine meadows, open places, rocky places; 2600–4100 m. Sichuan, Yunnan.


Leaflets abaxially densely white tomentose or sericeous, adaxially ± appressed pilose. Fl. and fr. May–Sep.

Mixed forests, thickets, dry mountain slopes, rocky slopes, ravines; 1200–3400 m. Gansu, Hebei, Hebei, Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, Yunnan [Korea].


Leaflets abaxially white tomentose or sericeous, adaxially sericeous-pubescent. Fl. and fr. Apr–Sep.

- Thickets on mountain slopes; 1200–3600 m. Gansu, Qinghai, Sichuan, Yunnan.


Herbs perennial or low subshrubs, 5–20 cm tall, with partly subterranean stems. Aerial stems usually ascending or prostrate, together with petioles and pedicels ± densely or rarely sparsely covered throughout with spreading or often erect-spreading, rarely ± laxly appressed, rigid hairs. Leaves 3–8 cm including petiole; stipules of lower leaves brown, membranous, abaxially hirtellous, rarely glabrescent, those of upper leaves ovate-elliptic, herbaceous, margin usually entire, rarely serrate; leaf blade pinnate with 3–8 pairs of leaflets; leaflets opposite, rarely alternate, sessile, elliptic or obovate, 0.5–1.5 cm × 4–8 mm, appressed pilose, base cuneate or broadly so, decurrent and adnate to rachis in distal 2 or 3 pairs of leaflets, apex entire, 2- or 3-fid. Inflorescence terminal, laxly corymbose or cymose, or a solitary flower. Flowers 0.7–1.5 cm in diam. Sepals ovate, apex acute; epicalyx segments elliptic, shorter than or nearly equaling sepals, sparsely pilose abaxially, apex obtuse or acute. Pedals yellow, obovate, slightly longer than sepals, apex rounded. Ovary adaxially pilose; style lateral, thickened and clavate at apex, slightly constricted under dilated stigma. Achenes smooth. Fl. and fr. May–Oct.

Sparse forests, grassy mountain slopes, loess slopes, sandy river...
1a. Flowers usually solitary .............................. 4b. var. humilior
1b. Flowers many per inflorescence.
   2a. Flowering stems 5–20 cm tall, together with petioles and pedicels densely villous or hirtellous throughout. Leaflets elliptic or obovate-elliptic, apex 2-fid, rarely 3-fid; inflorescence corymbose; flowers 0.7–1 cm in diam. ......................... 4a. var. bifurca
   2b. Flowering stems less than 7 cm tall, lower part together with petioles appressed pilose or glabrescent; leaflets linear or long elliptic, apex rounded, obtuse, or 2-fid; inflorescence cymose; flowers 1.2–1.5 cm in diam. ......................... 4c. var. major

4a. Potentilla bifurca var. bifurca

4b. Potentilla bifurca var. humilior Osten-Sacken & Ru-precht, Sert. Tianschan. 45. 1869.

4c. Potentilla bifurca var. major Ledebour, Fl. Ross. 2: 43. 1843.


2a. Leaf blade pinnately or subpalmately 5–7-foliolate, leaflets not articulate at base .......................................................... 9. P. biflora
2b. Leaf blade 3-foliolate, leaflets articulate at base ................................................................................. 10. P. articulata

2b. Leaflet margin or apex serrate or lobed; style sub-terminal, lateral, or sub-terminal.
   3a. Leaflets 3-serrate at apex; style lateral or sub-basal ................................................................................. 6. P. cuneata
3b. Leaflets many serrate or distally 5–7-dentate or 2–5-parted at margin; style subterminal.
4a. Flowering stems ascending, rarely erect; rhizome elongate; leaflets distally 5–7-dentate or 2–5-parted
at margin ........................................................ 7. P. eriocarpa
4b. Flowering stems usually erect; rhizome short; leaflets many serrate at margin .......................... 8. P. ancistrifolia


Potentilla cambessedesii; P. dolichopogon H. Léveillé.

Subshrubs low, tufted or perennial herbs. Roots slender, woody. Flowering stems erect or ascending, 4–12 cm tall, woody, together with petioles pressed pilose. Radical leaves 2–3 cm including petiole; stipules brown, membranous, abaxially spreading pilose or glabrescent; leaf blade 3-foliolate; leaflets obovate, elliptic, or long elliptic, 0.6–1.5 cm × 4–8 mm, subleathery, both surfaces sparsely spreading pilose or glabrescent, base cuneate, apex truncate or obtuse and 3-dentate; lateral leaflets sessile, terminal one short petiolate; cauline leaves: stipules green, ovate-lanceolate, herbaceous, margin entire, apex acuminate. Inflorescence terminal, 1- or 2-flowered. Flowers 1.8–2.5 cm in diam.; pedicel 2.5–3 cm, villous. Sepals triangular-ovate, apex acuminate; epicalyx segments oblong-elliptic, slightly shorter than sepals, abaxially spreading pilose, apex acute. Petals yellow, broadly obovate, ca. 2 × as long as sepals, apex emarginate. Achenes slightly longer than persistent sepals, apex emarginate. Style sub-basal, filiform; stigma slightly dilated. Achenes smooth, villous. Fl. and fr. Jul–Oct.


Mao guo wei ling cai

Potentilla ambigua Cambessedes; P. dolichopogon H. Léveillé.

Subshrubs, low, tufted or perennial herbs. Roots slender, woody. Flowering stems erect or ascending, 4–12 cm tall, woody, together with petioles pressed pilose. Radical leaves 2–3 cm including petiole; stipules brown, membranous, abaxially spreading pilose or glabrescent; leaf blade 3-foliolate; leaflets obovate, elliptic, or long elliptic, 0.6–1.5 cm × 4–8 mm, subleathery, both surfaces sparsely spreading pilose or glabrescent; base cuneate, apex truncate or obtuse and 3-dentate; lateral leaflets sessile, terminal one short petiolate; cauline leaves: stipules green, ovate-lanceolate, herbaceous, margin entire, apex acuminate. Inflorescence terminal, 1- or 2-flowered. Flowers 1.8–2.5 cm in diam.; pedicel 2.5–3 cm, villous. Sepals triangular-ovate, apex acuminate; epicalyx segments oblong-elliptic, slightly shorter than sepals, abaxially spreading pilose, apex acute. Petals yellow, broadly obovate, slightly longer than sepals, apex emarginate. Style sub-basal, filiform; stigma slightly dilated. Achenes slightly longer than persistent sepals, villous. Fl. and fr. Jun–Oct.

Forest thickets, alpine meadows, rock crevices; 2700–3600 m. Sichuan, Xizang, Yunnan [Bhutan, Kashmir, Nepal, Sikkim].

7a. Potentilla eriocarpa var. eriocarpa

Mao guo wei ling cai (yuan bian zhong)

Potentilla davidii Franchet; P. eriocarpa var. cathayana C. K. Schneider; P. eriocarpoides var. glabrescens J. Krause.

Leaves abaxially sparsely white villous on veins, later glabrescent elsewhere, adaxially sparsely pilose or glabrescent, margin distally deeply 5–7-dentate, teeth ovate or elliptic-ovate, apex subrounded to acute ...................................................... 7a. var. eriocarpa

7b. Potentilla eriocarpa var. tsarongensis

Talus slopes, alpine meadows, rock crevices; 2700–5000 m. Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, India, Kashmir, Nepal, Sikkim].


Herbs perennial. Roots robust, terete, woody. Flowering stems erect, 10–30 cm tall, sparsely pilose, in upper part sometimes mixed with glandular hairs. Radical leaves 5–15 cm including petiole; stipules brown, membranous, abaxially villous; petiole sparsely pilose; leaf blade pinnate with 2–4 pairs of leaflets, sometimes also 3-foliolate; basal pair usually small; leaflets sessile, sometimes apical pair shortly petiolate, abaxi-
ally gray or grayish green, adaxially green or dark green, elliptic, oblong-elliptic, or elliptic-ovate, 1–4 × 0.5–1.5 cm, sublaxothy, abaxially densely villous, appressed villous on veins, or sparsely pilose or glabrescent, adaxially markedly bullate or not, prominently or inconspicuously reticulate veined, appressed pilose, sparsely pilose, or glabrescent, base cuneate or broadly so, margin acutely and usually roughly serrate, teeth usually triangular-ovate, apex obtuse or acute; cauline leaves 2 or 3; stipules green, ovate-lanceolate or lanceolate, herbaceous, margin 1–3-dentate, rarely entire; leaf blade with 1–3 pairs of leaflets. Inflorescence terminal, laxly corymbose or cymose. Flowers 8–12 mm in diam.; pedicel 5–10 mm, densely villous and glandular hairy. Sepals triangular-ovate, apex caudate; epicalyx segments usually purplish abaxially, linear-lanceolate, nearly equaling sepal, sparsely pilose, apex acute. Petals yellow, obovate-oblong, 0.5–1 × as long as sepals, apex rounded. Ovary densely villous at hilum; style subterminal, filiform; stigma not dilated. Achenes rugose at maturity, inconspicuously so, or smooth, sometimes villous around hilum. Fl. and fr. May–Sep.

1b. Radical leaves with 2 or 3 pairs of leaflets, often also 3-foliolate, leaflets on both surfaces sparsely pilose or glabrescent, abaxially inconspicuously reticulate veined, adaxially not bullate; mature achenes smooth or inconspicuously rugose ................. 8b. var. dickinsii

8a. Potentilla ancrifolia var. ancrifolia

皱叶委陵菜 (原变种) zhou ye wei ling cai (yuán biàn zhòng)

Potentilla aemulans Juzepczuk; P. rugulosa Kitagawa; P. tranzscheli Juzepczuk.

Flowering stems and petioles sparsely pilose, sometimes mixed with glandular hairs. Radical leaves with 2–4 pairs of leaflets; leaflets abaxially densely villous, appressed villous on veins, adaxially usually markedly bullate and prominently reticulate veined, appressed pilose. Achenes rugose at maturity, villous around hilum. Fl. and fr. May–Sep.

Thickets, meadows on mountain slopes, gravels, rock crevices; 300–2400 m. Gansu, Hebei, Heilongjiang, Henan, Hubei, Jilin, Liaoning, Shanxi, Shanxi, Sichuan [Japan, Korea, Russia].

Potentilla ancrifolia var. tomentosa Liou & Y. Y. Li ex C. L. Li was described in FRPS (p. 256), but the name is invalid because no Latin description or diagnosis was provided (St. Louis Code, Art. 36.1). The entity described belongs to var. ancrifolia.

Basal pair of leaflets of radical leaves not 2-parted; flowers 1.5–1.8 cm in diam. Fl. and fr. Jun–Aug.

- Alpine meadows, talus slopes, gravelly slopes; 3700–4800 m. Gansu, Sichuan, Xizang.


关节委陵 guan jie wei ling cai


- Alpine meadows, grays near snow line, bare rocks; 3200–4800 m. SW Sichuan, Xizang, Yunnan.

1a. Leaflets linear-lanceolate, base markedly articulate ............................................... 10a. var. articulata

1b. Leaflets narrower, base inconspicuously articulate ........................................... 10b. var. latipetiolata

10a. Potentilla articulata var. articulata

关节委陵 (原变种) guan jie wei ling cai (yuan bian zhong)

Potentilla biflora Willdenow ex Schlechtendal var. armerioides (J. D. Hooker) Handel-Mazzetti; P. fruticosa Linnaeus var. armerioides J. D. Hooker; .


- Gravels near snow line; 4200–4800 m. S Sichuan (Muli Xian), SE Xizang (Zayü Xian), NW Yunnan (Lijiang Xian, Zhongdian Xian).


宽柄关节委陵 kuan bing guan jie wei ling cai


- Alpine meadows, bare rocks; 3200–4100 m. Xizang, Yunnan.


梭状花柱组 suo zhuang hua zhu zu


Herbs perennial. Basal leaves pinnate, sometimes 3-foliolate. Ovary glabrous; style sub-basal, fusiform, thickened at middle, gradually tapered at both ends.

About 20 species: mainly temperate regions of N hemisphere; one species in China.


石生委陵 shi sheng wei ling cai

Potentilla inquinans Turczaninow; P. okuboi Kitagawa.

Herbs perennial. Roots thick, terete. Flowering stems erect, 18–45 cm tall, pilose and glabrous hairy. Radical leaves 6–15 cm including petiole; stipules brown, membranous, abaxially pilose and glandular hairy; petiole sparsely pilose and glandular hairy; leaf blade usually with 2 or 3 pairs of leaflets, sometimes 3-foliolate; terminal leaflet shortly petiolulate, lateral ones sessile; leaflets elliptic, obovate-elliptic, or ovate-elliptic, usually 1.5–5 × 1–2.5 cm, apical 3 much larger than others, both surfaces pilose and glandular hairy, adaxially glabrescent, base cuneate or broadly so, margin doubly incised serrate, apex obtuse or acute; cauline leaves resembling radical ones except upper ones sessile with leaf blade 3-foliolate; stipules green, ovate, herbaceous, margin entire, apex acute, rarely 2-fid. Inflorescence terminal, corymbose. Flowers ca. 2 cm in diam. Sepals triangular-ovate, apex acuminate; epicalyx segments narrowly lanceolate, nearly 1/2 as long as sepals, pilose and glandular hairy abaxially, apex subobtuse or acute. Petals white, obovate, nearly 2 × as long as sepals, apex rounded. Carpels glabrous; style sub-basal, fusiform, thickened at middle, gradually tapered at both ends. Achenes rugose at maturity. Fl. and fr. Jun–Aug.

Gravelly slopes; 1000–1100 m. Heilongjiang, Nei Mongol [Russia (Siberia); Europe].


枝状花柱组 zhi zhuang hua zhu zu


Herbs perennial. Basal leaves pinnate; leaflets serrate at margin. Ovary glabrous, rarely sparsely hairy; style sub-basal, lateral, or subterminal, not swollen at middle but nearly evenly thickened throughout its length, sometimes distally slightly thickened.

About 40 species: mainly Sino-Himalayan region and Malesian archipelago; 21 species (eight endemic) in China.
1a. Plants with stolons.
2a. Radical leaves more than 10 at flowering.
  3a. Pedicels with scalelike bracts ................................................................. 30. P. gombalana
  3b. Pedicels without scalelike bracts .......................................................... 29. P. anserina
2b. Radical leaves absent or fewer than 4 at flowering.
  4a. Leaves adaxially sericeous, terminal leaflet elliptic ................................. 32. P. taronensis
  4b. Leaves adaxially subglabrous, terminal leaflet rhombic-elliptic ................ 31. P. smithiana
1b. Plants without stolons.
5a. Cauline leaves more than 4.
  6a. Auricles of stipules of radical leaves connate from base to middle .......... 12. P. festiva
  6b. Auricles of stipules of radical leaves free.
    7a. Peduncle and hypanthium without gland-tipped, multicellular hairs .......... 15. P. polyphylla
    7b. Peduncle and hypanthium with gland-tipped, multicellular hairs.
      8a. Stigma not inflated; leaflets abaxially densely silvery sericeous, distal lateral ones cuneate at base ........................................................................................................... 13. P. lineata
      8b. Stigma inflated; leaflets abaxially sparsely strigose, distal lateral ones rounded at base.
        9a. Epicalyx segments shorter than sepals, margin subentire; style nearly 2 × as long as ovary ...... 14. P. fallens
        9b. Epicalyx segments longer than sepals, margin with 3–7 teeth; style ca. 1.5 × as long as ovary ................................................................. 16. P. polyphyloides
5b. Cauline leaves 1–3.
10a. Apical pair of leaflets sessile, but not decurrent at base.
  11a. Smaller leaflets usually present between leaflets ................................... 21. P. turfosa
  11b. Smaller leaflets usually not present between leaflets.
    12a. Rhizome with a few slender, elongate roots .......................................... 20. P. aristata
    12b. Rhizome without slender, elongate roots.
      13b. Stamens ca. 20.
        14a. Leaflets 2–4 mm ....................................................................... 17. P. microphylla
        14b. Leaflets 5–15 mm .................................................................... 18. P. stenophylla
10b. Apical pair of leaflets decurrent at base.
  15a. Inflorescence pseudoumbellate.
    16a. Auricles of stipules of radical leaves 2 ........................................... 27. P. leuconota
    16b. Auricle of stipules of radical leaves 1 ............................................. 28. P. wenchuensis
  15b. Inflorescence cymose.
    17a. Rhizome erect.
      18a. Auricles of stipules of radical leaves 2 ........................................... 24. P. cardotiana
      18b. Auricle of stipules of radical leaves 1 .......................................... 25. P. commutata
    17b. Rhizome creeping.
      19a. Auricles of stipules of radical leaves 2, apex acute ........................... 23. P. contigua
      19b. Auricle of stipules of radical leaves 1, apex rounded.
        20a. Flowering stems and petioles sericeous and appressed villous .......... 22. P. peduncularis
        20b. Flowering stems and petioles densely canescent tomentose, tomentose-villous, or sericeous-villous ......................................................... 26. P. tugitakensis


合耳委陵菜  he er wei ling cai

Herbs perennial. Flowering stems 5–25 cm tall, together with petioles densely spreading villous and pubescent. Radical leaves 4–15 cm including petiole; auricles of stipules of radical leaves connate from base to middle, apex acute; leaf blade interrupted pinnate with 5–15 pairs of leaflets; terminal leaflet oblong to narrowly obovate, 1–3 × 0.5–1.2 cm, abaxially densely white sericeous or tomentose, adaxially appressed pilose, margin sharply serrate; cauline leaves: auricles of stipules herbaceous, abaxially white sericeous, adaxially villous; leaf blade resembling that of radical leaves but pairs of leaflets fewer higher up stem. Inflorescence corymbose-cymose. Flowers 0.7–1.2 cm in diam.; pedicel with unicellular hairs. Sepals triangular-ovate, apex acute; epicalyx segments elliptic, margin entire or with 3 teeth. Petals yellow, 5–7 × 4–5.5 mm, apex rounded. Style lateral. Achenes not seen. Fl. and fr. Jun–Oct. 2n = 28.

Fruits, forest margins, thickets, grassy mountain slopes, open grassy places by roads; 2000–3800 m. Sichuan, Xizang, Yunnan [Bhutan, India, Myanmar, Nepal, Sikkim].


西南委陵菜  xi nan wei ling cai

Potentilla fulgens Lehmann; P. fulgens var. acutiserrata (T. T. Yu & C. L. Li) T. T. Yu & C. L. Li; P. fulgens var. macrophylla Cardot; P. martini H. Léveillé; P. siemersiana
Herbs perennial. Flowering stems 5–40 cm tall, together with petioles densely spreading villous and pubescent. Radical leaves 4–30 cm including petiole; auricles of stipules free, apex acute; leaf blade interrupted pinnate with 5–13 pairs of leaflets; terminal leaflet oblong or broadly obovate, 1.5–4 × 0.8–1.5 cm, abaxially densely white sericeous or tomentose, adaxially appressed pilose, margin sharply serrate; cauleine leaves: auricles of stipules herbaceous, abaxially white sericeous; leaf blade resembling that of radical leaves but pairs of leaflets fewer higher up stem. Inflorescence corymbose-cymose. Flowers 1–1.5 cm in diam.; pedicel 2–4 cm, with gland-tipped, multicellular hairs and unicellular hairs. Sepals entire at margin; epicalyx segments entire at margin or with 3–6 teeth. Petals yellow, obovate to broadly so, apex rounded. Style lateral, sepals, margin entire or shallowly 2- or 3-serrate. Petals yellow, obovate and unicellular hairs. Sepals entire at margin; epicalyx segments oblong to obovate, broader and slightly shorter than sepals, abaxially pilose, apx 2–5-serrate, rarely entire. Petals yellow, obovate to broadly so, apex rounded. Carpels glabrous; style sub-basal, fusiform. Achenes smooth. Fl. and fr. Jul–Sep. 2n = 28.

1a. Radical leaves 4–20(–25) cm including petiole; leaflets obovate to broadly ovate, abaxially strigose; flowers 1–1.5 cm in diam. ......................... 15a. var. polyphylla

1b. Radical leaves 16–30 cm including petiole; leaflets broadly linear to lanceolate, abaxially villous; flowers 1.5–2 cm in diam. ...................... 15b. var. interrupta

15a. Potentilla polyphylla var. polyphylla

Potentilla sordida Klotzsch.

Herbs perennial. Flowering stems 4–20(–25) cm including petiole; leaflets obovate to broadly ovate, abaxially strigose. Flowers 1–1.5 cm in diam. Fl. and fr. Jul–Aug. 2n = 28.*

Forests, grassy mountain slopes; 2500–4200 m. Yunnan [Bhutan, India, Indonesia (Java), Myanmar, Nepal, Pakistan, Sikkim, Sri Lanka].

15b. Potentilla polyphylla var. interrupta

Herbs perennial. Flowering stems ascending or prostrate, 17–60 cm tall, appressed or ascending unicellular hairy, occa-
Potentilla polyphylloides differs from Potentilla fallens in having epicalyx segments oblong or elliptic-lanceolate, margin entire or parted; cauline leaves: auricles of stipules lanceolate to ovate, herbaceous, margin entire or parted. Flower 1(or 2), 1–1.5 cm in diam.; pedicel 2–12 mm, appressed pilose. Sepals triangular-ovate, apex obtuse or acute; epicalyx segments lanceolate or elliptic-lanceolate, margin entire or 2-lobed. Petals yellow, elliptic to obovate, apex rounded. Style lateral; stigma sub-basal, 0.8–0.9 mm. Achenes many, borne on dome-shaped receptacle, obliquely elliptoid, 1.2–1.4 mm, smooth. Fl. and fr. Jul-Sep. 2n = 42*.

- Mountain meadows; 3200–3500 m. NW Yunnan (Dali Xian, Yangbi Xian).

Potentilla polyphylloides differs from Potentilla polyphylla in having epicalyx segments oblong or elliptic-lanceolate, margin usually serrate, apex acute. Petals obvate to broadly so, 5–6.5 × 3.5–7 mm, apex retuse or rounded. Stamens ca. 20, in 3 whorls, 1.2–2.2 mm; anthers sub-basal, globose, 4-loculed. Ovary ellipsoid, smooth; placenta adaxial-lateral near style base; style sub-basal, 0.8–0.9 mm. Achenes many, borne on dome-shaped receptacle, obliquely elliptoid, 1.2–1.4 mm, smooth. Fl. and fr. Jun–Aug. 2n = 28.

- Alpine or rocky meadows; 3400–4000 m. Xizang [Bhutan, NW India, Nepal, Sikkim].

Potentilla microphylla var. microphylla

Leaves 0.5–1 cm, crowded, with 2 or 3(–5) pairs of leaflets; leaflets parted almost to midvein, apex obtuse. Fl. and fr. Jun–Aug. 2n = 28.

- Alpine meadows and rocky places; 3400–5200 m. Xizang [Bhutan, NW India, Nepal, Sikkim].


- Alpine rocks; 3800–4200 m. Sichuan, Xizang, Yunnan.

Potentilla microphylla var. tapetodes

Leaves 0.5–1 cm, crowded, with 2 or 3(–5) pairs of leaflets; leaflets parted almost to midvein, apex obtuse. Fl. and fr. Jun–Aug. 2n = 28.

- Alpine meadows and rocky places; 3400–5200 m. Xizang [Bhutan, NW India, Nepal, Sikkim].

Potentilla microphylla var. caespitosa T. T. Yu & C. L. Li was described in FRPS (p. 274), but the name is invalid because no Latin description or diagnosis was provided (St. Louis Code, Art. 36.1). The entity described belongs to var. tapetodes.

The rootstock branches of var. tapetodes are surrounded by many old leaves to form towerlike structures that cluster together to form a large cushion.
**18a. *Potentilla stenophylla* var. *stenophylla***

狭叶委陵菜(原变种) xia ye wei ling cai (yuan bian zhong)

*Potentilla peduncularis* D. Don var. *stenophylla* Franchet, Pl. Delavay. 3: 214. 1890; *P. millefolia* H. Léveillé (1914), not D. Don var. *stenophylla* Sojak.

Leaflets with 3–5 apical teeth .................. 18a. var. *stenophylla*

1b. Leaflets with 5–15 teeth.

2a. Leaflets 0.6–1 cm, with 5–7 teeth ................................. 18d. var. *emergens*

2b. Leaflets 0.8–1.5 cm, with 6–15 teeth.

3a. Leaflets hairy on both surfaces .............................................. 18c. var. *taliensis*

3b. Leaflets glabrous except for tufts of hairs on apices of teeth .................................................. 18b. var. *cristata*

**18b. *Potentilla stenophylla* var. *cristata***

贡山狭叶委陵菜 gong shan xia ye wei ling cai


Leaflets 0.8–1.5 cm, with 11–13 teeth, glabrous except for tufts of hairs on apices of teeth. Fl. Jul–Aug.

 Alpine meadows; 3500–3700 m. NW Yunnan [Gaoligong Shan] [Myanmar].

**18c. *Potentilla stenophylla* var. *taliensis***

大里狭叶委陵菜 da li xia ye wei ling cai


Leaflets 0.8–1.5 cm, with 6–15 teeth, hairy on both surfaces. Fl. and fr. Jul–Oct.

 Alpine meadows; 3800–4000 m. NW Yunnan (Dali Xian).

**18d. *Potentilla stenophylla* var. *emergens***

康定狭叶委陵菜 kang ding xia ye wei ling cai

*Potentilla stenophylla* var. *compacta* J. Krause; *P. stenophylla* var. *exaltata* Cardot; *P. tatisieniensi* Th. Wolf.

Leaflets 0.6–1 cm, with 5–7 teeth. Fl. and fr. Jun–Oct.

 Forest margins, alpine meadows; 3200–5800 m. Sichuan, Xizang [Sikkim].


光叶委陵菜 guang ye wei ling cai

Herbs perennial. Low. Roots robust, terete; lateral roots filiform. Flowering stems erect, 1–2.5 cm tall, pilose. Radical leaves 1.5–5 cm including petiole; stipules brown, membranous, abaxially subglabrous, auricles connate from base to apex, apex rounded; petiole subglabrous; leaf blade pinnate with 3–7 pairs of leaflets; leaflets shortly petiolulate or subsessile, oblong to narrowly obovate, 3.5 × 2–4 mm, subglabrous, margin 3–7-serrate, apex acute; cauline leaves 1(or 2), or reduced and bractlike. Flower solitary, 6–12 mm in diam. Sepals elliptic to ovate, apex rounded; epicalyx segments oblong-lanceolate, nearly equaling sepals, abaxially sparsely pubescent or subglabrous, apex obtuse or acute. Petals yellow, oblong to elliptic, 6–8 × 4–5 mm, apex rounded. Stamens 5–10. Style lateral. Achenes not seen. Fl. and fr. Jun–Oct.

Forest margins, alpine meadows; 2500–5500 m. E and S Xizang, NW Yunnan [Bhutan, N Myanmar, E Nepal, Sikkim].

Two varieties occur in China. Two of us (Ohba and Ikeda) believe that var. *majuscula* Sojak, described from Sikkim, is synonymous with *glabriuscula*, but we have not seen the type.

1a. Stamens ca. 5 ..................................... 19a. var. *glabriuscula*  
1b. Stamens 8–10 ................................. 19b. var. *oligandra*

**19a. *Potentilla glabriuscula* var. *glabriuscula***

光叶委陵菜(原变种) guang ye wei ling cai (yuan bian zhong)


Forest margins, alpine meadows; 2500–5500 m. E and S Xizang, NW Yunnan [Bhutan, N Myanmar, E Nepal, Sikkim].


多蕊光叶委陵菜 duo rui guang ye wei ling cai


 Alpine meadows; ca. 4000 m. SE Xizang.

**20. *Potentilla aristata***

多对光叶委陵菜 duo dai guang ye wei ling cai

*Potentilla oligophylla* D. Don var. *achillefolia* J. D. Hooker; *P. microphylla* var. *multijuga* T. T. Yu & C. L. Li.

Herbs perennial, low, often mat forming. Roots several, slender, terete. Flowering stems 2–3 cm tall, appressed white

总梗委陵菜 zong geng wei ling cai

Herbs perennial, rhizomatous. Rhizomes prostrate, robust, terete. Flowering stems 10–35 cm tall, together with petioles appressed villous or sericeous. Radical leaves 2.5–25 cm including petiole; auricles of stipules membranous, connate from base to rounded apex; leaf blade non-interrupted pinnate with 10–21 pairs of leaflets; terminal leaflet narrowly or broadly ovate, narrowly ovate, ovate-lanceolate, oblong-lanceolate, or oblong, 0.5–3 × 0.3–1.5 cm, both surfaces densely silvery sericeous or adaxially only sparsely so, base decurrent on apical 2 or 3 pairs of leaflets, margin sharply or bluntly serrate or apex dentate; cauleine leaves small; auricles of stipules herbaceous, margin incised parted or incised serrate; leaf blade with 1 or 2 pairs of leaflets. Inflorescence corymbose-cymose. Flowers 1–3.5 cm in diam.; pedicel 1–3.5 cm. Sepals triangular-ovate; epicalyx segments oblong to elliptic-lanceolate, margin entire or 2–4-parted. Petals yellow, broadly elliptic to obovate, apex rounded or retuse. Style lateral. Achenes not seen. Fl. and fr. May–Oct.

Forests, alpine meadows, gravelly slopes; 3000–4800 m. Sichuan, Xizang, Yunnan [Bhutan, NW India, Nepal, Sikkim].

1a. Leaflet margin more than 10-serrate.

2a. Leaflets narrowly ovate, abaxially densely hairy, adaxially sparsely hairy ........................................ 22a. var. peduncularis

1b. Leaflet margin 4–9-serrate or apex dentate.

2b. Leaflets broadly ovate, both surfaces densely hairy ............... 22b. var. shweliensis

3a. Leaflets narrowly ovate, 1.5–3 cm, margin bluntly 5–9-serrate or apex dentate ........................................ 22c. var. vittata

3b. Leaflets narrowly obovate, 0.5–2 cm, margin 4(or 5)-serrate or apex dentate ........................................... 22d. var. curta

22a. Potentilla peduncularis var. peduncularis

总梗委陵菜(原变种) zong geng wei ling cai (yuan bian zhong)

Potentilla peduncularis var. elongata T. T. Yu & C. L. Li; P. remot a Sojak.

Leaflets narrowly ovate, abaxially densely hairy, adaxially sparsely hairy, margin more than 10-serrate. Fl. and fr. Jun–Oct. 2n = 42.

Forests, alpine meadows, gravelly slopes; 3000–4800 m. Sichuan, Xizang, Yunnan [Bhutan, NW India, Nepal, Sikkim].

Potentilla peduncularis var. abbreviata T. T. Yu & C. L. Li was described in FRPS (p. 266), but the name is invalid because no Latin description or diagnosis was provided (St. Louis Code, Art. 36.1). The entity described belongs to var. peduncularis.


多齿总梗委陵菜 duo chi zong geng wei ling cai


- Forests, alpine meadows, gravelly slopes; ca. 3300 m. Yunnan.


Potentilla vittata Soják, Candollea 43: 164. 1988; P. vittata var. abbreviata Soják; P. vittata var. assidens Soják; P. vittata var. pluriflora Soják; P. oxyodontia Soják.

Leaflets narrowly ovate, 1.5–3 cm, margin bluntly 5–9-serrate or apex dentate. Fl. and fr. Jun–Oct.

- Alpine meadows, gravelly slopes; 3000–4200 m. Xizang, Yunnan.


Leaflets narrowly obovate, 0.5–2 cm, margin 4(or 5)-serrate or apex dentate. Fl. and fr. Jun–Oct.

- Alpine meadows, gravelly slopes; 3400–4800 m. Xizang [Sikkim].


Potentilla peduncularis var. clarkei J. D. Hooker; P. peduncularis var. glabriuscula T. T. Yu & C. L. Li.

Herbs perennial, rhizomatous. Rhizomes short. Flowering stems 10–35 cm tall, together with petioles appressed villous or sericeous. Radical leaves 10–20 cm including petiole; auricles of stipules free, apex acute to acuminate; leaf blade non-interupted pinnate with 5–15 pairs of leaflets; terminal leaflet oblanceolate to narrowly obovate, 3.5–8 × 2–4 mm, abaxially densely silvery or yellowish sericeous, base decurrent in apical 2 or 3 pairs of leaflets, margin sharply serrate; cauline leaves: auricles of stipules herbaceous, apex incised parted or incised serrate; leaf blade with 3–5 pairs of leaflets. Inflorescence corymbose-cymose. Flowers 0.8–1.5 cm in diam.; pedicel 1.5–2 cm. Epicalyx segments oblong to obovate, margin entire or 2–4-parted. Petals yellow, elliptic to obovate, apex rounded or subretuse. Style lateral; stigma slightly dilated. Achenes not seen. Fl. and fr. May–Oct.

- Forests, thickets, alpine meadows, gravelly slopes; 3100–4000 m. Yunnan [Myanmar, Nepal].

- Potentilla cardotiana is similar to P. peduncularis in habit, but has radical leaf stipules with free auricles acute to acuminate at the apex, whereas the stipules of P. peduncularis have auricles connate from the base to the rounded apex. Many specimens of P. cardotiana collected in China were misidentified as P. peduncularis.


多蕊委陵菜 duo rui wei ling cai

Potentilla decemjuga Soják; P. meiehorum Soják.

Herbs perennial. Rhizomes short. Flowering stems ascending, 3–10 cm tall, together with petioles appressed villous or sericeous. Radical leaves 2–8 cm including petiole; auricles of stipules connate from base to rounded apex; leaf blade non-interupted pinnate with 5–15 pairs of leaflets; terminal leaflet oblanceolate to narrowly obovate, 3.5–8 × 2–4 mm, abaxially densely silvery or yellowish sericeous, base decurrent in apical 2 or 3 pairs of leaflets, margin sharply serrate; cauline leaves small; auricles of stipules herbaceous, apex incised parted or incised serrate; leaf blade simple or with 1 pair of leaflets. Inflorescence corymbose-cymose. Flowers 0.5–1.2 cm in diam.; pedicel 0.3–2.5 cm. Epicalyx segments oblong to lanceolate, margin entire or 2–4-parted. Petals yellow, broadly oblong to elliptic, apex rounded or retuse. Stamens ca. 20. Style subterminal; stigma slightly dilated. Achenes not seen. Fl. and fr. Jul–Aug. 2n = 14.

- Alpine meadows, gravelly slopes; 3800–4500 m. Sichuan [Bhutan, NW India, Nepal, Sikkim].

- Potentilla commutata var. commutata is distributed in NW India, Nepal, and Sikkim.


台湾委陵菜 tai wan wei ling cai

Potentilla leuconota D. Don var. tugitakensis (Masamune) H. L. Li.

Herbs perennial. Flowering stems 25–30 cm tall, densely canescent tomentose and villous. Radical leaves 10–18 cm in-
cluding petiole; auricles of stipules connate from base to round-ed apex; petiole densely white villous and white tomentose; leaf blade non-interrupted (rarely interrupted) pinnate with usually 19–27 pairs of leaflets; terminal leaflet oblong, 1–2 cm × 4–8 mm, abaxially densely white sericeous-villous on veins, base decurrent in apical 2 or 3 pairs of leaflets, margin regularly sharply many serrate; cauline leaves 1 or 2; auricles of stipules herbaceous, abaxially densely villous, margin entire or 1- or 2-serrate; leaf blade with 3–7 pairs of leaflets. Inflorescence corymbose-cyme. Flowers 2–2.5 cm in diam.; pedicel 3–5 cm, proximally with a serrate bract; bract abaxially densely grayish white tomentose and villous. Epicalyx segments ovate-lanceolate, apex acuminate. Petals yellow.

27a. Potentilla leuconota var. leuconota

Herbs perennial. Flowering stems 10–45 cm tall, together with petioles appressed or slightly spreading villous. Radical leaves 2.5–25 cm including petiole; auricles of stipules connate from base to middle, apex acute; leaf blade interrupted (rarely non-interrupted) pinnate with 6–18 pairs of leaflets; terminal leaflet ovate to elliptic, or oblong, 0.5–3 × 0.3–1.5 cm, abaxially densely appressed silvery or yellowish sericeous, or sparsely strigose, base decurrent in apical 2 or 3 pairs of leaflets, margin 4- to many serrate, teeth acute or acuminate; cauline leaves 1 or 2, resembling radical ones; auricles of stipules herbaceous, margin lacerate or parted. Inflorescence compactly pseudumbellate, with leaflike involucres. Flowers 5–8 mm in diam.; pedicel 1.5–2 cm, densely appressed white villous. Epicalyx segments lanceolate or oblong-lanceolate, abaxially densely white villous. Petals yellow, obovate, apex rounded. Style lateral. Achenes smooth. Fl. and fr. May–Aug.

- Alpine meadows; ca. 3400 m. Taiwan.

27b. Potentilla leuconota var. omeiensis


- Forests, meadows on mountain slopes; 3000–3200 m. C Sichuan (Emei Shan).


脱毛银叶委陵菜 tuo mao yin ye wei ling cai


Alpine meadows, stream banks, cliffs; 3600–4200 m. Sichuan, Xizang, Yunnan [NE India (Assam)].


汶川委陵菜 wen chuan wei ling cai

Herbs perennial. Flowering stems erect or ascending, 10–15 cm tall, together with petioles appressed villous or sericeous. Radical leaves 10–18 cm including petiole; auricles of stipules connate from base to rounded apex; leaf blade non-interrupted pinnate with 8–10 pairs of leaflets; terminal leaflet lanceolate to narrowly oblong, 5–7 × ca. 2 mm, abaxially densely yellowish sericeous, base decurrent in apical 2 or 3 pairs of leaflets, margin sharply serrate; cauline leaves small; auricles of stipules green, herbaceous, apex incised parted or incised serrate; leaf blade with 1 or 2 pairs of leaflets. Inflorescence compactly pseudumbellate. Flowers 0.8–1.2 cm in diam.; pedicel 1–1.5 cm. Epicalyx segments oblong to obovate, margin entire. Sepals triangular-ovate, apex obtuse or acute. Petals yellow, elliptic to obovate, apex rounded. Style lateral; stigma slightly dilated. Achenes not seen. Fl. and fr. May–Oct.

- Meadows, gravelly slopes; 2000–4000 m. Guizhou, Sichuan.


蕨麻 jue ma

Potentilla anserina var. nuda Gaudin; P. anserina var. sericea Hayne; P. anserina var. viridis W. D. J. Koch.

Herbs perennial, stoloniferous. Roots sometimes with fusiform or ellipsoid tubers. Stems prostrate, creeping, together with petioles appressed or spreading pilose or glabrescent, rooting at nodes and producing plantlets. Radical leaves 2–20 cm including petiole; auricles of stipules connate from base to rounded apex; leaf blade interrupted pinnate with 5–11 pairs of leaflets; terminal leaflet elliptic, obovate-elliptic, or oblance-elliptic, 1–2.5 × 0.5–1 cm, abaxially densely appressed silvery sericeous, rarely glabrescent, base decurrent in apical pair of leaflets, margin sharply many serrate; cauline leaves: auricles of stipules sheathing at base. Flower solitary, 1.5–2.5 cm in diam.; pedicel 2.5–8 cm, pilose. Epicalyx segments elliptic or elliptic-lanceolate, margin usually 2- or 3-fid, rarely entire. Petals yellow, obovate, apex rounded. Style lateral. Achenes not seen. Fl. and fr. Jun–Aug. 2n = 28, 42.

Meadows, grasslands on mountain slopes, river and ditch banks,


**Potentilla da guo wei ling cai**

**Potentilla chuan bian wei ling cai**

**Potentilla c.e wei ling cai**

**Potentilla zhiu hua zhu zu**


## ROSACEAE

Herbs perennial, stoloniferous. Stems prostrate, together with petioles appressed pilose. Radical leaves 13–25 cm including petiole; auricles of stipules of radical leaves conuate from base to rounded apex; leaf blade interrupted pinnate with 9–12 pairs of leaflets; terminal leaflet oblong-elliptic or ovate-lanceolate, 1.5–4 × 0.5–1.5 cm, abaxially densely sericeous, base decurrent in apical pair of leaflets, margin incised serrate, teeth hairy at apex; cauline leaves resembling radical ones but reduced; auricles of stipules (on prostrate stems) broad, membranous, base sheathing, apex slightly parted or entire; leaf blade 3–5-foliolate. Flowers 1 or 2, ca. 3 cm in diam.; pedicel 5–6 cm, appressed pilose. Sepals broadly triangular-ovate; epicalyx segments narrowly lanceolate, appressed pilose, apex acuminate. Petals yellow, broadly obovate, slightly shorter than sepals, margin 2- or 3-parted. Style lateral; stigma slightly dilated. Achenes not seen. Fl. Jul.

- Forest margins; ca. 3700 m. Sichuan (Kangding Xian, Yulinggong).

**Potentilla longi marginata** subsp. **longi marginata**


**Potentilla da guo wei ling cai**

**Potentilla chuan bian wei ling cai**

**Potentilla c.e wei ling cai**

**Potentilla zhiu hua zhu zu**


Herbs annual or perennial. Basal leaves pinnate, palmate, or 3-foliolate; leaflets serrate or divided at margin. Ovary glabrous; style subterminal, conic, visibly thickened at base, gradually tapered distally.

About 350 species: mainly temperate and subarctic regions of N hemisphere; 47 species (13 endemic) in China.

1a. Radical leaves pinnate (sometimes 3-foliolate in *P. hypargyrea*).

2a. Leaves abaxially green or greenish, sericeous, pilose, or glabrescent.

3a. Leaflet margin parted to midvein.

4a. Radical leaves 3-foliolate, or terminal leaflets pseudopinnately parted, abaxially white sericeous ........... 63. *P. hypargyrea*

4b. Radical leaves pinnate, abaxially green, pilose or sparsely sericeous.

5a. Leaflets 2-pinnately dissected, ultimate segments ca. 1 mm wide, both surfaces pilose, apex acuminate; stipules proximally adnate to petiole for ca. 3/4 their length; inflorescences 1–3–flowered ............. 62. *P. coriandrifolia*

5b. Leaflets 1-pinnatifid, ultimate segments ca. 2 mm wide, both surfaces pilose and granular sessile glandular, apex obtuse; stipules proximally adnate to petiole for ca. 1/2 their length; inflorescences cymose, many flowered .......................................................... 64. *P. granulosa*

3b. Leaflet margin serrate or lobed, but not deeply so to midvein.

6a. Radical leaves with 2 or 3 (or 4) pairs of leaflets.

7a. Leaflet margin coarsely acutely or obtusely incised serrate; flowers ca. 2 cm in diam.; epicalyx segments equaling sepals .......................................................... 67. *P. lancinata*

7b. Leaflet margin crenulate; flowers 1.5–1.8 cm in diam.; epicalyx segments shorter than sepals ................. 68. *P. crenulata*
6b. Radical leaves with 4–23 pairs of leaflets.
8a. Inflorescence lax, many flowered; flowers usually 1–1.5 cm in diam.; epicalyx segments linear-lanceolate, usually shorter than sepals, not enlarged in fruit ................................................................. 65. *P. tanacetifolia*
8b. Inflorescence compact, few flowered; flowers 1.5–1.8 cm in diam.; epicalyx segments oblanceolate, nearly equaling or slightly longer than sepals, enlarged in fruit ......................................................... 66. *P. longifolia*

2b. Leaves abaxially densely white or yellowish tomentose or sericeous.

9a. Radical leaves with 2–4 pairs of leaflets, leaflet margin serrate.
10a. Flowering stems and petioles pilose or villous ......................................................... 47. *P. griffithii*
10b. Flowering stems and petioles ± interwoven white tomentose and pilose, rarely glabrescent.
11a. Leaflets abaxially appressed sericeous on veins; sepals abaxially densely villous or sericeous .... 46. *P. potaninii*
11b. Leaflets abaxially white tomentose on veins; sepals abaxially densely white tomentose.
12a. Leaflets in 2–4 pairs, oblong or oblong-lanceolate, margin incised serrate ............................. 45. *P. discolor*
12b. Leaflets in 2 pairs, oblong to obovate-oblong, margin pectinately lobed ............................. 48. *P. hololeuca*

9b. Radical leaves with (2 or)3–11 pairs of leaflets, leaflet margin parted or lobed.
13a. Flowering stems and petioles ± interwoven white tomentose or downy, rarely glabrescent.
14a. Leaflets of radical leaves pinnately or palmately parted nearly to base, thereby appearing verticillate ........................................... 40. *P. verticillaris*
14b. Leaflets of radical leaves not as above, not appearing verticillate.
15a. Leaflet margin pectinate, lobes fasciated oblong or oblong-lanceolate .................................. 44. *P. strigosa*
15b. Leaflet margin not pectinate, lobes often broader.
16a. Leaflets in 3–5(–8) pairs, subleathery, abaxially densely white tomentose, margin oblong or triangular lobed ................................................................. 39. *P. szechuanensis*
16b. Leaflets in 4–8 pairs, thinly papery, abaxially canescent tomentose, margin oblong dentate or triangular lobed ................................................................. 41. *P. limprichtii*

13b. Flowering stems and petioles sericeous, villous, floseose, or pubescent, but not tomentose.
17a. Leaflets abaxially wholly tomentose or sericeous, sometimes glabrescent.
18a. Leaflets abaxially densely appressed sericeous, sometimes glabrescent, margin flat or slightly revolute; stipules of cauline leaves entire; flowering stems and petioles sparsely sericeous or glabrescent .......... 36. *P. multiceps*
18b. Leaflets abaxially tomentose or sericeous, margin strongly revolute; stipules of cauline leaves entire or 2-fid; flowering stems and petioles densely spreading white sericeous ................................................. 38. *P. sericea*
17b. Leaflets abaxially tomentose, white sericeous on veins.
19a. Leaflets abaxially tomentose and sparsely white villous, adaxially greenish, appressed white villous or sericeous, lobes adjacent.
20a. Radical leaves with 3–5 pairs of leaflets; stipules of cauline leaves entire, rarely 2-fid; stems and petioles appressed white villous ................................................................. 35. *P. pamiroalaica*
20b. Radical leaves with 6–9 pairs of leaflets; stipules of cauline leaves 2- or 3-fid; stems and petioles spreading white sericeous-villous ................................................................. 37. *P. plumosa*
19b. Leaflets abaxially sericeous only on veins, adaxially green, appressed pilose, rarely glabrescent, lobes distant.
21a. Flowers usually 1.2–1.5 cm in diam.; sepals erect, enlarged after flowering.
22a. Flowers usually parted almost to midvein, lobes narrow, ± fasciated lanceolate; plants appressed pubescent or recumbent sericeous, rarely glabrescent, hairs to 2 mm ........................................... 33. *P. multifida*
22b. Flowers usually lobed, but not nearly midvein, lobes triangular-oblong or triangular-lanceolate to fasciated oblong; plants sparsely spreading white villous, hairs 3–4 mm ......................... 43. *P. conferta*
21b. Flowers usually 0.8–1.2 cm in diam.; sepals adnate to fruit, not enlarged after flowering.
23a. Stipules of cauline leaves usually dentately lobed; flowering stems white sericeous .................. 42. *P. chinensis*
23b. Stipules of cauline leaves usually entire; flowering stems white villous .................................. 34. *P. multicaulis*

1b. Radical leaves palmately 3–5-foliolate.
24a. Leaves abaxially white tomentose or sericeous.
25a. Radical leaves palmately 5-foliolate, rarely 3-foliolate with leaflets pinnately parted, cauline leaves 3 to many; inflorescence corymbose, many flowered.
26a. Leaflets of radical leaves 5–8-lobed; flowers 0.8–1 cm in diam. ................................................. 58. *P. virgata*
26b. Leaflets of radical leaves serrate or 1–4-lobed; flowers 1–2 cm in diam.
27a. Leaflets abaxially gray pilose or tomentose, margin flat, incised serrate .................................. 61. *P. inclinata*
27b. Leaflets abaxially densely white tomentose, margin slightly or markedly revolute, irregularly 2–5-dentate distally or 2–4-lobed on each side.
28a. Leaflet margin slightly revolute, 2–4-lobed on each side, lobes narrowly fasciated ................ 59. *P. argustiloba*
28b. Leaflet margin markedly revolute, entire in proximal 1/2, irregularly 2–5-dentate in distal 1/2 ..... 60. *P. argentea*
25b. Radical leaves 3(or 5)-foliolate, cauline leaves very few, 1- or 2-foliolate; inflorescence 2- or 3-flowered.
29a. Radical leaves 5-foliolate ........................................... 52. *P. saundersiana*
ROSACEAE

29b. Radical leaves 3-foliolate.
30a. Flowering stems and petioles usually white tomentose; leaflets abaxially tomentose on lateral veins.
   31a. Leaflets lanceolate or ovate-lanceolate, margin pinnately parted .............................................. 51. *P. zhangbeiensis*
   31b. Leaflets oblong-lanceolate, elliptic-ovate, or obovate, margin coarsely or sharply serrate.
      32a. Leaflets oblong-lanceolate, margin coarsely triangular 5–7-serrate; sepals abaxially appressed pilose .................................................. 49. *P. nivea*
      32b. Leaflets elliptic-ovate or obovate, margin sharply ovate 3–7-serrate; sepals abaxially white tomentose ............................................................... 50. *P. betonicifolia*
30b. Flowering stems and petioles villous or also white tomentose; leaflets abaxially sericeous or pilose.
   33a. Stipules of cauline leaves broad, fasciated 2–4-lobed; flowers 2–3 cm in diam.; epicalyx segments abaxially silvery tomentose .................................................. 54. *P. delavayi*
   33b. Stipules of cauline leaves small, entire, rarely 2-serrate; flowers 1–2 cm in diam.; epicalyx segments abaxially usually green and pilose.
      34a. Pedicels and sepals abaxially glandular hairy; leaflets abaxially canescent tomentose, glabrescent when old, adaxially pilose and glandular hairy ............................................................... 56. *P. evestita*
      34b. Pedicels and sepals abaxially not glandular hairy; leaflets abaxially densely persistently tomentose, adaxially appressed sericeous or pilose, rarely glabrescent.
      35a. Plants gray tomentose; terminal leaflet of radical leaves shortly petiolulate .................................. 55. *P. nervosa*
      35b. Plants white tomentose; leaflets of radical leaves sessile.
      36a. Leaflets abaxially densely silvery tomentose and appressed silvery sericeous, adaxially appressed silvery sericeous; flowers ca. 2 cm in diam.; petals purple at base; stamens and styles purple ................................................................. 57. *P. argyrophylla*
      36b. Leaflets abaxially densely gray or white tomentose, pilose on veins, adaxially green or gray-green, appressed sericeous or pilose; petals yellow; stamens and styles yellow-white.
      37a. Leaflets adaxially appressed pilose, margin crenate; pedicels erect; flowers 1–1.4 cm in diam. ..................................................... 52. *P. saundersiana*
      37b. Leaflets adaxially appressed sericeous, margin lobed, lobes fasciated; pedicels nodding; flowers 1.5–2 cm in diam. .................................................. 53. *P. pendula*

24b. Leaves abaxially green, pilose.

38a. Radical leaves pinnate ................................................................................................................. 70. *P. supina*
38b. Radical leaves 3-foliolate, pedate, or palmate, rarely some leaves pinnate.

39a. Radical leaves palmately or pedately 5-foliolate, rarely some leaves 3-foliolate or pinnate.
   40a. Stems prostrate, stoloniferous; roots slender; flowers 0.5–1 cm in diam. ........................................ 69. *P. kleiniana*
   40b. Stems erect or decumbent; roots robust, usually woody; flowers 1.5–2.5 cm in diam.
      41a. Plants glabrous hairy.
      42a. Plants red stipitate glandular hairy; radical leaves palmately or pedately 5-foliolate ............... 78. *P. desertorum*
      42b. Plants sessile glandular hairy; radical leaves palmately 5-foliolate, some leaves 3-foliolate, rarely pinnate ......................................................... 79. *P. subdigitata*
      41b. Plants not glandular hairy.
      43a. Flowering stems and petioles pubescent, glabrescent; plants with leaf rosettes at anthesis ........ 76. *P. chrysantha*
      43b. Flowering stems and petioles white villous, hairs basally enlarged; plants without leaf rosettes at anthesis ............................................................................. 77. *P. recta*

39b. Radical leaves 3-foliolate.

44a. Flowering stems prostrate, elongate.
   45a. Flowers many, in terminal cymes ................................................................................................. 72. *P. cryptotaenioides*
   45b. Flower solitary, lateral or terminal.
      46a. Leaflets sessile, margin deeply serrate, stipules leathery, margin entire ........................................ 70. *P. supina*
      46b. Leaflets markedly petiolulate, margin narrowly serrate, stipules membranous, margin entire or serrate ........................................................................... 71. *P. centigrana*

44b. Flowering stems erect or ascending.
   47a. Flowers 2.5–4 cm in diam. ................................................................................................................ 74. *P. macrosepala*
   47b. Flowers not more than 2 cm in diam.
      48a. Leaflets abaxially and sepals abaxially densely sessile glandular ................................................. 79. *P. subdigitata*
      48b. Leaflets abaxially and sepals abaxially not or only inconspicuously glandular.
      49a. Plants spiny-setose, 10–20 cm tall ............................................................................................. 73. *P. asperrima*
      49b. Plants not spiny-setose, more than 20 cm tall.
      50a. Plants 50–100 cm tall; leaflets usually oblong or oblong-lanceolate, apex prolonged acuminate; stipules of cauline leaves lanceolate or oblong-lanceolate, mostly adnate to petiole ............................................................................................................... 72. *P. cryptotaenioides*
50b. Plants 20–50 cm tall; leaflets usually elliptic, obovate, rhombic, or flabellate, apex obtuse or acute; stipules of cauline leaves broadly ovate or ovate-elliptic, free part longer than adnate part.

51a. Stems spreading; stipules of cauline leaves submembranous, margin entire or serrate; peduncle leafy; flowers 0.6–0.8 cm in diam. .......................................................... 71. *P. centignana*

51b. Stems erect or ascending; stipules of cauline leaves herbaceous, margin entire; peduncle with minute, leaflike bracts; flowers 1–1.2 cm in diam. .......................................................... 75. *P. xizangensis*


多裂委陵菜 *duo lie wei ling cai*

Herbs perennial. Roots terete, slightly woody. Flowering stems ascending, sometimes spreading near ground, rarely erect, 3–40 cm tall, appressed or spreading pubescent or sericeous. Radical leaves 2.5–17 cm including petiole; stipules brown, membranous, abaxially pilose or glabrescent; petiole appressed or spreading pubescent; leaf blade pinnate with (2 or)3–5(or 6) pairs of leaflets; leaflets opposite, rarely alternate, at intervals of 3–8 mm, sessile, elliptic to obovate, 5–20 × 3–8 mm, distal leaflets larger than proximal ones, abaxially white tomentose, appressed sericeous-villosus on veins, adaxially appressed pubescent, densely appressed villous, or rarely glabrescent, midvein and lateral veins convex, margin revolute, pinnately parted almost to midvein, apex acute or ligulate; segments fasciated, fasciated lanceolate, or ligulate fasciated; cauline leaves 2 or 3; stipules green, ovate or ovate-lanceolate, herbaceous, apex acute or acuminate, 2-fid or entire; leaf blade resembling that of radical leaves but leaflets fewer higher up stem. Inflorescence corymbose-cymose, elongated and lax after flowering. Flowers 1.2–1.5 cm in diam.; pedicel 1.5–2.5 cm, pubescent. Sepals triangular-ovate, apex acute or acuminate; epicalyx segments lanceolate or elliptic-lanceolate, slightly shorter than sepals, appressed villous, apex obtuse or acute. Petals yellow, obovate, equaling sepals, apex emarginate. Style subterminal, conic, base thickened, papillate; stigma slightly enlarged. Achenes smooth or rugose. Fl. and fr. May–Aug.

Forest margins, meadows on mountain slopes, ravines; 1200–4300 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [Asia, Europe, North America].

1a. Stems spreading near ground, 3–8 cm tall .................................................. 33c. var. *nubigena*

1b. Stems ascending, rarely erect, 12–40 cm tall.

2a. Cauline leaves pinnate with up to 5 pairs of leaflets ............................... 33a. var. *multifida*

2b. Cauline leaves pinnate or appearing palmate with 5 pairs of leaflets densely inserted at petiole apex .......................................................... 33b. var. *ornithopoda*

33a. *Potentilla multifida* var. *multifida*

多裂委陵菜 (原变种) *duo lie wei ling cai (yuan bian zhong)*

*Potentilla hypoleuca* Turczaninow; *P. multifida* var. *angustifolia* Lehmann; *P. multifida* var. *hypeuca* (Turczaninow) Th. Wolf; *P. plurijuga* Handel-Mazzetti.

Flowering stems ascending, rarely erect, 12–40 cm tall. Cauline leaves pinnate with up to 5 pairs of leaflets. Fl. and fr. May–Aug.

Forest margins, meadows on mountain slopes, ravines; 1200–4300 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [Asia, Europe, North America].

This variety is used medicinally.


矮生多裂委陵菜 *zhang ye duo lie wei ling cai*

*Potentilla ornithopoda* Tausch, Hort. Canal. t. 10. 1823; *P. multifida* var. *subpalmata* Krylov.

Flowering stems ascending, 12–40 cm tall. Cauline leaves pinnate or appearing palmate with 5 pairs of leaflets densely inserted at petiole apex.

Forest margins, meadows, grassy mountain slopes, ravines, sandy river banks; 700–4800 m. Gansu, Hebei, Heilongjiang, Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, Xizang [Mongolia, Russia].


多裂委陵菜 *duo jing wei ling cai*


Herbs perennial. Roots robust, terete. Flowering stems many, tufted, ascending or spreading, usually dark reddish, 7–35 cm tall, white villous or pubescent. Radical leaves 3–10 cm including petiole; stipules brown, membranous, abaxially white villous; petiole dark red, white villous; leaf blade pinnate with 4–6(–8) pairs of leaflets; leaflets opposite, rarely alternate, at intervals of 3–8 mm, sessile, elliptic to obovate, 5–20 × 3–8 mm, distal leaflets much larger than proximal ones, abaxially white tomentose, sparsely white villous on veins, adaxially sparsely appressed pilose, rarely glabrescent, main veins slightly concave, margin flat or slightly revolute, pinnately parted,
apot leaves resembling radical ones but leaflets fewer; stipules green, herbaceous, margin entire, apex acuminate. Inflorescence cymose, many flowered, compact initially, lax after anthesis. Flowers 0.8–1(–1.3) cm in diam. Sepals triangular-ovate, apex acute; epicalyx segments linear-lanceolate, ca. 1/2 as long as sepals, apex rounded. Petals yellow, obovate or suborbicular, slightly longer than to 2 × as long as sepals, apex emarginate. Style subterminal, cylin- dic, base thickened. Achenes ovoid, rugose. Fl. and fr. Apr–Sep.

Thinned forests, meadows, shady places in ravines, sunny gravelly slopes, field margins; 200–3000 m. Gansu, Hebei, Henan, Liaoning, Nei Mongolia, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang [Mongolia].

35. Potentilla pamiralaica Juzepczuk in Komarov, Fl. URSS 10: 609. 1941. 高原委陵菜 gao yuan wei ling cai

Herbs perennial. Roots robust, terete. Rhizome usually multipetiolate, densely covered with brown relics of stipules. Flowering stems usually ascending, rarely erect, 5–22 cm tall, appressed white villous, hairs subsplaying in lower part. Radical leaves 3–10 cm including petiole; stipules brown, membranous, abaxially white sericeous, rarely glabrescent; petiole appressed white pilose; leaf blade pinnate, very rarely palmate, with 3–5 pairs of leaflets; leaflets opposite or alternate, at intervals of 3–5 mm, sessile, adaxially green or grayish, ovate or obovate-oblong, 5–13 × 3–7 mm, distal leaflets larger than proximal ones, abaxially densely white tomentose, densely white sericeous-villous on veins, adaxially densely appressed white villous, margin flat, pinnately parted, apex obtuse; segments oblance-linear; calyx leaves 1 or 2; stipules green, ovate or obovate-lanceolate, herbaceous, margin entire. Inflorescence lax, few flowered. Flowers 1.2–1.5 cm in diam.; pedicel 1.5–3 cm, densely appressed villous. Sepals triangular-lanceolate or ovate-lanceolate, apex acute or acuminate; epicalyx segments lanceolate or elliptic-lanceolate, shorter than or rarely equally equaling sepals, apex obtuse. Petals yellow, ovate, longer than sepals, apex emarginate. Style subterminal, base slightly thickened. Achenes smooth. Fl. and fr. Jun–Aug.

Mountain slopes, shady places in river valleys; 3300–4700 m. Xinjiang, Xizang [C Asia].


Herbs perennial. Roots robust, terete. Rhizome multipetiolate. Flowering stems densely tufted, erect, ascending, or spreading, 3–7 cm tall, white pilose, sometimes glabrescent. Radical leaves 1.5–3 cm including petiole; stipules brown, membranous, pilose or glabrescent; petiole white pilose; leaf blade pinnate with (3 or) 4 to 5 pairs of leaflets; leaflets opposite or alternate, elliptic or obovate-elliptic, abaxially densely white sericeous or glabrescent, abaxially appressed white villous, margin flat, pinnately parted almost to midvein, apex obtuse; segments 1–3 on each side of midvein, fasciated ligulate; cauline leaves reduced; stipules green, herbaceous, margin entire; leaf blade palmate or subpinnate; leaflets resembling those of radical leaves. Inflorescence cymose, 1– to several flowered. Flowers 0.7–1.2 cm in diam. Sepals elliptic-lanceolate or triangular-ovate, apex acute or acuminata; epicalyx segments narrowly fasciated, usually ca. 1/2 as long as sepals, abaxially pubescent and sparsely pilose. Petals yellow, obovate, ca. 1/2 as long as sepals, apex emarginate. Stamens ca. 20. Carpels numerous; style subterminal, ca. 1.5 × as long as ovary, base thickened, papillate; stigma dilated, capitulate. Achenes not seen. Fl. Jul.

Mountain slopes, sandy river banks; 4000–5200 m. Qinghai, Xizang.


Herbs perennial. Roots robust, terete, woody. Flowering stems spreading or ascending, 4–30 cm tall, spreading white sericeous-villous. Radical leaves 2–7 cm including petiole; stipules brown, membranous, abaxially white villous, rarely glabrescent; petiole white tomentose and white villous; leaf blade pinnate with 6–9 pairs of leaflets; leaflets opposite or alternate, at intervals of 2–4 mm, sessile, elliptic, 3–15 × 2–8 mm, abaxially white tomentose, sometimes glabrescent, densely appressed white villous on veins, adaxially appressed white pubescent, margin slightly revolute, parted to midvein, apex obtuse; segments 3–5 on each side of midvein, fasciated; cauline leaves resembling radical ones but only with 3–5 pairs of leaflets; stipules green, ovate or obovate-lanceolate, herbaceous, abaxially densely appressed villous, margin 2–4-dentate-loded or serrate, apex acuminata. Inflorescence densely or laxly corymbosely-cymose, 3–10–flowered. Flowers 1.5 cm in diam. Sepals ovate or triangular-ovate, apex acute or acuminate; epicalyx segments obovate-lanceolate, slightly shorter than sepals, abaxially densely pubescent or villous, apex obtuse or acute. Petals yellow, obovate, ca. 2 × as long as sepals, apex emarginata. Stamens ca. 20. Carpels numerous; ovary suberiform; style subterminal, base inconspicuously thickened; stigma slightly dilated, capitulate. Achenes ovoid-ellipsoid, smooth, abaxially swollen. Fl. and fr. Jun–Aug.

Open places in forests, meadows, terraces in valleys, grassy alpine slopes; 2500–4000 m. Gansu, Qinghai, Sichuan, Xizang.

38. Potentilla sericea Linnaeus, Sp. Pl. 1: 495. 1753. 毛委陵菜 jian mao wei ling cai

Herbs perennial. Roots robust, slightly woody. Flowering stems erect or ascending, 5–20 cm tall, together with petioles spreading white sericeous-villous. Radical leaves 3–8 cm including petiole; stipules brown, membranous, abaxially sericeous or villous; leaf blade pinnate with 2–6 pairs of leaflets; leaflets opposite, rarely alternate, at intervals of 3–5 mm or adjacent, sessile, adaxially green, oblong, usually 5–15 × 3–8 mm, distal leaflets larger than proximal ones, abaxially white tomentose and white sericeous, adaxially appressed sericeous, margin revolute or not, pectinately parted, apex obtuse or acute; segments linear; calyx leaves 1 or 2; stipules green, ovate, herbaceous, abaxially villous, margin acutely serrate, rarely entire, apex acuminata. Inflorescence laxly cymose. Flowers 0.8–2.2
cm in diam.; pedicel 1–2 cm, densely pubescent and villous. Sepals triangular-ovate, apex acute; epicalyx segments lanceolate, slightly shorter than or rarely nearly equaling sepal, apex obtuse or acute. Petals yellow, obovate, slightly longer than sepals, apex emarginate. Style subterminal, base thickened. Achenes brown, cylindric-ovoid, rugose. Fl. and fr. May–Sep.


Thickets, grasslands, dry mountain slopes, ravines, loess hills, waste places; 200–3600 m. Gansu, Hebei, Heilongjiang, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan [Mongolia].


Herbs perennial. Roots cylindrical. Flowering stems tufted,
Potentilla chinensis

42. Potentilla chinensis

42a. Potentilla chinensis var. chinensis

42b. Potentilla chinensis var. lineariloba

Potentilla limprichtii

41. Potentilla limprichtii

42a. Potentilla chinensis var. chinensis

42b. Potentilla chinensis var. lineariloba

43. Potentilla conferta
Herbs perennial. Roots terete, woody. Flowering stems erect, ascending, or low and spreading, 4–45 cm tall, together with petioles pubescent and spreading white sericeous-villos, hairs to 4 mm. Radical leaves 2–20 cm including petiole; stipules brown, submembranous, abaxially white sericeous-villos; leaf blade pinnate with 3–6 pairs of leaflets; leaflets opposite or alternate, at intervals of 3–5 mm, lanceolate or oblong-elliptic, 1–5 × 0.5–2 cm, abaxially canescent tomentose, spreading white sericeous on veins, axadially appressed pubescent, pilose, or glabrescent, margin revolute, sometimes inconspicuously so, pinnatifid or pinnately parted, apex obtuse or acute; segments usually triangular-oblong, triangular-lanceolate, or fasciated oblong, often dilated at base; cauline leaves resembling radical ones but with fewer leaflets; stipules green, herbaceous, margin dentate lobed or not, apex acuminate. Inflorescence cymose, 3- to many flowered. Flowers 1–1.5 cm in diam.; pedicel 1–2.5 cm, densely pubescent. Sepals triangular-ovate or elliptic, apex acute or acuminate; epicalyx segments lanceolate or oblong-lanceolate, slightly shorter than sepals, markedly dilated in fruit, apex obtuse or acute. Petals yellow, obovate, slightly longer than sepals, apex rounded or emarginate. Style conic, base thickened; stigma slightly dilated. Achenes ovoid or hemispheric, ca. 1 mm in diam., rugose, rarely inconspicuously so. Fl. and fr. Jun–Sep. 

1a. Stems erect or ascending, 20–45 cm tall; radical leaves 6–20 cm including petiole; leaf blade with 3–6 pairs of leaflets; leaflets pinnatifid but not parted to midvein; cymes 3–5-flowered. Flowers ca. 1 cm in diam. Fl. and fr. Jun–Sep. 

1b. Stems low and spreading, 4–6 cm tall; radical leaves 2–3 cm including petiole, leaf blade with 3 pairs of leaflets, leaflets pinnately parted; cymes 3–5-flowered; flowers ca. 1 cm in diam. 43a. var. conferta 43b. var. trijuga

43a. Potentilla conferta var. conferta

大薭委陵菜（原变种） da e wei ling cai (yuan bian zhong)

Potentilla approximata Bunge; P. pensylvanica Linnaeus var. conferta (Bunge) Ledebour; P. sibirica Th. Wolf. var. longipila Th. Wolf.

Stems erect or ascending, 20–45 cm tall. Radical leaves 6–20 cm including petiole; leaf blade with 3–6 pairs of leaflets; leaflets pinnatifid but not parted to midvein. Cymes few to many flowered. Flowers 1.2–1.5 cm in diam. Fl. and fr. Jun–Sep.

Thickets, meadows on mountain slopes, ravines, field margins; below 3500 m. Gansu, Hebei, Heilongjiang, Nei Mongol, Shanxi, Sichuan, Xizang, Yunnan [Mongolia, Russia].

44. Potentilla strigosa Pallas ex Pursh, Fl. Amer. Sept. 1: 356. 1814.

矮毛委陵菜 rong mao wei ling cai

Potentilla pensylvanica Linnaeus var. strigosa (Pallas ex Pursh) Lehmann; P. sibirica Th. Wolf.

Herbs perennial. Roots robust, terete, woody. Flowering stems erect, tinged yellow or gray, 10–50 cm tall, together with petioles spreading pilose and strigose. Radical leaves 5–10 cm including petiole; stipules yellow-brown, membranous, abaxially strigose and pubescent; leaf blade pinnate with 3 or 4 pairs of leaflets; leaflets opposite or alternate, at intervals of 1–1.5 cm, adaxially yellowish or grayish green, oblong, obovate-oblong, or obovate-lanceolate, 2.5 × 0.5–1.5 cm, axadially densely strigose and pubescent, densely villous aling midvein and lateral veins, base cuneate or broadly so, margin pectinate, apex obtuse; lobes fasciated oblong or oblong-lanceolate; cauline leaves resembling radical ones but petiole shorter and leaflets fewer higher up stem; stipules yellowish green, herbaceous, margin dentate-parted. Inflorescence corymbose-cymose, compact, many flowered. Flowers ca. 1 cm in diam.; pedicel 0.8–1.5 cm, strigose and pubescent. Sepals triangular-ovate, apex acute; epicalyx segments elliptic-lanceolate, nearly equaling sepals, markedly dilated in fruit, axadially densely strigose and pubescent, apex acute. Petals yellow, obovate, slightly longer than sepals, apex rounded or emarginate. Style subterminal, base thickened. Achenes ellipsoid-reniform, markedly rugose. Fl. and fr. Jun–Aug.

Grassy mountain slopes, dunes; 600–700 m. Heilongjiang, Nei Mongol, Xinjiang [Mongolia, Russia].


翻白草 fan bai cao

Potentilla discolor var. formosana (Hance) Franchet; P. formosana Hance.

Herbs perennial. Roots robust, lower parts often enlarged and fusiform. Flowering stems erect, ascending, or subspreading, 10–45 cm tall, together with petioles densely white lanate, sometimes also villous. Radical leaves 4–20 cm including petiole; stipules brown, membranous, white villous; leaf blade with 2–4 pairs of leaflets; leaflets opposite or alternate, at intervals of 0.8–1.5 cm, axadially dark green, oblong or oblong-lanceolate, 1.5 × 8–8 mm, axadially densely white or grayish white lanate, inconspicuously veined, adaxially sparsely white lanate or glabrescent, base cuneate, broadly cuneate, or obliquely rounded, margin obtusely serrate, rarely acutely so, apex obtuse, rarely acute; cauline leaves 1 or 2; stipules green, ovate or broadly so, herbaceous, axadially densely white lanate, margin incised dentate, rarely entire; leaf blade palmately 3–5-foliate. Inflorescence cymose, laxly several to many flowered.
Potentilla potaninii


Flowers 1–2 cm in diam.; pedicel 1–2.5 cm, lanate. Sepals triangular-ovate; epicalyx segments lanceolate, shorter than sepals, abaxially white lanate. Petals yellow, ovoborate, longer than sepals, apex rounded or emarginate. Style subterminal, base thickened, papillate; stigma slightly dilated. Achenes subreniform, ca. 1 mm wide, smooth. Fl. and fr. May–Sep.

Sparse forests, meadows, valleys, ravines. Anhui, Fujian, Gansu, Guangdong, Hebei, Heilongjiang, Henan, Jiangxi, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Japan, Korea].

This species is used medicinally.


华西委陵菜 hua xi wei ling cai

Herbs perennial. Roots usually branched. Flowering stems tufted, erect or ascending, 10–30 cm tall, together with petals spreading villous and pubescent or tomentose. Radical leaves 3–10 cm including petiole; stipules brown, membranous, abaxially pilose; leaf blade pinnate with 2 or 3 pairs of leaflets; leaflets opposite, at intervals of 0.8–1.2 cm, sessile or subsessile, adaxially green, elliptic or obovate-elliptic, 0.5–2.5 × 0.5–1.5 cm, abaxially white lanate, appressed villous on veins, white tomentose and pilose, base cuneate, margin obtusely or acutely serrate, or pectinately parted, apex obtuse; teeth oblong or segments fasciated ligulate; cauline leaves: stipules green, lanceolate or ovate-lanceolate, herbaceous, abaxially white tomentose and pilose, margin entire, apex acuminate; leaf blade pinnate with 2 pairs of leaflets, or 3-foliolate. Inflorescence cymose, laxly many flowered. Flowers 1–1.5 cm in diam.; pedicel 1–2.5 cm, white tomentose. Sepals ovate-lanceolate or oblong-ovate, apex acuminate; epicalyx segments lanceolate or elliptic-lanceolate, nearly equaling or rarely slightly shorter than sepals, abaxially pilose. Petals yellow, oblong, 0.5–1 × as long as sepals, abaxially white tomentose. Style subterminal, base slightly thickened; stigma dilated. Achenes smooth. Fl. and fr. Jun–Sep.

Forests, forest margins, meadows on mountain slopes; 1700–4700 m. Gansu, Qinghai, Sichuan, Xizang, Yunnan [Bhutan].

1a. Leaflet margin obtusely or acutely serrate, teeth oblong

1b. Leaflet margin pectinately parted, segments fasciated ligulate

46a. Potentilla potaninii var. potaninii

华西委陵菜(原变种) hua xi wei ling cai (yuan bian zhong)


Forests, forest margins, meadows on mountain slopes; 1700–3000 m. Gansu, Qinghai, Sichuan, Xizang, Yunnan [Bhutan].


裂叶华西委陵菜 lie ye hua xi wei ling cai


- Meadows on mountain slopes; 3300–4700 m. Sichuan, Xizang.


柔毛委陵菜 rou mao wei ling cai

Herbs perennial. Roots robust, terete, sometimes much branched. Flowering stems erect or ascending, 10–60 cm tall, together with petals spreading villous and pubescent or tomentose. Radical leaves 3–10 cm including petiole; stipules brown, membranous, abaxially villous or glabrescent; leaf blade pinnate with 2 or 3 (or 4) pairs of leaflets; leaflets usually opposite, rarely proximal ones alternate, at intervals of 0.8–1.2 cm, sessile or sub sessile, adaxially green, elliptic or obovate-elliptic, 0.5–3 × 0.5–1.5 cm, abaxially white tomentose and villous, densely villous on veins, sometimes white tomentulum deciduous, adaxially apressed pilose, base cuneate or broadly so, margin obtusely or acutely incised serrate, apex obtuse, rarely acute; cauline leaves: stipules herbaceous, sometimes abaxially densely white tomentose and villous, margin 2- to 3-fid, dentate-lobed, or entire; leaf blade pinnate with 2 pairs of leaflets, or 3-foliolate; leaflets resembling those of radical leaves. Inflorescence corymbose-cymose, laxly few flowered. Flowers 1.5–2.5 cm in diam. Sepals triangular-ovate, apex acute to acuminate; epicalyx segments lanceolate, oblong-lanceolate, or oblong-elliptic, shorter than or nearly equaling sepals, green and pilose or sometimes white tomentose abaxially. Petals yellow, rarely white, obovate, 1–2 × as long as sepals, apex emarginate. Style subterminal, conic, base thickened; stigma minute, not dilated. Achenes smooth. Fl. and fr. May–Oct.

Forests, forest margins, meadows on mountain slopes; 2000–4000 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, Nepal, Sikkim].

1a. Flowering stems and petals spreading villous and pubescent; leaflets abaxially white tomentose and white villous, densely villous on veins, stipules of cauline leaves green, herbaceous, margin dentate-lobed or entire

1b. Flowering stems and petals spreading white villous, usually also interwoven white tomentose; leaflets abaxially densely white tomentose, appressed white villous on veins, stipules of cauline leaves abaxially densely white tomentose and villous, margin 2- or 3-fid or entire

47a. Potentilla griffithii var. *griffithii*

柔毛委陵菜(原变种) rou mao wei ling cai (yuan bian zhong)

**Potentilla leschenaultiana** Seringe var. *pumila* Franchet; *P. leschenaultiana* var. reticulata Franchet; *P. sikkimensis* Th. Wolf (1908), not Prain (1904).
Flowering stems and petioles spreading villous and pubescent. Leaflets abaxially white tomentose and white villous, densely villous on veins; stipules of cauleine leaves green, herbaceous, margin dentate-lobed or entire.

Forests, forest margins, meadows on mountain slopes; 2000–3600 m. Guizhou, Sichuan, Xizang, Yunnan [ Bhutan, Nepal, Sikkim].


长柔毛委陵菜 chang mou wei ling cai

Potentilla beauvaisii Cardot; P. leschenaultiana var. concolor Cardot.

Flowering stems and petioles spreading white villous, usually also interwoven white tomentose. Leaflets abaxially densely white tomentose, appressed white villous on veins; stipules of cauleine leaves abaxially densely white tomentose and villous, margin entire or 2- or 3-fid.

- Forest margins, mountain meadows; 3000–4000 m. Sichuan, Xizang, Yunnan.

This variety is used medicinally.


全白委陵菜 quan bai wei ling cai

Herbs perennial. Roots robust, terete. Flowering stems erect or ascending, 5–25 cm tall, together with petioles caneous tomentose and villous. Radical leaves 2–6 cm including petiole; stipules brown, membranous, sparsely villous; leaf blade pinnate with 2 pairs of leaflets; leaflets opposite, usually adjacent, sub sessile, adaxially green, oblong to obovate-oblong, 1–2.5 × 0.8–1.5 cm, abaxially densely crenate tomentose or villous, white tomentose and villous on veins, adaxially white pilose, base cuneate or broadly so, margin pectinatifid, apex obtuse; segments oblong, apex obtuse or acute; cauleine leaves undeveloped; stipules margin entire, rarely 2-fid. Inflorescence terminal, cymose, 3–7-flowered. Flowers 1.5–2 cm in diam. Sepals triangular-ovate, apex acuminate or acute; epicalyx segments linear-lanceolate, shorter than sepals, axially spreading sericeous-pilose, apex obtuse. Petals yellow, obovate, apex emarginate. Style subterminal, base thickened and papillate, or inconspicuously thickened; stigma dilated. Achenes smooth. Fl. and fr. May–Sep.

Alpine thickets, meadows on mountain slopes, grassy slopes, marsh margins, rocks; 1600–3400 m. Hebei, Jilin, Nei Mongol, Shanxi, Xinjiang [Japan, Korea, Mongolia, Russia; Europe].

49a. Potentilla nivea var. nivea

雪白委陵菜 xue bai wei ling cai (yuan bian zhong)

Potentilla nivea var. camtschatica Chamisso & Schlechtendal; P. nivea var. polyphylla Yong Zhang & Z. T. Yin.

Leaflet margin obtusely 3–6(or 7)-crenate on each side; style base thickened, papillate. Fl. and fr. Jun–Aug.

Alpine thickets, meadows on mountain slopes, marsh margins; 2100–3200 m. Hebei, Jilin, Nei Mongol, Shanxi, Xinjiang [Japan, Korea, Russia; Europe].

49b. Potentilla nivea var. elongata

多舌雪白委陵菜 duo chi xue bai wei ling cai

Potentilla crebridens Juzepczuk; P. nivea var. macrantha Ledebour.

Leaflet margin (6 or)7–14-serrate on each side; style base inconspicuously thickened. Fl. and fr. May–Sep.

Grassy slopes, rocks; 1600–3400 m. Hebei, Shanxi [Mongolia, Russia (Baikal region)].

50. Potentilla betonicifolia Poiret in Lamarck, Encycl. 5: 601. 1804.

白萼委陵菜 bai e wei ling cai

Potentilla leucophylla Pallas; P. nivea Linnaeus var. angustifolia Ledebour.

Herbs perennial. Roots robust, terete, usually woody. Flowering stems erect or ascending, 8–16 cm tall, together with petioles white tomentose when young, later glabrescent. Radical leaves 5–12 cm including petiole; stipules brown, membranous, abaxially white sericeous-villose; leaf blade 3-foliolate; leaflets sessile, adaxially green, oblong-lanceolate or ovate-lanceolate, 1–5 × 0.5–1.5 cm, leathery, abaxially densely white tomentose, sparsely sericeous-pilose along midvein, adax-
ialy white tomentose initially, later glabrescent, base cuneate or subrounded, margin obtusely or acutely coarsely many dentate, apex acute; cauline leaves undeveloped, bractlike; stipules minute, oblong-ovate, leathery, abaxially white tomentose, margin entire. Inflorescences cymose-paniculate, laxly many flowered. Flowers ca. 1 cm in diam.; pedicel 1–1.5 cm, white tomentose. Sepals triangular-ovate, apex acute; epicalyx segments lanceolate or elliptic, shorter than or nearly equaling sepal, abaxially white tomentose and pilose, apex acute. Petals yellow, obovate, apex rounded. Style subterminal, base thickened; stigma slightly dilated. Achenes rugose. Fl. and fr. May–Jun.

Meadows on mountain slopes, rock crevices; 700–1600 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol [Mongolia, Russia].


张北委陵菜 *zhang bei wei ling cai*

Herbs perennial. Roots black-brown, robust, terete. Flowering stems erect or ascending, 6–20 cm tall, densely white tomentose and sparsely villous when young, later glabrescent. Radical leaves 1.5–8 cm including petiole; stipules brown, membranous, abaxially villous; leaf blade palmately 3-foliolate, sometimes pinnately 5-foliolate; leaflets sessile; leaf blade palmately 3-foliolate, abaxially green, lanceolate or ovate-lanceolate, 0.5–3.5 × 0.2–1.5 cm (basal pair extremely small), abaxially densely white tomentose, adaxially sparsely pubescent or subglabrous, base cuneate, margin pinnately parted, apex acute; lobes triangular or linear-lanceolate; cauline leaves bractlike, small; stipules ovate, small, subleathery, abaxially white tomentose and pilose, margin entire. Inflorescence terminal, cymose. Flowers ca. 1 cm in diam.; pedicel 1–2.5 cm, densely tomentose and sparsely villous. Sepals ovate-lanceolate, ca. 4.5 × 3 mm, abaxially white tomentose and sparsely villous; epicalyx segments lanceolate, ca. 3 × 1 mm, abaxially white tomentose and sparsely villous. Petals yellow, obovate, ca. 5 mm, apex emarginate or obtuse. Receptacle densely villous. Style subterminal, base thickened; stigma slightly dilated. Achenes black-brown, ovoid, rugose. Fl. and fr. May–Aug.

● Grassly slopes; ca. 1600 m. NW Hebei (Zhangbei Xian).

One of us (Ohba) believes this species may be synonymous with *Potentilla betonicifolia*.


钉柱委陵菜 ding zhu wei ling cai

Herbs perennial. Roots robust, terete, rarely slender. Flowering stems erect or ascending, rarely low and tufted, 10–20 cm tall, together with petioles white tomentose and pilose. Radical leaves 2–5 cm including petiole; stipules brown, membranous, abaxially white villous or glabrescent; leaf blade subpinnately or palmately 3–7(or 8)-foliolate; leaflets sessile, adaxially green or grayish green, oblong-obovate, rarely broadly obovate, 0.5–2 cm × 4–10 mm, abaxially densely white tomentose, appressed pilose on veins, adaxially sparsely appressed pilose or densely appressed sericeous, base cuneate, margin slightly obtusely or acutely many incised serrate, rarely lobed to parted, apex obtuse, rarely acute; cauline leaves 1 or 2; stipules green, ovoid or ovate-lanceolate, herbaceous, abaxially white tomentose and pilose, margin usually entire, apex acute or acuminate; leaf blade 3–5-foliolate; leaflets resembling those of radical leaves. Inflorescence terminal, laxly cymose, 1(or 2)- or many flowered. Flowers 1–1.4 cm in diam.; pedicel 1–3 cm, white tomentose. Sepals triangular-ovate or triangular-lanceolate; epicalyx segments lanceolate or elliptic, shorter than or nearly equaling sepal, abaxially white tomentose and pilose, apex acute or 1–3(–5)-fid. Petals yellow, obovate, slightly longer than or ca. 2 × as long as sepal, apex emarginate. Style subterminal, base inconspicuously thickened; stigma slightly dilated. Achenes smooth. Fl. and fr. May–Aug.

Alpine thickets and meadows, gravel fields; 2600–5200 m. Gansu, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Bhutan, India, Nepal, Sikkim].

1a. Inflorescence 1(or 2)-flowered .......... 52d. var. *caespitosa*

1b. Inflorescence a many-flowered cyme.

2a. Radical leaves subpinnately

(3–)5–7(or 8)-foliolate ................ 52c. var. subpinnata

2b. Radical leaves palmately 3–5-foliolate.

3a. Leaflets adaxially green, sparsely appressed pilose; epicalyx segments shorter than or nearly equaling sepal, apex acute ................. 52a. var. *saundersiana*

3b. Leaflets adaxially grayish green, densely appressed sericeous; epicalyx segments nearly equaling sepal, apex 2 or 3(–5)-fid ............... 52b. var. *jacquemontii*

52a. *Potentilla saundersiana* var. *saundersiana*

钉柱委陵菜(原变种) ding zhuwei ling cai (yu an bian zhong)

*Potentilla griffithii* J. D. Hooker var. *pumila* (Franchet) Handel-Mazzetti; *P. leschenaultiana* Seringe var. *pumila* Franchet; *P. multifida* Linnaeus var. *saundersiana* (Royle) J. D. Hooker; *P. potaninii* Th. Wolf var. *subdigitata* Th. Wolf; *P. thibetica* Cardot.

Radical leaves palmately 3–5-foliolate; leaflets adaxially green, sparsely appressed pilose. Inflorescence many flowered. Epicalyx segments shorter than or nearly equaling sepal, apex acute.

Alpine thickets and meadows; 2600–5200 m. Gansu, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xizang, Yunnan [Bhutan, India, Nepal, Sikkim].


裂萼钉柱委陵菜 lie e ding zhuwei ling cai

*Potentilla forrestii* W. W. Smith.

Radical leaves palmately 3–5-foliolate; leaflets adaxially grayish green, densely appressed sericeous. Inflorescence many flowered. Epicalyx segments nearly equaling sepal, apex 2- or 3(–5)-fid.

● Alpine thickets and meadows; 3400–4100 m. Xizang, Yunnan.

羽叶钉柱委陵菜 *yu ye ding zhu wei ling cai*


Radical leaves subpinnately (3--)5–7(or 8)-foliolate. Inflorescence a many-flowered cyme. Epicalyx segments acute or 1- or 2-fid at apex.

- Alpine meadows, gravel fields; 3100–3600 m. Sichuan, Yunnan.


丛生钉柱委陵菜 *cong sheng ding zhu wei ling cai*


Plants low and tufted. Roots slender. Radical leaves usually 3-foliolate; leaflets broadly obovate, margin lobed to parted. Inflorescence 1(or 2)-flowered.

- Alpine thickets and meadows; 2700–5200 m. Gansu, Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, Yunnan, Xinjiang, Xizang.


垂花委陵菜 *chui hua wei ling cai*

Herbs perennial. Roots slender. Flowering stems erect or slightly curved at base, 16–30 cm tall, together with petioles grayish white tomentose and pilose. Radical leaves 3–10 cm including petiole; stipules brown, membranous, abaxially appressed villous; leaf blade 3-foliolate; leaflets sessile or terminal one shortly petiolulate, oblong-elliptic or obovate-elliptic, 1–3 × 0.7–1.5 cm, abaxially canescent tomentose, apex white on veins, adaxially appressed pilose, sometimes sparsely canescent tomentose; base cuneate or broadly so, margin acutely or obtusely 6–10-serrate, apex acute or obtuse; cauline leaves 1–3; stipules ovate-lanceolate, herbaceous, abaxially densely white tomentose and villous, margin entire, apex rarely 2- or 3-fid; leaflets resembling those of radical leaves. Inflorescence terminal, laxly cymose-corymbose, many flowered. Flowers 1.5–1.8 cm in diam.; pedicel 1–2.5 cm, tomentose. Sepals triangular-ovate, apex acuminate; epicalyx segments fasciated or lanceolate, nearly equaling sepals, abaxially appressed pilose, apex subobtuse or acuminate. Petals yellow, obovate, 0.5–1 × as long as sepals, apex emarginate. Style terminal, base prominently thickened; stigma slightly dilated. Achenes smooth. Fl. and fr. Jul–Sep.

- Meadows on mountain slopes; 3000–3500 m. Yunnan.

55. *Potentilla nervosa* Juzepczuk in Komarov, Fl. URSS 10: 610. 1941.

显脉委陵菜 *xian mai wei ling cai*

Herbs perennial. Roots robust, terete. Flowering stems erect or slightly curved at base, 16–30 cm tall, together with petioles grayish white tomentose and pilose. Radical leaves 3–10 cm including petiole; stipules brown, membranous, abaxially appressed villous; leaf blade 3-foliolate; leaflets sessile or terminal one shortly petiolulate, oblong-elliptic or obovate-elliptic, 1–3 × 0.7–1.5 cm, abaxially canescent tomentose, apex white on veins, adaxially appressed pilose, sometimes sparsely canescent tomentose; base cuneate or broadly so, margin acutely or obtusely 6–10-serrate, apex acute or obtuse; cauline leaves 1–3; stipules ovate-lanceolate, herbaceous, abaxially densely white tomentose and villous, margin entire, apex rarely 2- or 3-fid; leaflets resembling those of radical leaves. Inflorescence terminal, laxly cymose-corymbose, many flowered. Flowers 1.5–1.8 cm in diam.; pedicel 1–2.5 cm, tomentose. Sepals triangular-ovate, apex acuminate; epicalyx segments fasciated or lanceolate, nearly equaling sepals, abaxially appressed pilose, apex subobtuse or acuminate. Petals yellow, obovate, 0.5–1 × as long as sepals, apex emarginate. Style terminal, base prominently thickened; stigma slightly dilated. Achenes not seen. Fl. and fr. Jun–Jul.

Forest margins, grassy slopes; 1900–2500 m. Xinjiang [Russia].


脱绒委陵菜 * tuo rong wei ling cai*

Herbs perennial. Roots terete. Flowering stems erect or ascending, 15–30 cm tall, sparsely pilose or glabrescent. Radical leaves 5–15 cm including petiole; stipules brown, membranous, abaxially pilose; petiole sparsely pilose, sometimes sparsely glandular hairy; leaf blade 3-foliolate; leaflets adaxially green, broadly obovate or rhombic-elliptic, 1.5–4.5 × 1–3 cm, abaxially initially canescent tomentose, later glabrescent, villous and glandular along midvein, adaxially pilose and glandular, base broadly cuneate or subrounded, margin obtusely 3–6-incised serrate or lobed, apex obtuse; cauline leaves: stipules brown, obovate, herbaceous, abaxially pilose and glandular, mar-
Potentilla argyrophylla


2- or 3-flower-ceolate, herbaceous, abaxially tomentose and villous, margin serrate, apex obtuse or acuminate. Style subterminal, base thickened; stigma slightly dilated. Achenes rugose. Fl. and fr. Jun–Sep.

Stream sides, alpine rock crevices; 2000–2600 m. Xinjiang [Mongolia, Russia (Siberia); C Asia].


**Potentilla argyrophylla** var. argyrophylla

1a. Stems erect or ascending; radical leaves 5–10 cm including petiole; stipules brown, membranous, abaxially appressed white sericeous, later glabrescent; leaf blade 3-foliolate; leaflets sessile or terminal one very shortly petiolulate, oblong-obovate, abaxially densely silvery tomentose and villous, margin entire, apex acuminate. Inflorescence terminal, 2- or 3-flowered. Flowers ca. 2 cm in diam.; pedicel 2–2.5 cm, tomentose and glandular hairy. Sepals ovate-oblong or triangular-lanceolate, abaxially appressed white sericeous, later glabrescent; leaf blade pinnatifid, segments 2–4(or 5) on each side; epicalyx segments linear-lanceolate, abaxially pilose and glandular hairy. Petals yellow, obovate, slightly longer than or nearly 2 × as long as sepals, apex obtuse or acute. Style subterminal, base thickened; stigma slightly dilated. Achenes rugose. Fl. and fr. Jun–Sep.

Sunny mountain slopes, valleys, grasslands, flood lands; 1000–1700 m. Gansu, Qinghai, Xinjiang [Mongolia].

58. Potentilla virgata Lehmann, Monogr. Potentill. 75. 1820.

**Potentilla virgata** var. virgata

1a. Stems erect or ascending; radical leaves 5-foliolate, segments 5–8 on each side; inflorescences many flowered. Fl. and fr. Jun–Sep.

1b. Stems low and spreading, almost on ground, or ascending; radical leaves 3–5-foliolate, segments 2–4(or 5) on each side; inflorescences few flowered. Fl. and fr. Jun–Sep.

58a. Potentilla virgata var. virgata


Grasslands, Gobi desert sands; 1500–1700 m. Xinjiang [Mongolia].


- Sunny mountain slopes, valleys, grasslands, flood lands; 1000–3700 m. Gansu, Qinghai, Xinjiang.

**Potentilla dealbata** Bunge.


Grasslands, Gobi desert sands; 1500–1700 m. Xinjiang [Mongolia].


窄裂委陵菜 zhai lie wei ling cai

Herbs perennial. Roots terete, upper parts thick, lower parts prolonged, slender. Flowering stems spreading or ascending, 8–30 cm tall, together with petioles sparsely villous or hirtellous. Radical leaves 3–12 cm including petiole; stipules dark brown, membranous, pilose or glabrescent; leaf blade palmately 5-foliolate; leaflets obovate-elliptic or oblong-elliptic, abaxially densely white tomentose, appressed white villous on veins, adaxially appressed pilose or glabrescent, margin 2–4-parted to midvein, apex acute or acuminate; segments fasciated, 0.5–1.5 cm × 0.8–1 mm, apex acute or acuminate; cauline leaves 1–3, resembling radical ones but petioles becoming shorter higher up stem; stipules green, ovate-lanceolate, herbaceous, abaxially densely appressed villous, margin entire or 1- or 2-dentate; leaflet margin 3–5-fid. Inflorescence terminal, corymbose-cymose, 3–12-flowered. Flowers 0.8–1 cm in diam.; pedicel 0.5–1 cm, appressed villous. Sepals triangular-ovate or ovate-oblong, apex acuminate; epicalyx segments fasciated lanceolate, slightly shorter than sepals, abaxially appressed villous, apex acute. Petals yellow, obovate, nearly equaling or longer than sepals, apex emarginate. Stamens ca. 20. Carpels numerous; style subterminal, base thickened; stigma slightly dilated. Achenes not seen. Fl. and fr. Jun–Sep.

- Grasslands, valleys, sandy river banks; 2500–3200 m. Gansu, Qinghai, Xinjiang.


银背委陵菜 yin bei wei ling cai

Herbs perennial. Roots robust, terete. Flowering stems erect or ascending, 15–40 cm tall, together with petioles white tomentose and sparsely villous. Radical leaves 2–10 cm including petiole; stipules brown, membranous, abaxially white pilose and pubescent; leaf blade palmately 5-foliolate; leaflets adaxially green, oblong-obovate, 1–3 × 0.5–1 cm, abaxially densely white tomentose, adaxially appressed pilose, base cuneate, margin revolute, proximally entire, distally irregularly 2–5-serrate on each side; cauline leaves many, resembling radical ones but petioles becoming shorter higher up stem, uppermost leaves sessile; stipules green, ovate-lanceolate, herbaceous, abaxially densely white tomentose, apex acuminate, entire or 2- or 3-dentate. Inflorescence terminal, corymbose-cymose or paniculate-cymose, laxly many flowered. Flowers ca. 1 cm in diam.; pedicel 1.5–3 cm, appressed pubescent. Sepals triangular-ovate, apex acute to acuminate; epicalyx segments linear-lanceolate, shorter than or rarely nearly equaling sepals, abaxially villous and pubescent, apex acute. Petals yellow, ovate, slightly longer than sepals, apex emarginate or subrounded. Style subterminal, base thickened; stigma slightly thickened. Achenes rugose. Fl. and fr. Jun–Sep.

- Wet places on mountain slopes, flood lands; 1000–1300 m. Xinjiang [C Asia, C and S Europe].


荽叶委陵菜 sui ye wei ling cai

Herbs perennial. Roots robust, terete. Rhizome enlarged. Flowering stems erect or ascending or low and tufted, 4–13 cm tall, together with petioles pilose or glabrescent. Radical leaves 7–16 cm including petiole; stipules brown, membranous, subglabrous; leaf blade pinnate with 2–8 pairs of leaflets; leaflets opposite, at intervals of 5–8 mm, subsessile, abaxially densely appressed villous, or glabrescent and hairy only along midvein, adaxially sparsely appressed pilose or later glabrescent, margin pectinate to midvein; segments fasciated to fasciated lanceolate, apex acuminate; cauline leaves 1 or 2; stipules green, herbaceous, abaxially appressed villous, margin dissected into linear segments; leaf blade 2-pinnately dissected into linear segments. Inflorescence terminal, 1–3(–5)-flowered. Flowers 0.8–1.5 cm in diam.; pedicel 1.5–3 cm, appressed pubescent. Sepals triangular-ovate, apex acute to acuminate; epicalyx segments lanceolate, nearly equaling sepals, abaxially appressed pilose, apex acute or acuminate. Petals white and purple-red at base or yellow throughout, obovate, nearly 1/2 as long as sepals, apex emarginate. Style subterminal, base slightly thickened; stigma dilated. Achenes smooth. Fl. and fr. Jul–Sep.

- Meadows on mountain slopes, rock crevices; 3300–4200 m. Sichuan, Xizang, Yunnan [Bhutan, Myanmar, Nepal, Sikkim].

1a. Stems erect or ascending; leaflets in 5–8 pairs; inflorescence 2- or 3(–5)-flowered; petals white, purple-red at base .......................... 62a. var. coriandrifolia

1b. Stems low and tufted; leaflets usually in 2–4 pairs; inflorescence 1–3(–5)-flowered; petals yellow throughout, not purple-red at base ........ 62b. var. dumosa
62a. *Potentilla coriandrifolia* var. *coriandrifolia*

Stems erect or ascending. Leaflets in 5–8 pairs. Inflorescence 2- or 3- (5)-flowered. Petals white, purple-red at base.

Meadows on mountain slopes; 4100–4200 m. Xizang [Bhutan, Nepal, Sikkim].


丛生委陵菜 cong sheng sui ye wei ling cai

*Potentilla dumosa* (Franchet) Handel-Mazzetti; *P. dumosa* subsp. *salwinensis* Soják; *P. dumosa* var. *stromatodes* (Melchior) H. R. Fletcher; *P. pulvinata* (T. T. Yu & C. L. Li) Soják; *P. salvinensis* (Soják) Soják; *P. salvinensis* var. *latiuscula* Soják; *P. salvinensis* var. *parviflora* Soják; *P. stromatodes* Melchior; *Sibulada pulvinata* T. T. Yu & C. L. Li.


Alpine meadows, rock crevices; 3300–4500 m. Sichuan, Xizang, Yunnan [Myanmar].


白背委陵菜 bai bei wei ling cai

Herbs perennial. Roots robust, terete. Rhizomes often enlarged. Flowering stems tufted, ascending, 5–16 cm tall, recurved white villous. Radical leaves 6–10 cm including petiole; stipules brown, membranous, abaxially white pilose, apex acuminate; petiole villous; leaf blade 3-foliolate or subpinnate; terminal leaflet shortly petiolulate, lateral ones sessile or sub-sessile, all leaflets orbicular to ovate, 1–3 cm, abaxially sparsely white villous, adaxially densely white sericeous, margin irregularly parted or lobed, or pinnately parted; usually 2-parted on lateral leaflets; segments acute at apex; cauleine leaves 1 or 2; stipules herbaceous, abaxially white sericeous, margin parted into acuminate segments; leaflet margin parted into linear-lanceolate, acuminate segments. Inflorescence cymose, (1 or) 2- to 3-flowered. Flowers 0.6–1.3 cm in diam.; pedicel 1.5–3 cm, pubescent and glandular. Sepals triangular-ovate, apex acute; epicalyx segments elliptic-lanceolate, shorter than or nearly equaling sepals, abaxially densely appressed villous, apex acute. Petals yellow, obovate, nearly 1/2 as long as sepals, apex emarginate. Style subterminal, base slightly thickened; stigma not dilated. Achenes smooth. Fl. and fr. Aug–Sep.

● Thickets on grassy slopes, meadows on mountain slopes, rocky slopes; 3900–4800 m. Xizang, Yunnan.


Radical leaves subpinnate; terminal leaflet pinnately parted.

● Thickets on grassy slopes, meadows on mountain slopes, rocky slopes; 3900–4800 m. Xizang, Yunnan.


腺粒委陵菜 xian li wei ling cai

Herbs perennial. Roots robust, terete. Flowering stems erect or ascending, 10–20 cm tall, together with petioles pilose, pubescent, and glandular hairy. Radical leaves 4–10 cm including petiole; stipules dark brown, membranous, abaxially pilose, pubescent, and glandular; leaf blade pinnate with 4–8 pairs of leaflets; leaflets opposite or alternate, at intervals of 3–8 mm, elliptic, oblong, or oblong-lanceolate, usually 1–2 × 0.5–1 cm, abaxially pubescent and glandular, adaxially pilose and granular glandular, base ± decurrent and adnate to rachis in apical 2 or 3 pairs of leaflets, margin pinnately parted nearly to midvein; segments fasciated, apex obtuse; cauleine leaves resembling radical ones but leaflets reduced to 2 pairs in upper leaves; stipules green, herbaceous, abaxially pilose and glandular, margin entire or 1- or 2-fid, apex acuminate. Inflorescence laxly corimbosely-cymose. Flowers ca. 1.5 cm in diam.; pedicel 1–3.5 cm, pubescent and glandular. Sepals triangular-ovate, apex acute; epicalyx segments elliptic-lanceolate, shorter than or nearly equaling sepals, pilose and granular glandular, apex obtuse or acute. Petals yellow, broadly obovate, 0.5–1 × as long as sepals, apex emarginate. Stamens ca. 20. Carpels numerous; style thickened at base; stigma dilated. Achenes not seen. Fl. and fr. Jul–Aug.

● Alpine meadows; 3400–4200 m. Sichuan, Xizang.


菊叶委陵菜 ju ye wei ling cai

*Potentilla acerata* Soják; *P. filipendula* Willdenow ex Schlechtendal; *P. nudicaulis* Willdenow ex Schlechtendal; *P. strigosa* Pallas var. *conferta* Kitagawa; *P. tanacetifolia* f. *decumbens* Krylov; *P. tanacetifolia* var. *decumbens* (Krylov) Th. Wolf; *P. tanacetifolia* f. *erecta* Krylov; *P. tanacetifolia* var. *erecta* (Krylov) Th. Wolf.

Herbs perennial. Roots robust, terete. Flowering stems erect or ascending, 15–65 cm tall, together with petioles villous, pubescent, or floccose and sparsely glandular with hairs sometimes deciduous. Radical leaves 5–20 cm including petiole; stipules brown, membranous, abaxially pilose; leaf blade pinnate with 5–8 pairs of leaflets; leaflets alternate or opposite, at

Herbs perennial. Roots robust, terete. Flowering stems erect or slightly ascending, 30–90 cm tall, together with petioles villous, pubescent, and glandular. Radical leaves 10–30 cm including petiole; stipules brown, membranous, abaxially pubescent and villous; leaf blade pinnate with 4 or 5 pairs of leaflets; leaflets opposite, rarely alternate, sessile, oblong-lanceolate or oblong-cuneate, 1.5–5 × 0.5–2.5 cm, abaxially pubescent and glandular, pilose on veines, adaxially pilose or glabrescent, base deciduous and adnate to rachis in apical 1–3 pairs of leaflets, margin incised serrate, apex obtuse; cauleine leaves resembling radical ones but with fewer leaflets; stipules green, leathery, abaxially pubescent or villous, margin deeply lacerate. Inflorescence corymbose-cymose, many-flowered. Flowers 1–1.5 cm in diam.; pedicel 0.5–2 cm, pubescent. Sepals triangular-ovate, apex acute or acuminata; epicalyx segments lanceolate or elliptic-lanceolate, shorter than or nearly equalling sepalas, abaxially pubescent and glandular hairy, apex obtuse or acute. Petals yellow, ovoblate, nearly 2 × as long as sepalas, apex emarginata. Style subterminal, conic, stigma slightly dilated. Achenes ovoid, ca. 2.5 mm, rugose. Fl. and fr. May–Oct.

Forest margins, grasslands, meadows on mountain slopes, loess plateau lands, low-lying and sandy lands, gravels; 400–2600 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanghai, Shanong, Shanyi [Mongolia, Russia (Siberia)].

This species is used medicinally.


This species is used medicinally.


Herbs annual, biennial, or perennial. Flowering stems prostrate or ascending, 10–50 cm tall, together with petioles
pilose or spreading villous, usually rooting at nodes and developing new plants. Radical leaves 3–20 cm including petiole; stipules tinged brown, membranous, abaxially pilose or glabrescent; leaf blade subpetately 5-foliolate; leaflets subsessile or shortly petiolulate, both surfaces green, obovate or oblong-ovate, 0.5–4 × 0.4–2 cm, both surfaces pilose, abaxially densely appressed villous on veins, adaxially sometimes glabrescent, base cuneate, margin acutely or obtusely many serrate, apex obtuse; lower cauline leaves 5-foliolate, upper ones 3-foliolate; stipules green, ovate or ovate-lanceolate, herbaceous, abaxially sparsely villous, margin entire, rarely acutely or acuminately 1- or 2-serrate; petiole gradually shorter up stem; leaflets resembling those of radical leaves. Inflorescence terminal, cymose, congested, pseudumbellate. Flowers 0.8–1 cm in diam.; pedicel 1–1.5 cm, densely spreading villous, bracteate. Sepals triangular-ovate, apex acute or acuminate; epicalyx segments lanceolate or elliptic-lanceolate, shorter than sepals at anthesis, nearly equalling or slightly longer than sepals in fruit, abaxially pilose, apex acute or acuminate. Petals yellow, obovate, longer than sepals, apex emarginate. Style subterminal, base thickened, papillate; apex acute. Petals yellow, obovate, slightly shorter than sepals, elliptic-lanceolate, nearly equaling or slightly longer than sepals in fruit, abaxially pilose, apex acute or acuminate. Achenes subglobose, flattened on 1 side, ca. 0.5 mm in diam., rugose. Fl. and fr. Apr.–Sep.

Meadows, grasslands on mountain slopes, field margins; 400–3000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hebei, Hunan, Jiangsu, Jiangxi, Liaoning, Shaanxi, Sichuan, Xizang, Yunnan, Zhejiang [Bhutan, India, Indonesia, Japan, Korea, Malaysia, Nepal, Sikkim].

This species is used medicinally.


朝天委陵菜  chao tian wei ling cai

Herbs annual or biennial. Roots slender, with sparse lateral rootlets. Flowering stems spreading, ascending, or erect, dichotomously branched, 20–50 cm tall, together with petioles pilose or glabrescent. Radical leaves 4–15 cm including petiole; stipules brown, membranous, abaxially pilose or glabrescent; leaf blade 3-foliolate or pinnate with 2–5 pairs of leaflets; leaflets alternate or opposite, sessile, or terminal leaflet shortly petiolulate or subsessile, both surfaces green, oblong or obovate-oblong, 1–2.5 × 0.5–1.5 cm, both surfaces pilose or glabrescent, base cuneate or broadly so, often deciduous and adnate to rachis in apical 1 or 2 pairs of leaflets, margin obtusely serrate, incised serrate, or 2- or 3-parted, apex obtuse or acute; cauline leaves resembling radical ones but pairs of leaflets fewer higher up stem; stipules green, herbaceous, margin entire, serrate, or parted. Inflorescence terminal, corymbose-cymose, with auxiliary flowers on lower part of flowering stem. Flowers 6–8 mm in diam.; pedicel 0.8–1.5 cm, densely pubescent. Sepals triangular-ovate, apex acute; epicalyx segments oblong-elliptic or elliptic-lanceolate, nearly equalling or slightly longer than sepals, apex acute. Petals yellow, obovate, slightly shorter than sepals, apex emarginate. Style subterminal, base thickened, papillate; stigma dilated. Achenes cylindrical, rugose, apex acute. Fl. and fr. Apr.–Sep.

Meadows, wet places on mountain slopes, sandy river banks, field margins; 100–2000 m. Anhui, Gansu, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Sichuan, Shandong, Shanxi, Xinjiang, Yunnan, Zhejiang [widespread in N hemisphere and subtropical regions].

1a. Flowering stems horizontally spreading, ascending, or erect; radical leaf blade pinnate with 2–5 pairs leaflets, leaflets sessile with base decurrent and adnate to rachis in apical 1 or 2 pairs, margin obtusely serrate or incised serrate .......... 70a. var. supina

1b. Flowering stems low and spreading or slightly ascending, rarely erect; radical leaf blade 3-foliolate, central leaflet shortly petiolulate or subsessile, margin often 2- or 3-parted ................. 70b. var. ternata

70a. Potentilla supina var. supina

朝天委陵菜(原变种) chao tian wei ling cai (yuan bian zhong)

Potentilla fauriei H. Léveillé; P. paradoxa Nuttall ex Torrey & A. Gray; P. supina var. egibbosa Th. Wolf; P. supina subsp. paradoxa (Nuttall ex Torrey & A. Gray) Sojak; P. supina var. paradoxa (Nuttall ex Torrey & A. Gray) Th. Wolf.

Flowering stems horizontally spreading, ascending, or erect. Radical leaf blade pinnate with 2–5 pairs leaflets; leaflets sessile with base decurrent and adnate to rachis in apical 1 or 2 pairs, margin obtusely serrate or incised serrate.

Meadows, wet places on mountain slopes, sandy river banks, field margins; 100–2000 m. Anhui, Gansu, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Sichuan, Shanxi, Xinjiang, Xizang, Yunnan, Zhejiang [widespread in N hemisphere and subtropical regions].


三叶朝天委陵菜 san ye chao tian wei ling cai

Potentilla amurenensis Maximowicz; P. supina var. campstris Cardot.

Flowering stems low and spreading or slightly ascending, rarely erect. Radical leaf blade 3-foliolate; central leaflet shortly petiolulate or subsessile, margin often 2- or 3-parted.

Sandy river banks, field margins, saline deserts; 100–1900 m. Anhui, Gansu, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Jiangsu, Jiangxi, Liaoning, Shaanxi, Shanxi, Sichuan, Xinjiang, Yunnan, Zhejiang [Russia (Far East)].


蛇莓委陵菜 she mei wei ling cai

Herbs annual or biennial. Rootlets numerous, fibrous. Flowering stems prostrate, ascending, or suberect, 20–50 cm tall, together with petioles glabrous or pilose, sometimes with adventitious roots at nodes in lower part. Radical leaves usually withered at anthesis; stipules brown, membranous, glabrous or pilose; leaf blade 3-foliolate; cauline leaves: stipules brown, membranous, abaxially pilose or glabrescent; leaf blade subpetate 5-foliolate; lower cauline leaves 5-foliolate, upper ones 3-foliolate; stipules green, ovate or ovate-lanceolate, herbaceous, abaxially densely appressed villous, base cuneate, margin obtusely serrate or incised serrate. Achenes subglobose, flattened on 1 side, ca. 0.5 mm in diam., rugose. Fl. and fr. Mar.–Oct.

Meadows, wet places on mountain slopes, sandy river banks, field margins, saline deserts; 100–2000 m. Anhui, Gansu, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hebei, Heilongjiang, Henan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Sichuan, Xinjiang, Xizang, Yunnan, Zhejiang [widespread in N hemisphere and subtropical regions].

ROSACEAE

Potentilla aegopodifolia H. Léveillé; P. cryptotaeniae var. obovata Th. Wolf; P. cryptotaeniae var. obtusata Th. Wolf.

Herbs annual or biennial. Roots fibrous. Flowering stems erect or ascending, 50–100 cm tall, hirsute, villous, or glabrescent. Radical leaves withered at anthesis; stipules brown, membranous, abaxially densely villous; leaf blade 3-foliolate; cauline leaves: stipules green, lanceolate, usually adnate to petiole with adnate part 1–3 × as long as free part, herbaceous, margin entire, apex acumenulate; petiole spreading villous and pubescent, sometimes glabrescent; leaf blade 3-foliolate; leaflets green on both surfaces, oblong to ovate-lanceolate, 2–6 × 1–2.5 cm, usually widest at middle, both surfaces pilose, sometimes glabrescent, abaxially hairs denser and spreading on veins, base cuneate, margin acutely many serrate, apex acuminate or caudate-acuminate. Inflorescence terminal, corymbose-cymose, many flowered. Flowers ca. 1 cm in diam.; pedicel slender, 1–2 cm, villous or pubescent. Sepals oblance-ovate, apex acute or acuminate; epicalyx segments lanceolate, nearly equaling sepals at anthesis, longer than sepals in fruit, abaxially pilose, apex acuminate. Petals yellow, obovate, nearly equaling or longer than sepals, apex rounded or emarginate. Style subterminal, base thickened; stigma not dilated. Achenes obovoid, ca. 1 mm in diam., smooth. Fl. and fr. Apr.–Aug.

Damp forests, forest margins, fields; 400–2300 m. Guizhou, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Sichuan, Yunnan [Japan, Korea, Russia].

73. Potentilla asperrima Th. Wolf & C. L. Li var. radicans T. T. Yu & C. L. Li was described in FRPS (p. 319), but the name is invalid because no Latin description or diagnosis was provided (St. Louis Code, Art. 36.1).


Potentilla concolor (Franchet) Rolfe (1908), not Zimmermann (1887); P. griffithii Th. Wolf var. concolor Franchet.

Herbs perennial. Roots terete, with fibrous rootlets. Flowering stems erect or ascending, 15–55 cm tall, pubescent and sparsely villous. Radical leaves 6–25 cm including petiole; stipules brown, membranous, abaxially pilose or glabrescent; petiole pubescent and pilose; leaf blade 3-foliolate; leaflets sessile or shortly petiolulate, elliptic, ovate, or obovate, abaxially pubescent, pilose on veins, adaxially appressed pilose, base rounded or broadly cuneate, margin coarsely obtusely many serrate, apex obtuse, rarely acute; cauline leaves petiolar, becoming sessile higher up stem; stipules green, herbaceous, abaxially pilose, margin 2–4-serrate; leaflets resembling those of radical leaves. Inflorescence corymbose-cymose, laxly few flowered. Flowers 2.5–4 cm in diam.; pedicel 2–3 cm, pubescent. Sepals triangular-ovate or oblance-ovate, apex acute, rarely acuminate; epicalyx segments elliptic or oblance-elliptic, nearly equaling or longer than sepals, margin entire or sometimes parted, apex obtuse or acute. Petals yellow, obcordate, apex acuminate. Style terminal, base markedly thickened; stigma dilated. Achenes rugose. Fl. and fr. Jul.–Dec.

Forest margins, meadows, gravels. Heilongjiang [E Russia].


Herbs perennial. Roots thinly terete, with fibrous rootlets. Flowering stems erect or ascending, 6–35 cm tall, sparsely pubescent or glabrescent. Radical leaves 4–8 cm including petiole; stipules brown, membranous, abaxially sparsely pubescent; leaf blade 3-foliolate; petiole pilose and glandular hairy, or glabrescent; leaflets sessile or shortly petiolulate, green on both surfaces, obovate, broadly elliptic, or obovate, both surfaces sparsely pubescent or glabrescent, base broadly cuneate, margin crenate, apex obtuse; cauline leaves 3 or 4, resembling radical ones; stipules green, ovate, herbaceous, abaxially pubescent and glandular hairy, margin entire, apex obtuse or acute. Inflorescence terminal, compact, congested, 3–5-flowered, laxly cymose after anthesis. Flowers 1–1.2 cm in length.

黄花委陵菜 huang hua wei ling cai

Potentilla asiatica (Th. Wolf) Juzepczuk; P. chrysantha var. asiatica Th. Wolf.

Herbs perennial. Roots robust, terete. Flowering stems erect or ascending, 15–55 cm tall, together with petioles spreading or appressed pilose or glabrescent. Radical leaves 5–20 cm including petiole; stipules brown, membranous, villous or glabrescent; leaf blade pinnate with 2 pairs of leaflets; leaflets sessile or subsessile, green on both surfaces, ovate-oblong, usually 1.5–7 × 1–3 cm, both surfaces appressed or subspreading pilose, or abaxially sometimes villous on veins, base cuneate, margin acutely serrate, apex obtuse or acute; cauleine leaves: stipules herbaceous, abaxially villous, margin entire, apex acuminate; lower leaf blades 3-foliolate, upper ones 5-foliolate; leaflets resembling those of radical leaves. Inflorescence corymbose-cymose, laxly many flowered. Flowers 1.2–1.5 cm in diam.; pedicel 1–2 cm, densely pubescent. Sepals long triangular-ovate, apex acute or acuminate; epicalyx segments lanceolate or elliptic-lanceolate, slightly shorter than sepals, abaxially pubescent and pilose, apex acute or acuminate. Petals obovate, 0.5–1 × as long as sepals, apex emarginate. Style slightly thickened at base; stigma dilated. Achenes smooth or obscurely rugose. Fl. and fr. May–Aug.


直立委陵菜 zhi li wei ling cai

Herbs perennial. Roots terete. Flowering stems erect, 30–40 cm tall, together with petals white villous, rarely glabrescent. Radical leaves usually withered at anthesis; stipules tinged brown, membranous, margin white villous; leaf blade palmately 5-foliolate; cauleine leaves: stipules green, herbaceous, abaxially appressed villous, margin entire, apex acuminate; petiole gradually shorter higher up stem, almost absent on uppermost leaves; leaf blade 5–7-foliolate; leaflets obovate-lanceolate, 2–5 × 0.5–1.5 cm, abaxially white villous, more densely so on veins, adaxially appressed white villous or glabrescent, base cuneate, margin acute or obtusely incised serrate, apex obtuse. Inflorescence terminal, compact, corymbose-cymose. Flowers ca. 1.5 cm in diam.; pedicel 0.5–1 cm, white villous and white pubescent. Sepals ovate-oblong, apex acuminata; epicalyx segments lanceolate, nearly equaling sepals, abaxially white villous, apex acuminate. Petals yellow, ovate-elliptic, nearly equaling sepals, apex emarginate or subrounded. Style slightly thickened at base; stigma not dilated. Achenes rugose. Fl. and fr. Jul.–Aug.


荒漠委陵菜 huang mo wei ling cai

Herbs perennial. Roots robust, terete. Flowering stems erect or ascending, 20–50 cm tall, together with petioles pubescent, villous, and stipitate or sessile red glandular. Radical leaves 8–20 cm including petiole; stipules dark brown to purple, membranous, abaxially densely pubescent, villous, and stipitate or sessile red glandular; leaf blade palmately or subpedately 5-foliolate; leaflets sessile or shortly petiolulate, obovate-cuneate or obovate, abaxially pubescent, villous, and stipitate or sessile red glandular, adaxially pilose or glabrescent, margin coarsely obtusely many serrate; cauleine leaves: stipules herbaceous, abaxially densely pubescent and glandular, margin entire 2-parted, apex acuminata; leaf blade 5-foliolate, uppermost ones 3-foliolate; leaflets resembling those of radical leaves, shortly petiolulate. Inflorescence terminal, corymbose-cymose. Flowers 1.5–2 cm in diam.; pedicel 1–2 cm, pubescent, villous, and stipitate or sessile glandular. Sepals ovate-lanceolate or obvate-oblong, apex acute or acuminate; epicalyx segments erect after flowering, lanceolate, nearly equaling sepals, abaxially pubescent, villous, and stipitate or sessile glandular, apex acuminate, usually 2-fid. Petals yellow, obovate, apex emarginata. Style subterminal, base markedly thickened; stigma dilated. Achenes smooth or inconspicuously rugose. Fl. and fr. Jun.–Aug.

Ravines, river banks; ca. 1700 m. Xinjiang [India, Mongolia, Russia].


混叶委陵菜 hun ye wei ling cai

Herbs perennial. Roots robust, terete, usually woody. Flowering stems erect or ascending, together with petioles pubescent, sparsely villous, and sessile glandular. Radical leaves 4–12 cm including petiole; stipules brown, membranous, abaxially densely sessile glandular, pubescent, and pilose; leaf blade 3-foliolate or pedately (rarely subpinnately) 5-foliolate; central 3 leaflets shortly petiolulate, the lateral two (if present) sessile, all leaflets obovate-cuneate or obovate, both surfaces densely spreading pubescent and sessile glandular, abaxially more densely so on veins, base cuneate, margin markedly revolute, obtusely serrate proximally, apex truncate or obtuse; cauleine leaves: stipules ovate-elliptic, herbaceous, margin entire, apex obtuse or 2- or 3-serrate; petiole gradually shorter higher up stem; leaf blade 3- or 5-foliolate; leaflets resembling those of radical leaves. Inflorescence corymbose-cymose, laxly few flowered. Flowers 1.2–1.5 cm in diam.; pedicel slender, 2–2.5 cm, densely pubescent and sessile glandular. Sepals triangular-lanceolate, apex acuminate; epicalyx segments lanceolate or elliptic-lanceolate, slightly shorter than sepals, apex acute. Petals yellow, obovate, ca. 1/2 as long as sepals, apex rounded. Style markedly thickened at base; stigma dilated. Achenes slightly rugose. Fl. and fr. Jul.–Aug.

Sunny slopes at Pinus forest margins, dry gravelly slopes; 2000–2500 m. Xinjiang.
6. Potentilla sect. Potentilla

钉状花柱组 ding zhuang hua zhu zu

Herbs perennial. Basal leaves palmate or 3-foliolate, rarely pinnate. Ovary glabrous; style subterminal, clavate, tapered toward base, thickened at apex.

About 20 species: mainly temperate and subarctic regions of N hemisphere; nine species (two endemic) in China.

1a. Flowering stems erect or ascending.
   2a. Leaves pinnate with 2 or 3 (or 4) pairs of leaflets ................................................................. 82. P. fragarioides
   2b. Leaves 3-foliolate.
      3a. Plants stellate hairy throughout ................................................................. 81. P. acaulis
      3b. Plants pilose or glabrescent throughout, not stellate hairy.
         4a. Leaflets abaxially pilose or glabrescent; flowers 1–2 cm in diam.; epicalyx segments oblong, apex rounded; anthers basifixed, subglobose or ovoid, minute .................................................... 80. P. gelida
         4b. Leaflets abaxially spreading strigose or densely hairy; flowers 0.8–1 cm in diam.; epicalyx segments lanceolate, apex acuminate; anthers dorsifixed, ellipsoid, larger .............................. 83. P. freyniana

1b. Flowering stems prostrate or horizontally creeping.
   5a. Leaves pinnately 5-foliolate.
      6a. Flowers 1.5–2.2 cm in diam.; epicalyx segments usually broad, enlarged and leaflike after anthesis, apex obtuse or acute; leaflets obovate-oblong, margin regularly obtusely or rarely acutely serrate ......... 85. P. reptans
      6b. Flowers 1–1.5 cm in diam.; epicalyx segments narrow, not enlarged after anthesis, apex acuminate, rarely acute; leaflets oblong-lanceolate, margin irregularly acutely or acuminate serrate ................................. 87. P. flagellaris
   5b. Leaves 3-foliolate.
      7a. Lateral leaflets 2-lobed or 2-parted ................................................................. 85. P. reptans
      7b. Leaflets neither lobed nor parted.
         8a. Plants not stoloniferous, but flowering stems sometimes prostrate ..................... 88. P. pseudosimulatrix
         8b. Plants stoloniferous; stolons curved and zigzagged or not, with adventitious roots at nodes or only at base.
            9a. Inflorescence terminal, 6–8-flowered; leaflets rhombic-ovate, rhombic-obovate, or broadly elliptic, margin sharply serrate (teeth fasciated ovate) or doubly serrate; stolons curved and zigzagged; flowers 1.5–2 cm in diam. ................................................. 84. P. rosulifera
            9b. Inflorescence axillary, a solitary flower; leaflets obovate or elliptic, margin regularly acutely or obtusely serrate; stolons neither curved nor zigzagged; flowers 0.7–1 cm in diam. ....................... 86. P. simulatrix


耐寒委陵菜 nai han wei ling cai

Herbs perennial. Roots terete, slender; rootlets usually fibrous. Flowering stems erect, ascending, or spreading, 6–30 cm tall, together with petioles pilose and sessile glandular, or sericeous, rarely glabrescent. Radical leaves 25–70 cm including petiole; stipules brown, membranous, abaxially villous or glabrescent; leaf blade 3-foliolate; leaflets shortly petiolulate or subsessile, obovate, elliptic, or ovate-elliptic, 0.8–2 × 0.6–1.5 cm, abaxially pilose and sessile glandular, or sericeous, adaxially pilose, sericeous, or glabrescent, base cuneate or broadly so, margin acutely or obtusely 3–5-serrate on each side but entire near base, apex obtuse; cauline leaves 1 or 2; stipules green, ovate, herbaceous, abaxially pilose and glandular, margin entire, apex obtuse or acuminate; petiole very short; leaflets resembling those of radical leaves. Inflorescence laxly cymose, 3–5-flowered. Flowers 1–2 cm in diam.; pedicel 1–2.5 cm, pilose. Sepals triangular-ovate, sometimes sericeous, apex acute; epicalyx segments oblong-elliptic, slightly shorter than sepals, apex obtuse. Petals yellow, obovate, 0.5–1 × as long as sepals, apex emarginate. Style subterminal, thin at base, thickened distally; stigma dilated. Mature achenes rugose. Fl. and fr. Jun–Aug.

Marshes, valley grasslands, alpine meadows, rock crevices; 2200–4800 m. Xinjiang [N Asia to Himalayas; Europe].

1a. Flowering stems erect or ascending, together with petioles and abaxial surface of leaflets pilose and sessile glandular, rarely glabrescent; leaflets adaxially pilose or glabrescent ..................................................... 80a. var. gelida

1b. Flowering stems spreading, together with petioles, both surfaces of leaflets, and sepals sericeous ........................................... 80b. var. sericea

80a. Potentilla gelida var. gelida

耐寒委陵菜(原变种) nai han wei ling cai (yuan bian zhong)

Potentilla fragiformis Willdenow ex Schlchtendal var. gelida (C. A. Meyer) Trautvetter.

Flowering stems erect or ascending, together with petioles and abaxial surface of leaflets pilose and sessile glandular, rarely glabrescent. Leaflets adaxially pilose or glabrescent. Fl. and fr. Jun–Aug.

Marshes, valley grasslands, rock crevices; 2200–4800 m. Xinjiang [N Asia to Himalayas; Europe].

One of us (Ohba) believes that Potentilla morrisonensis Hayata (Icon. Pl. Formosan. 3: 96. 1913), described from Taiwan, may be synonymous with this variety.

Herbs perennial, grayish green. Roots terete, much branched. Flowering stems tufted, 2–15 cm tall, together with petioles densely stellate hairy and spreading hirtellous. Radical leaves 15–70 cm including petiole; stipules tinged brown, membranous, stellate hairy and spreading hirtellous; leaf blade 3-foliolate; leaflets usually shortly petiolulate or subsessile, grayish green on both surfaces, obovate-elliptic or rhombic-ovobovate, 0.8–3 × 0.4–1.5 cm, both surfaces densely stellate hairy and spreading hirtellous, abaxially more densely so on veins, base cuneate, margin obtusely 4–6-serrate on each side, apex obtuse; cauline leaves 1–3; stipules grayish green, linear or linear-lanceolate, herbaceous, abaxially stellate hairy; petiole very short; leaflets resembling those of radical leaves. Inflorescence terminal, cymose, 1–5-flowered. Flowers ca. 1.5 cm in diam.; pedicel 1–2 cm, densely stellate hairy and pilose. Sepals triangular-ovate, apex acute; epicalyx segments elliptic, abaxially densely stellate hairy and pilose, apex obtuse, rarely 2-fid. Petals yellow, ovate, about 2 × as long as sepals, apex emarginate or obtuse. Style subterminal, base papillate; stigma slightly dilated. Achenes subreniform, ca. 1 mm in diam., rugose. Fl. Apr–Jun, fr. Jun–Aug.

Thinned forests, thickets, meadows, ditches, field banks; 300–2400 m. Anhui, Fujian, Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang [Japan, Korea, Mongolia, Russia (Siberia)].


三叶委陵菜 san ye wei ling cai

Herbs perennial, with slender or inconspicuous stolons. Roots much branched, tufted. Flowering stems slender, erect or ascending, 8–25 cm tall, together with petioles spreading pilose or densely spreading villous. Radical leaves 4–30 × 1–4 cm including petiole; stipules brown, membranous, abaxially sparsely villous; leaf blade 3-foliolate; leaflets green on both surfaces, oblong, elliptic, ovate, broadly ovate, or rhombic-ovate, both surfaces appressed to spreading pilose, abaxially more densely so on veins, base cuneate or broadly so, margin acutely many serrate or obtuse crenate, apex obtuse or acute; cauline leaves 1 or 2; stipules green, herbaceous, sparsely villous, apex acutely incised serrate, entire, or very rarely 2-fid; leaflets resembling those of radical leaves but very shortly petiolulate and margin less serrate. Inflorescence terminal, laxly corymbose-cymose, many flowered. Flowers 0.8–1 cm in diam.; pedicel slender, 1.5–2 cm, pilose. Sepals triangular-ovate, apex acute to acuminate; epicalyx segments oblong-lanceolate, slightly shorter than sepals, apex acute. Petals yellow, obovate, apex rounded or emarginate. Style subterminal, thin at base, thickened distally. Mature achenes subreniform, ca. 1 mm in diam., rugose. Fl. Apr–Jun, fr. Jun–Aug.

Grassy and damp places in forests, meadows on mountain slopes, stream sides; 300–2100 m. Anhui, Fujian, Gansu, Guizhou, Hebei, Heilongjiang, Hupeh, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea, Russia].

1a. Flowering stems and petioles spreading pilose; leaflets oblong, elliptic, or ovate, both surfaces sparsely appressed pilose, abaxially more densely so on veins, margin acutely serrate, stipules of cauline leaves acutely incised serrate at apex .......................... 83a. var. freyniana

1b. Flowering stems and petioles densely spreading villous; leaflets rhombic-ovate or broadly ovate, both surfaces spreading or subspreading pilose, more densely so on veins, margin obtusely crenate, stipules of cauline leaves or those on stolons ovate, margin entire, very rarely 2-fid at apex ........................................ 83b. var. sinica
83a. Potentilla freyniana var. freyniana

三叶委陵菜(原变种) 檤 yuán biān zhòng)

Potentilla fragarioides Linnaeus var. ternata Maximowicz; P. freyniana var. nitens Pampanini; P. longepetiolata H. Léveillé; P. morii Hayata; P. sutchuenica Cardot.

Flowering stems and petioles spreading pilose. Leaflets oblong, elliptic, or ovate, both surfaces sparsely appressed pilose, abaxially more densely so on veins, margin acutely serrate; stipules of cauline leaves acutely incised serrate at apex. Fl. and fr. Mar–Jun.

Grassy and damp places in thinned forests, meadows on mountain slopes, stream sides; 300–2100 m. Fujian, Gansu, Guizhou, Hebei, Heilongjiang, Hubei, Hunan, Jiangxi, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea, Russia].

This variety is used medicinally.


中华三叶委陵菜 zhōng huá sān yè wěi líng cài

Flowering stems and petioles densely spreading villous. Leaflets rhombic-ovate or broadly ovate, both surfaces spreading or subsessile pilose, more densely so on veins, margin obtusely crenate; stipules of cauline leaves or those on stolons ovate, margin entire, very rarely 2-fid at apex. Fl. and fr. Apr–May.

Grassy and damp places in thinned forests, meadows on mountain slopes, stream sides; 600–800 m. Anhui, Hebei, Hunan, Jiangsu, Jiangxi, Zhejiang [Russia (Siberia); N Africa, C and SW Asia, Europe].


委陵 (pu fu wei ling cai)


Herbs perennial, stoloniferous. Roots much branched, usually with fusiform tubers. Stolons 20–100 cm, sparsely pilose or glabrescent, with adventitious roots at nodes. Radical leaves 7–12 cm including petiole; stipules brown, membranous, abaxially glabrescent; petiole sparingly pilose, apressed sericeous, or glabrescent; leaf blade pedately 5-foliolate, or 3-foliolate; leaflets shortly petiolulate or subsessile, obovate to ovate-oblong, abaxially pilose or apressed sericeous, rarely glabrescent, adaxially subglabrous, base cuneate, margin acutely or obtusely serrate or lobed to parted, sometimes entire, apex obtuse; stolon leaves resembling radical ones; stipules green, ovate-oblong or ovate-lanceolate, herbaceous, margin entire, rarely 1- or 2-serrate, apex acute or acuminate. Flowers solitary, axillary or opposite, leaves, 1.5–2.2 cm in diam.; pedicel 6–9 mm, pilose. Sepals ovate-lanceolate, apex acute; epicalyx segments oblong-elliptic or elliptic-lanceolate, nearly equaling sepals, markedly enlarged in fruit, abaxially pilose, apex obtuse or acute. Petals yellow, broadly obovate, slightly longer than sepals, apex markedly emarginate. Style subterminal, thin at base; stigma dilated. Achenes yellow-brown, ovoid, markedly rugose. Fl. and fr. Apr–Sep.

Forest margins, thickets by streams, meadows on mountain slopes, ditch banks, damp field margins; 300–3500 m. Gansu, Hebei, Henan, Jiangsu, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Yunnan, Zhejiang [Russia (Siberia); N Africa, C and SW Asia, Europe].

1a. Petiole pilose or glabrescent, leaf blade pedately 5-foliolate, leaflets abaxially pilose, margin acutely or obtusely serrate .......................................................... 85a. var. reptans

1b. Petiole appressed sericeous, leaf blade 3-foliolate, leaflets abaxially appressed sericeous, rarely glabrescent or pilose, margin of lateral leaflets lobed to parted, sometimes entire ...................... 85b. var. sericophylla

85a. Potentilla reptans var. reptans

匍匐委陵菜 (pu fu wei ling cai)

Potentilla reptans var. reptans Th. Wolf; P. querpaertensis Cardot; P. yokusaitana Makino.

Herbs perennial, stoloniferous. Roots fibrous. Stolons 20–100 cm, sparsely pilose or glabrescent, with adventitious roots at nodes. Radical leaves 7–12 cm including petiole; stipules brown, membranous, abaxially sparsely villous; petiole sparsely villous, margin acutely or obtusely serrate; leaf blade 3-foliolate, rarely also with 1 or 2 minute segments on petiole; leaflets shortly petiolulate or subsessile, adaxially green, rhombic-ovate, rhombic-ovate, or broadly elliptic, 1–3.5 × 1–2 cm, adaxially sparsely spreading villous, margin many serrate with teeth ovate and dissected into linear lobes, sometimes acutely doubly serrate, apex acute, rarely obtuse; stolon leaves resembling radical ones; stipules pale brown, lanceolate, thinly membranous, margin entire; cauline leaves: stipules ovate, herbaceous, abaxially sparsely villous, margin entire, very rarely serrate at apex; leaf blade 1- or 2-foliolate; leaflets reduced, obovate-elliptic, apex 3- or 4-serrate. Inflorescence terminal, laxly corymbose, 6–8-flowered. Flower 1.5–2 cm in diam. Sepals ovate-lanceolate, apex acuminate; epicalyx segments lanceolate, nearly equaling sepals, apex acuminate. Petals yellow, obovate-oblong, ca. 1/2 as long as sepals, apex emarginate. Style subterminal, thin at base; stigma dilated, capitulate. Achenes not seen. Fl. May.

Mountain forest margins, thickets on mountain slopes. Liaoning [Japan, Korea].

This species is used medicinally.

85b. Potentilla reptans var. sericophylla

匍匐委陵菜 (juàn mào pu fu wei ling cai)

Potentilla procumbens Sibthorp (1794), not (Linnaeus Clairville (1811); Tormentilla reptans Linnaeus.

Petiole pilose or glabrescent; leaf blade pedately 5-foliolate; leaflets abaxially pilose, margin acutely or obtusely serrate. Fl. and fr. Jun–Aug.

Damp field margins; 500–600 m. Xinjiang [Russia (Siberia); N Africa, C and SW Asia, Europe].

85b. Potentilla reptans var. sericophylla

匍匐委陵菜 (juan mao pu fu wei ling cai)
**ROSACEAE**

*Fragaria* filipendula Hemsley; *Potentilla hemsleyana* Th. Wolf, *P. reptans* var. *incisa* Franchet.

Petiole appressed sericeous; leaf blade 3-foliolate; leaflets abaxially appressed sericeous, rarely glabrescent or pilose, margin of lateral leaflets lobed to parted, sometimes entire. Fl. and fr. Apr.–Sep.

- Forest margins, thickets by streams, meadows on mountain slopes, ditch banks, damp field margins; 300–3500 m. Gansu, Hebei, Henan, Jiangsu, Nei Mongol, Shanxi, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang.


等齿委陵菜 deng chi wei ling cai

Herbs perennial, stoloniferous. Roots slender, much branched. Stolons slender, 15–30 cm, together with petioles pubescent and villous, usually with adventitious roots at base. Radical leaves 3–10 cm including long, slender petiole; stipules submembranous, densely pilose; leaf blade 3-foliolate; leaflets subsessile, green on both surfaces, cuneate-obovate, oblong-obovate, or subrhomboid, central one ca. 2 cm, lateral ones shorter with strongly oblique base, abaxially somewhat densely appressed pilose especially on veins, adaxially sparsely pilose or glabrescent, margin coarsely crenate-dentate, sometimes somewhat deeply incised, apex hardly prominent; teeth broadly ovate or oblong, apex rounded or shortly apiculate; stolon leaves similar to radical ones but petiole shorter and leaf blade gradually smaller higher up stem; stipules ovate or oblong and entire on lower leaves, often larger and dentate or 2–5-fid on upper leaves. Flower solitary, axillary, 0.7–1 cm in diam.; pedicel slender, 1.5–3 cm, pubescent and pilose. Sepals ovate-lanceolate, apex acute; epicalyx segments oblong-elliptic, nearly equaling or rarely slightly longer than sepals, abaxially pilose, apex obtuse or acute. Petals yellow, ovate, longer than sepals, apex emarginate or rounded. Style subterminal, thin at base; stigma slightly dilated. Mature achenes cylindric-ovoid, bullate. Fl. and fr. May–Sep.

- Stream sides in damp forests; 300–2200 m. Gansu, Hebei, Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan.


苟枝委陵菜 pu zhi wei ling cai

Herbs perennial. Roots much branched, slender; rootlets usually fibrous. Flowering stems prostrate or ascending, 20–60 cm, pilose. Radical leaves: stipules lanceolate, margin entire; petiole 8–15 cm, villous; leaflets 3, abaxially grayish green, adaxially green, rhombic-ovate or rhombic-elliptic, 3–5 × 2–3.5 cm, both surfaces sparsely pubescent, rarely sericeous, base strongly obliquely cuneate, margin coarsely dentate with 7–11 pairs of teeth, apex acute; cauline leaves 1 or 2; stipules ovate, herbaceous, margin entire or 2- or 3-lobed; petiole 2–4 cm, densely villous; leaflets similar to radical ones but smaller, 1.5–3.6 × 1–1.5 cm. Inflorescence cyrnose, 2–4-flowered. Flowers 1–1.4 cm in diam.; pedicel slender, 0.6–6 cm, pubescent. Sepals broadly ovate, ca. 0.6 × 3 mm, abaxially villous, apex acute; epicalyx segments lanceolate, slightly longer than sepals, abaxially villous, apex acute. Petals yellow, suborbicular, ca. 3 mm, apex emarginate. Ovary lanate at base; style subterminal, thin at base, thickened distally. Fl. Apr.–Jun.

- Forest margins; 1200–1400 m. S Shaanxi (Ningshan Xian).


委陵菜属 zhao wei ling cai shu

*Farinopsis* Chrtek & So jak.

Herbs perennial or subshrubs. Flowering stems erect or ascending. Leaves alternate; leaf blade imparipinnate. Flowers bisexual, in cymes. Hypanthium almost flat or slightly saucer-shaped, enlarging in fruit. Sepals 5, persistent; epicalyx segments 5, persistent. Petals 5, red, dark purple, or white. Stamens 15–25; filaments filiform, persistent; anthers compressed globose, dehiscing by marginal slits, base cordate. Fruiting receptacle enlarged, ellipsoid or hemispheric, spongy. Carpels numerous; style lateral, filiform. Achenes glabrous or hairy. x = 7.

About five species: temperate regions of N hemisphere; two species in China.
1a. Herbs perennial; leaflets 5–7; petals dark purple, ovate-lanceolate, shorter than sepals, apex acuminate; achenes glabrous ................................................................. 1. C. palustris

1b. Subshrubs; leaflets 7–11; petals white or red, obovate, subequalling sepals, apex rounded; achenes villous ...... 2. C. salesovianum

　沼委陵菜 zhao wei ling cai
　Fragaria palustris (Linnaeus) Crantz; Potentilla comarum
　Nestler, nom. illeg. (included Comarum palustris); P. palustris (Linnaeus) Scopoli.

　Herbs perennial, 20–30 cm tall. Rhizome branched, dark brown, long, woody. Flowering stems ascending, branched near base, pale red-brown, hollow, glabrous in lower part, hairy in upper part. Radical leaves 6–16 cm including petiole; stipules mostly adnate to petiole, membranous; petiole 2.5–12 cm; leaf blade imparipinnate, 5–7-foliolate; upper cauline leaves: stipules ovate, foliaceous, apex often serrate; leaf blade 3-foliolate; leaflets sessile or subsessile, adaxially dark green, elliptic or oblong, 4–7 × 1.2–3 cm, abaxially villose, adaxially glabrous or slightly appressed pilose, base cuneate, margin proximally entire, distally sharply serrate, apex obtuse or acute. Inflorescence terminal or axillary, cymose, 1- to several flowered; peduncle and pedicels pilose and glandular hairy. Flowers 1–1.5 cm in diam.; pedicel 1–1.5 cm; bracts conic, 3–5 mm. Hypanthium saucer-shaped, abaxially pilose. Sepals spreading, dark purple, triangular-ovate, 0.7–1.8 cm, both surfaces pilose, apex acuminate; epicalyx segments lanceolate to linear, 4–9 mm, abaxially pilose, apex acute or acuminate. Petals dark purple, ovate-lanceolate, 3–8 mm, shorter than sepals, apex acuminate. Stamens 15–25, shorter than the petals; filaments and anthers dark purple. Ovary dark purple, ovoid, glabrous; style filiform. Achenes numerous, yellow-brown, compressed ovoid, ca. 1 mm, glabrous. Fl. May–Aug. Mature, fens, bogs. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Russia; Europe, North America].

　西北沼委陵菜 xi bei zhao wei ling cai
　Herbs perennial, woody based, 30–100 cm tall. Flowering stems erect, branched, red-brown, villous, farinaceous when young. Leaves 4.5–9.5 cm including petiole; stipules mostly adnate to petiole, scarios, abaxially farinaceous and villous, apex long caudate; petiole 1–1.5 cm; leaf blade imparipinnate, 7–11-foliolate, or 3-foliolate or simple on uppermost leaves; rachis brownish red, villous; leaflets alternate or subopposite, very shortly petiolulate or sessile, adaxially green, oblong-lanceolate or ovate-lanceolate, rarely obovate-lanceolate, 1.5–3.5 × 0.4–1.2 cm, papery, abaxially appressed pilose, often whitish farinaceous, adaxially glabrous, midvein abaxially slightly elevated, lateral veins in 4 or 5 pairs, obscure, base cuneate, margin sharply serrate, apex acute. Inflorescence terminal or axillary, cymose, laxly several flowered; peduncle and pedicels densely villous and farinaceous. Flowers 2.5–3 cm in diam.; pedicel 1.5–3 cm; bracts and bracteoles red-brown, linear-lanceolate, 6–20 mm, apex acuminate. Hypanthium obconic, fleshy, pubescent and white farinaceous. Sepals purplish, triangular-ovate, ca. 1.5 cm, abaxially pubescent and white farinaceous, adaxially appressed pubescent, apex acuminate; epicalyx segments purple, linear-lanceolate, 7–10 mm, abaxially pilose, apex acuminate. Petals white or red, obovate, 1–1.5 cm, nearly equaling sepals, glabrous, base shortly clawed, apex rounded. Stamens ca. 20; filaments 5–6 mm. Ovary cylindric-ovoid, villous. Fruit receptacle densely villous. Achenes numerous, oblong-ovoid, ca. 2 mm, enclosed by persistent sepals and epicalyx segments. Fl. Jun–Aug. Mountain slopes, ravines, river banks; 3600–4000 m. Gansu, Nei Mongol, Ningxia, Qinghai, Xinjiang, Xizang [Afghanistan, NW India, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan].

　山莓草属 shan mei cao shu
　Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Sibbaldia anthe Juzepczuk.

　Herbs perennial, often woody based. Flowering stems prostrate to erect. Leaves pinnate or palmately 3–5-foliolate; leaflets serrate at apex or margin, rarely entire. Inflorescence a cyme or solitary flower. Flowers usually bisexual, rarely unisexual. Hypanthium saucer-shaped or cupular. Sepals (4 or)5, alternate, persistent; epicalyx segments (4 or)5. Petals (4 or)5, yellow, purple-red, or white. Disk usually markedly broad, rarely not so. Stamens (4 or)5(–10); anthers 2-loculed. Carpels 4–20, free; ovule usually ascending; style sub-basal, lateral, or subterminal. Achenes few, inserted on elevated, dry receptacle. x = 7.

　About 20 species: arctic and alpine regions of N hemisphere; 13 species (four endemic) in China.

1a. Radical leaves pinnately 3–11-foliolate.
　2a. Leaflets abaxially sericeous, strigose, or subglabrous.
　3a. Flowers 5-merous; petals yellow or white, longer than sepals; leaflets abaxially strigose, adaxially subglabrous, terminal one (2 or)3-serrate at apex ................................................................. 10. S. adpressa
　3b. Flowers 4- or 5-merous; petals white, equaling or only slightly longer than sepals; leaflets appressed sericeous on both surfaces, margin entire ................................................................................ 11. S. sericea
2b. Leaflets abaxially densely white tomentose.

4a. Flowering stems and petioles densely white tomentose; leaflets abaxially inconspicuously veined and densely white tomentose ................................................................. 12. S. micropetala

4b. Flowering stems and petioles yellow pilose and white tomentose; leaflets abaxially prominently veined ........................................................................................................ 13. S. phanerophlebia

1b. Radical leaves palmately 3–5-foliolate.

5a. Radical leaves 5-foliolate.

5b. Radical leaves 3-foliolate.

6a. Leaflets densely white sericeous on both surfaces ................................................................. 9. S. omeiensis

6b. Leaflets appressed pilose on both surfaces.

7a. Leaflets obovate-oblong or oblong, central and lateral ones subequal, apex 2–6-serrate; petals 5, purple-red, longer than sepals ......................................................... 7. S. purpurea

7b. Leaflets obovate, 2 lateral ones much smaller than 3 central ones, apex (2 or)3-serrate; petals 4 (or) 5, yellow-white, nearly equallying sepals ........................................... 8. S. pentaphylla

8a. Leaflet margin entire except for (2 or)3–5-dentate apex.

8b. Leaflet margin serrate or lobed.

9a. Petals 5, shorter than sepals ......................................................................................................... 1. S. procumbens

9b. Petals 4 or 5, nearly equaling or slightly longer than sepals.

10a. Leaflets broadly obovate, base rounded to broadly cuneate; flowers numerous, in cymes; petals 5, equaling sepals ........................................................................................................ 2. S. cuneata

10b. Leaflets obovate-oblong, base cuneate; flowers 1–3; petals 4, nearly equaling or slightly longer than sepals ..................................................................................... 3. S. tetans

8b. Leaflet margin serrate or lobed.

11a. Flower solitary, terminal; petals white, longer than sepals ................................................... 4. S. perpusilloides

11b. Flowers 2–6, in cymes; petals red or purple-red, shorter than or nearly equaling sepals.

12a. Leaflets broadly obovate to suborbicular, 0.3–1.5 cm, both surfaces appressed pilose; petals red, nearly equaling sepals .......................................................................................... 5. S. tenuis

12b. Leaflets broadly elliptic, 1.3–2.5 cm, abaxially densely yellow hirsute; petals purple-red, slightly shorter than or equaling sepals ............................................. 6. S. sikkimensis


山莓草 shan mei cao

Herbs perennial, woody based. Flowering stems prostrate or ascending, 4–30 cm tall, appressed pilose, or strigose throughout. Radical leaves 3–12 cm including petiole; stipules brown, membranous; petiole pilose; leaf blade 3-foliolate; leaflets shortly petiolulate or sessile, oblong or obovate, 1–3 × 0.6–1.5 cm, abaxially appressed pilose, adaxially sparsely pilose or sometimes glabrous, base cuneate, margin 3–5-dentate, apex truncate; teeth triangular, rarely ovate and acute; cauline leaves 1 or 2, resembling radical ones but petiole shorter; stipules lanceolate or ovate, sparsely pilose, margin entire. Inflorescence terminal, compact, corymbose, 8–12-flowered. Flowers 4–6 mm in diam. Sepals ovate to triangular-ovate, apex acute; epicalyx segments much shorter than to nearly equaling sepals. Petals yellow, obovate-oblong, slightly or much shorter than sepals, apex rounded. Stamens ca. 5. Style lateral. Achenes glabrous. Fl. and fr. Jul–Aug.

Forests, meadows on mountain slopes, dry mountain slopes, grasslands by lakes; 2400–2600 m. Jilin, Xinjiang [widely distributed in N temperate zone, extending N nearly to arctic circle].

1a. Sibbaldia procumbens var. procumbens

山莓草(原变种) shan mei cao (yuan bian zhong)

Potentilla procumbens (Linnaeus) Clairville (1811), not Sibthorp (1794); P. sibbaldia Griesslech; P. sibbaldii A. Haller; Sibbaldia macrophylla Turczaninow ex Juzepczuk; S. procumbens var. macrophylla (Turczaninow ex Juzepczuk) Gubanov.


Dry mountain slopes, grasslands by lakes; 2400–2600 m. Jilin, Xinjiang [widely distributed in N temperate zone, extending N nearly to arctic circle].


隐瓣山莓草 yin ban shan mei cao


Herbs perennial. Roots slender, slightly woody; flowering stems 1–1.5 cm tall. Radical leaves 0.7–1.5 cm including petiole; stipules brown, membranous, pilose or subglabrous; petiole pilose or subglabrous; leaf blade 3-foliolate; leaflets shortly petiolulate or subsessile, broadly obovate, 2–3.5 × 1.5–2.5 mm, both surfaces subglabrous, base cuneate, margin 2–5-serrate; teeth ovate, apex acute, rarely obtuse. Flower solitary, terminal, ca. 6 mm in diam., base pilose. Sepals broadly ovate, apex acute; epicalyx segments elliptic-lanceolate, slightly shorter than sepals, abaxially sparsely pilose or subglabrous, margin ciliate, apex acute. Petals 5, white, ovate, nearly 2 × as long as sepals, apex rounded. Stamens up to 10; filaments short. Style lateral. Achenes glabrous. Fl. and fr. Jul–Aug.

Alpine meadows, rock crevices; 3800–4300 m. Xizang, Yunnan [Bhutan, N Myanmar, Nepal, Sikkim].


Herbs perennial. Roots slender, much branched. Rhizome sometimes procumbent and creeping underground. Flowering stems 1.5–6 cm tall, densely pubescent. Radical leaves 1–8.5 cm including petiole; stipules brown, membranous, appressed pilose or subglabrous; petiole appressed pilose; leaf blade 3-foliolate; leaflets sessile, green on both surfaces, elliptic or obovate, 3–15 × 2.5–13 mm, both surfaces appressed pilose, base subrounded or broadly cuneate, margin incised serrate, apex obtuse, rarely subtruncate. Inflorescence corymbose, numerous flowered. Flowers ca. 5 mm in diam. Sepals ovate-triangular, apex acuminate; epicalyx segments lanceolate, slightly shorter than sepals, abaxially appressed pilose, apex acute to acuminate. Petals pink, narrowly oblong, apex obtuse. Stamens 5(or 6), inserted away from broad, 5- or 6-fid disk. Style subterminal. Achenes not seen. Fl. Jun.

Herbs perennial. Roots slender, slightly woody; flowering stems 1–1.5 cm tall. Radical leaves 0.7–1.5 cm including petiole; stipules brown, membranous, pilose or subglabrous; petiole pilose or subglabrous; leaf blade 3-foliolate; leaflets shortly petiolulate or subsessile, broadly obovate, 2–3.5 × 1.5–2.5 mm, both surfaces subglabrous, base cuneate, margin 2–5-serrate; teeth ovate, apex acute, rarely obtuse. Flower solitary, terminal, ca. 6 mm in diam., base pilose. Sepals broadly ovate, apex acute; epicalyx segments elliptic-lanceolate, slightly shorter than sepals, abaxially sparsely pilose or subglabrous, margin ciliate, apex acute. Petals 5, white, ovate, nearly 2 × as long as sepals, apex rounded. Stamens up to 10; filaments short. Style lateral. Achenes glabrous. Fl. and fr. Jul–Aug.

Herbs perennial. Roots slender, slightly woody; flowering stems 1–1.5 cm tall. Radical leaves 0.7–1.5 cm including petiole; stipules brown, membranous, pilose or subglabrous; petiole pilose or subglabrous; leaf blade 3-foliolate; leaflets shortly petiolulate or subsessile, broadly obovate, 2–3.5 × 1.5–2.5 mm, both surfaces subglabrous, base cuneate, margin 2–5-serrate; teeth ovate, apex acute, rarely obtuse. Flower solitary, terminal, ca. 6 mm in diam., base pilose. Sepals broadly ovate, apex acute; epicalyx segments elliptic-lanceolate, slightly shorter than sepals, abaxially sparsely pilose or subglabrous, margin ciliate, apex acute. Petals 5, white, ovate, nearly 2 × as long as sepals, apex rounded. Stamens up to 10; filaments short. Style lateral. Achenes glabrous. Fl. and fr. Jul–Aug.

Herbs perennial. Roots slender, slightly woody; flowering stems 1–1.5 cm tall. Radical leaves 0.7–1.5 cm including petiole; stipules brown, membranous, pilose or subglabrous; petiole pilose or subglabrous; leaf blade 3-foliolate; leaflets shortly petiolulate or subsessile, broadly obovate, 2–3.5 × 1.5–2.5 mm, both surfaces subglabrous, base cuneate, margin 2–5-serrate; teeth ovate, apex acute, rarely obtuse. Flower solitary, terminal, ca. 6 mm in diam., base pilose. Sepals broadly ovate, apex acute; epicalyx segments elliptic-lanceolate, slightly shorter than sepals, abaxially sparsely pilose or subglabrous, margin ciliate, apex acute. Petals 5, white, ovate, nearly 2 × as long as sepals, apex rounded. Stamens up to 10; filaments short. Style lateral. Achenes glabrous. Fl. and fr. Jul–Aug.

紫花山莓草 zi hua shan mei cao

Herbs perennial, woody based. Rhizome much branched. Flowering stems ascending, 4–10 cm tall, appressed pilose. Radical leaves 1.5–4 cm including petiole; stipules dark brown, membranous, abaxially sparsely sericeous-villous or subglabrous; petiole appressed pilose; leaf blade palmately 5-foliolate; leaflets sessile or subsessile, obovate or obovate-oblong, 5–10 × 3–6 mm, subequal, both surfaces appressed white villous or sericeous-villous, base cuneate or broadly so, margin usually 2- or 3-serrate, apex obtuse. Inflorescence axillary, corymbose and many flowered or a solitary flower. Flowers 4–6 mm in diam., unisexual or bisexual, shorter or longer than subtending leaf. Sepals triangular-ovate, apex acute; epicalyx segments lanceolate, slightly shorter than sepals, abaxially densely white pilose, apex acute. Petals yellowish white, obovate-oblong, apex obtuse. Stamens 4 or 5, inserted away from broad, 4- or 5-fid disk. Style lateral. Achenes glabrous. Fl. and fr. Jun.–Aug.


五叶山莓草 wu ye shan mei cao

Sibbaldia purpurea Royle var. pentaphylla (J. Krause) Dicksh.

Herbs perennial, woody based. Rhizome robust. Flowering stems low, tufted, 2–5 cm tall. Radical leaves 1–1.5 cm including petiole; stipules abaxially brown, membranous, sparsely pilose or subglabrous; petiole sericeous; leaf blade palmately 5-foliolate; leaflets green on both surfaces, obovate or obovate-oblong, 3–8 × 2–5 mm, 2 lateral leaflets much smaller than 3 central ones, both surfaces densely white villous or sericeous-villous, base cuneate, apex truncate or obtuse and 2- or 3-serrate. Inflorescence axillary, 1–3-flowered. Flowers ca. 4 mm in diam., unisexual. Sepals 4 or 5, triangular-ovate, apex acute; epicalyx segments lanceolate, slightly shorter than sepals, abaxially pilose, apex acute. Petals yellowish white, obovate-oblong, apex obtuse. Stamens 4 or 5, inserted away from broad, 4- or 5-fid disk. Style lateral. Achenes glabrous. Fl. and fr. Jun.–Aug.


峨眉山莓草 e mei shan mei cao


森林缘变种 森林缘变种

Potentilla purpurea (Royle) J. D. Hooker.

Flowers solitary, unisexual, usually shorter than subtending leaf. Basal leaves 1.5–4 cm including petiole; stipules dark brown, membranous, abaxially subglabrous; petiole appressed pilose; leaf blade palmately 5-foliolate; 2 lateral leaflets much smaller than 3 larger than lateral 2, both surfaces densely white sericeous-villous and shining, base cuneate, distal margin irregularly 1–4-serrate on each side, apex obtuse or acute; cauline leaf 1, reduced and bractlike; stipules ovate-lanceolate, herbaceous, abaxially densely white sericeous. Flowers 2 or 3, ca. 1.5 cm in diam. Sepals triangular-ovate, apex acuminate; epicalyx segments lanceolate, nearly equaling sepals, abaxially densely white sericeous, apex acuminate. Petals white, obcordate. Stamens ca. 5. Style subterminal; stigma not dilated. Achenes not seen. Fl. Jul.

森林缘变种 森林缘变种


絨毛山莓草 *juan mao shan mei cao*


Herbs perennial. Roots robust, terete, woody. Flowering stems tufted, 1–4 cm tall, appressed sericeous. Radical leaves 1–4 cm including petiole; stipules brown, membranous, sericeous; petiole appressed sericeous; leaf blade pinnately 5-foliolate or 3-foliolate; leaflets opposite, obovate-lanceolate or narrowly lanceolate, 0.5–1.5 cm × 2–3 mm, both surfaces appressed sericeous, base long cuneate, margin entire, apex acuminate; cauline leaves 1 or 2, resembling radical ones; stipules green, lanceolate, herbaceous. Inflorescence cymose and several flowered or a solitary, terminal flower. Flowers 5-merous, 6–10 mm in diam. Sepals triangular-ovate, apex acute; epicalyx segments long elliptic, slightly shorter or longer than sepals, abaxially sparsely sericeous, apex rounded or acute. Petals yellow or white, obovate-lanceolate. Stamens ca. 10, slightly shorter than or equaling sepals. Style subbasal. Achenes markedly rugose. Fl. and fr. May–Aug.

Meadows on mountain slopes, sandy river banks, gravels, field margins; 600–4000 m. Gansu, Hebei, Heilongjiang, Nei Mongol, Qinghai, Xinjiang, Xizang [Mongolia, Nepal, Russia].


白叶山莓草 *bai ye shan mei cao*

*Potentilla micropetala* D. Don, Prodr. Fl. Nepal. 231. 1825; *P. albifolia* Wallich ex J. D. Hooker.

Herbs perennial. Roots robust, terete. Flowering stems ascending, 10–30 cm tall, together with petioles densely white tomentose or sometimes sparsely tomentose. Radical leaves 3–5 cm including petiole; stipules brown, membranous, abaxially sparsely white tomentose or subglabrous; leaf blade pinnate with 4–6 pairs of leaflets; leaflets usually opposite, sessile, long elliptic or obovate-oblong, 0.5–1 cm × 3–8 mm, abaxially white tomentose, adaxially gray-white or green tomentose and pubescent, or sparsely pubescent only, base cuneate, broadly so, or subrounded, margin sharply incised serrate, apex rounded; cauline leaves resembling radical ones but leaflets fewer higher up stem, eventually 3-foliolate; stipules leaflike, adaxially green or dark green, herbaceous, abaxially white tomentose, margin incised serrate. Flower solitary, 4–8 mm in diam. Sepals long ovate, apex acuminate; epicalyx segments elliptic-lanceolate, slightly shorter than sepals, abaxially densely white tomentose, apex obtuse or acute. Petals yellow or pale orange, obovate-lanceolate, shorter than or equaling sepals, apex obtuse. Stamens 5, alternating with sepals; filaments short. Style lateral. Achenes brown, ovoid, partly glabrous and partly shallowly grooved. Fl. and fr. Jun–Aug.

Meadows on mountain slopes, sandy river banks; 2700–4300 m. Sichuan, Xizang, Yunnan [Bhutan, NW India, Nepal, Sikkim].


显脉山莓草 *xian mai shan mei cao*

Herbs perennial. Roots much branched, long, thin. Flowering stems spreading, 4–10 cm, together with petioles yellowish pilose and white tomentose. Radical leaves 2–5 cm including petiole; stipules brown, membranous, abaxially pilose or glabrescent; leaf blade pinnate with 2–4 pairs of leaflets; leaflets opposite, rarely alternate, shortly petiolulate or subsessile, elliptic or obovate, 4–10 × 3–8 mm, abaxially densely white tomentose, adaxially pilose, rarely white tomentose, mid-vein and lateral veins obvious, sparsely yellow pilose, base broadly cuneate or subrounded, sharply incised serrate, apex obtuse; cauline leaves resembling radical ones but upper ones 3-foliolate; stipules green, ovate, herbaceous, abaxially white tomentose, margin sharply serrate. Flower solitary, 5–6 mm in diam. Sepals triangular, apex acute; epicalyx segments lanceolate, nearly equaling sepals, abaxially yellowish pilose and white tomentose, apex acuminate. Petals tinged yellow, long elliptic, nearly equaling sepals, apex rounded. Stamens ca. 5. Style lateral. Achenes not seen. Fl. Jun.

- Meadows on mountain slopes, rock crevices; 3500–3800 m. Xizang, Yunnan.
or more; ovule ascending from base of locule; style basal, articulate at base, deciduous; stigma capitellate. Achenes few or many, ovoid, glabrous, enclosed by hypanthium. Seed erect.

About eight species: Asia, North America; five species in China.

1a. Herbs biennial or annual, usually 1-stemmed, 20–50 cm tall, slightly woody at base; petals equaling or slightly longer than sepals; carpels 10–15 .......................................................... 1. C. ereta

1b. Herbs perennial or subshrubs, many stemmed, tufted, 5–30 cm tall, woody at base; petals shorter or longer than sepals; carpels 4–8.

2a. Radical leaves 2 or 3 times 3-parted.

3a. Flowering stems 10–30 cm tall, sparsely glandular pubescent and villous; ultimate segments of radical leaves linear, apex rounded or acute; cauline leaves present; hypanthium broadly campanulate; petals obovate, longer than sepals, apex emarginate; carpels 4–6 .................................................. 2. C. canescens

3b. Flowering stems 6–10 cm tall, sparsely glandular pubescent and villous; ultimate segments of radical leaves oblance-elliptic, apex obtuse; cauline leaves present or absent; hypanthium campanulate or obconic; petals lanceolate-ligulate or cuneate, shorter or slightly longer than sepals, apex rounded; carpels usually 6–8 .............................................................. 3. C. sabulosa

2b. Radical leaves once 3-parted or 3-fid.

4a. Subshrubs, 5–6 cm tall, villous and glandular pubescent; radical leaves 3-parted with linear segments; flowers solitary or 3–5 in cymes .......................................................... 4. C. altaica

4b. Herbs perennial, 5–18 cm tall, pilose or glabrous; radical leaves 3-fid with narrowly linear segments; flowers many, in dichasial panicles .................................................. 5. C. trifida


地蔷薇 di qiang wei

_Sibbaldia ereta_ Linnaeus, Sp. Pl. 1: 284. 1753; Cha-maerhodos micrantha_ J. Krause; _C. songarica_ Juzepczuk.

Herbs biennial or annual, villous and glandular hairy. Roots woody. Flowering stem solitary, rarely few and tufted, erect or arcuate-ascending, 20–50 cm tall, slightly woody at base, often branched in upper 1/2. Radical leaves in a dense rosette, usually withering in fruit; stipules leaflike, 3- or more sect; petiole 1–2.5 cm; leaf blade 1–2.5 cm, 2 times 3-parted, base cuneate; lateral lobes 2-sect, median one often 3-sect into 3–5-fid segments; ultimate segments or lobes linear, 1–2 mm, margin entire, apex obtuse; cauline leaves resembling radical ones but sub sessile and 3-parted. Inflorescence terminal, cymose, repeatedly dichasially branching into a many-flowered panicle 1.5–3 cm in diam.; bracts and bracteoles 2- or 3-fid with linear lobes. Flowers 2–3 mm in diam.; pedicel 2–4 mm. Hypanthium broadly campanulate, 2–3 mm, abaxially setose. Receptacle lanceolate, ca. 2 mm, markedly 10-ribbed and setose, apex acuminate. Petals pale pink or white, obovate, 3–4 mm, glabrous, base tapering into a cuneate claw, apex rounded. Stamens shorter than petals. Carpels 10–15, free; ovary ovoid or cylindric; style stylefiliform. Achenes black-brown, cylindric-ovoid, ca. 2 mm, glabrous, apex mucronate. Fl. Jun–Aug, fr. Aug–Oct.

Mountains, slopes, hills, dry sandy river banks; ca. 2500 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Xinjiang [Korea, Mongolia, Russia].

This species is used medicinally.


灰毛地蔷薇 hui mao di qiang wei

_Chamaerhodos corymbosa_ Muravjeva var. _brevifolia_ Muravjeva.

Herbs perennial. Roots woody. Flowering stems many, tufted, erect or ascending, 10–30 cm tall, densely glandular pubescent and sparsely pilose at base, branched in upper 1/2. Radical leaves densely arranged; petiole 1.5–3 cm, long setose; leaf blade 1–1.5 cm, 2 times 3-parted, glandular hairy and gray setose, base cuneate; segments entire or 2- or 3-sect into 2- or 3-fid segments; ultimate lobes linear, 4–6 mm, margin entire, apex obtuse or acute; cauline leaves resembling radical ones but petiole ca. 5 mm and lateral segments usually entire, sometimes incised, central segment 3-fid into 2- or 3-lobed lobes. Inflorescence compact, compound, cymose, many flowered; peduncle and pedicels glandular hairy; bracts and bracteoles lanceolate, 5–10 mm, 2- or 3-parted into linear segments, glandular hairy. Flowers 2–3 mm in diam.; pedicel 2–4 mm. Hypanthium broadly campanulate, 2–3 mm, abaxially setose. Receptacle lanceolate, ca. 2 mm, markedly 10-ribbed and setose, apex acuminate. Petals pale pink or white, obovate, 3–4 mm, glabrous, base tapering into a cuneate claw, apex emarginate. Filaments 1.5–2 mm, glabrous. Receptacle villous. Carpels 4–6, free; ovary glabrous; style filiform. Achenes black-brown, cylindric-ovoid, ca. 2 mm, glabrous, apex mucronate. Fl. Jun–Aug, fr. Aug–Oct.

Mountains, slopes, hills, dry sandy river banks; ca. 2500 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Xinjiang [Korea, Mongolia, Russia].


砂生地蔷薇 sha sheng di qiang wei

Herbs perennial. Flowering stems many, tufted, spreading or ascending, 6–10–(18) cm tall, slightly hard, together with leaves and petioles glandular hairy and pilose. Radical leaves in a dense rosette, not withering in fruit; stipules entire at margin; petiole 1.5–2.5 cm; leaf blade 1–3 cm, 3 times 3-parted; segments entire or 2- or 3-sect into entire or 2- or 3-fid segments; ultimate lobes spatulate, 1–2 mm, apex rounded; cauline leaves few or absent, resembling radical ones but 3-parted with segments entire or 2- or 3-fid. Inflorescence terminal, compressed
at anthesis, later becoming lax, paniculate-corymbiform, many flowered; bracts and bracteoles linear, 1–2 mm, margin entire. Flowers 3–5 mm in diam. Hypanthium campanulate or pyriform, 2–4.5 mm, pilose. Sepals erect, triangular-ovate, equaling or slightly longer than hypanthium, apex acute. Petals white or pink, lanceolate-spatulate or cuneate, 2–3 mm, shorter than or equaling sepals, apex rounded. Filaments glabrous, shorter than petals. Carpels (5 or)6–8–10, free. Achenes brown, shining, ovoid, ca. 1 mm. Fl. Jun–Jul, fr. Aug–Sep.

Sands and gravels on river banks. Nei Mongol, Xinjiang, Xizang [Mongolia, Russia].


阿尔泰地蔷薇 a er tai di qiang wei


Subshrubs. Flowering stems many, spreading, forming dense, compact tufts 5–6 cm tall, covered with peeling, dark brown bark and with relics of dead leaves in upper part, villous and glandular pubescent throughout. Radical leaves many; petiole 0.5–1.2 cm; leaf blade 1.5–2.5 cm, once 3-parted; lateral segments entire or 2- or 3-sect; ultimate segments linear. Inflorescence cymose and 3–5-flowered or flower solitary; bracts segments entire or 2- or 3-sect; ultimate segments linear. Hypanthium green or red-purple, tubular, 3–4 mm. and bracteoles linear, 1–2 mm. Flowers 4–5 mm in diam.; pedicel 3–5 mm. Hypanthium pink or red-purple, 4–5 mm, glabrous. Stamens numerous; anther 2-loculed. Carpels 6–10, free. Achenes brown, shining, ovoid, ca. 1 mm. Fl. Jun–Aug, fr. Sep–Nov.

Mountain slopes. Nei Mongol [Mongolia, Russia].

5. Chamaerhodos trifida Ledebour, Fl. Ross. 2: 34. 1843.

三裂地蔷薇 san lie di qiang wei

Chamaerhodos klementzii Muravjeva, p.p.

Herbs perennial. Flowering stems many, tufted, erect or ascending, unbranched, 5–18 cm tall, woody at base, pilose or glabrous. Radical leaves 1.5–4 cm, villous and glandular hairy; stipules linear, 4–5 mm, margin entire; petiole 1.5–2 cm; leaf blade once 3-parted; segments linear, entire or 2- or 3-sect; lower cauline leaves shortly petiolate, upper ones sessile; leaf blade 3–5-fid. Inflorescence paniculate, dichasially branched, many flowered; peduncle and pedicels slightly glandular hairy; bracts and bracteoles linear, 2–4 mm, pilose. Flowers 5–6 mm in diam.; pedicel 3–5 mm. Hypanthium tubular, 3–4 mm, abaxially pubescent at base, 10-veined. Sepals triangular-ovate, ca. 2 mm, pilose and glandular hairy, apex acuminate. Petals pink, obovate, 4–6 mm, glabrous, base tapering into a cuneate claw, apex rounded. Filaments shorter than petals, glabrous. Carpels 6–10, free. Achenes cylindric, ca. 2 mm, glabrous. Fl. Jun, fr. Aug.

Meadows on mountain slopes. Heilongjiang [Mongolia, Russia].


草莓属 cao mei shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial, mostly stoloniferous, polygamo-dioecious, usually spreading or appressed hairy. Stolons often rooting at nodes and forming plantlets. Leaves alternate, petiolate; stipules adnate to base of petiole, often membranous, sheathing; leaf blade 3-foliolate or pinnately 5-foliolate. Inflorescence erect, cymose or corymbiform, few flowered, rarely a solitary flower. Hypanthium oblong or turbinate. Sepals 5, valvate, persistent; epicalyx segments 5, alternating with and smaller than sepals, margin entire. Petals 5, white, rarely yellow, broadly obovate or suborbicular. Stamens numerous; anther 2-loculed. Carpels numerous, free, borne on convex receptacle; ovule ascending from middle of locule; style adaxial, short, persistent. Aggregate fruit formed from enlarged receptacle, berry-like, long conic to globose, fleshy. Achenes numerous, seated in pits on surface of aggregate fruit, minute, brittle. Seed testa membranous; cotyledons convex. x = 7.

About 20 species: temperate and subtropical regions of N hemisphere, extending to South America; nine species (three endemic, one introduced) in China.

1a. Stems and petioles appressed hairy.

2a. Sepals appressed to aggregate fruit ................................................................. 9. F. nubicola

2b. Sepals reflexed from aggregate fruit.

3a. Leaflets 5; aggregate fruit ovoid ........................................................................ 3. F. pentaphylla

3b. Leaflets 3, or if 5 then aggregate fruit globose or ellipsoid.

4a. Aggregate fruit long conic, ovoid, or rarely fusiform; epicalyx segments oblong, apex 2- or 3-lobed; leaflets 3 ........................................................................................................... 7. F. daltoniana

4b. Aggregate fruit globose or ellipsoid; epicalyx segments linear-lanceolate or linear, apex entire or lobed; leaflets 3 or 5 ........................................................................... 8. F. gracilis

1b. Stems and petioles spreading hairy.

5a. Pedicels appressed hairy .................................................................................. 1. F. vesca

5b. Pedicels densely spreading hairy.

6a. Sepals spreading or reflexed from aggregate fruit.

7a. Leaflets 3, thin, both surfaces hairy, abaxially more densely so on veins; sepals spreading in fruit ...... 2. F. orientalis

7b. Leaflets 3, entire, both surfaces hairy, abaxially villous and glandular pubescent; petals purple or violet, obovate to broadly ovate, 4–5 mm, glabrous. Stamens shorter than petals. Carpels 6–10, free. Achenes brown, cylindrical, ca. 2 mm, glabrous. Fl. Jun–Aug, fr. Sep–Nov.

Mountain slopes. Nei Mongol [Mongolia, Russia].

Fragaria chinensis Losinskaja; *F. concolor* Kitagawa.

Herbs perennial, 5–30 cm tall. Stems together with petioles spreading pilose, rarely glabrescent. Petiole 3–20 cm; leaf blade 3-foliolate, rarely pinnately 5-foliolate; leaflets sessile or central one shortly petiolulate, abaxially greenish, adaxially green, obovate, elliptic or broadly ovate, 1–5 × 0.6–4 cm, abaxially pubescent or sometimes glabrescent, adaxially sparsely pubescent, base cuneate or broadly so, margin obtusely or acutely incised serrate, apex obtuse. Inflorescence corymbiform, 2–4(or 5)-flowered, with a greenish, subulate or petiolate, leafletlike bract. Pedicel 1–3 cm, appressed pilose. Sepals ovate-lanceolate, apex caudate; epicalyx segments linear-lanceolate or subulate, shorter than sepals. Petals white, obovate, base tapering into a short claw. Stamens ca. 20, unequal. Carpels numerous. Aggregate fruit ripening red, ovoid. Achenes ovoid, not prominently rugose. Fl. Apr–Jun; fr. Jun–Sep. 2n = 14.

Forests, mountain slopes, meadows. Gansu, Guizhou, Jilin, Shaanxi, Sichuan, Xinjiang, Yunnan [widely distributed in N temperate zone].


**Fragaria corymbosa** Losinskaja; *F. uniflora* Losinskaja.

Herbs perennial, 5–30 cm tall. Stems together with petioles spreading pilose, more densely so in upper parts, sometimes glabrescent. Leaf blade 3-foliolate; leaflets sub sessile, abaxially greenish, adaxially green, obovate or rhombic-ovate, 1–5 × 0.8–3.5 cm, abaxially pilose, more densely so on veins, adaxially sparsely pilose, base cuneate on central leaflet, oblique on lateral ones, margin incised serrate, apex rounded or acute. Inflorescence corymbiform, (1 or)2–5(or 6)-flowered, with a pale green or petiolate, leafletlike bract at base. Flowers bisexual, rarely unisexual, 1–1.5 cm in diam.; pedicel 0.5–1.5 cm, spreading pilose. Sepals ovate-lanceolate, apex caudate; epicalyx segments linear-lanceolate, occasionally 2-fid. Petals white, suborbicular, base tapering into a short claw. Stamens ca. 20, unequal. Carpels numerous. Aggregate fruit ripening red, ovoid. Achenes ovoid, ca. 0.5 mm wide, prominently rugose or only so at base. Fl. May–Jul; fr. May–Jun. 2n = 28.

Forests, meadows on mountain slopes; 600–2700 m. Chongqing, Gansu, Shaanxi, Xizang and NW Yunnan.


**Fragaria chamaelea** Losinskaja; *F. concolor* Kitagawa.

Herbs perennial, 5–30 cm tall. Stems together with petioles spreading pilose, rarely glabrescent. Petiole 3–20 cm; leaf blade 3-foliolate, rarely pinnately 5-foliolate; leaflets sessile or central one shortly petiolulate, abaxially greenish, adaxially green, obovate, elliptic or broadly ovate, 1–5 × 0.6–4 cm, abaxially pubescent or sometimes glabrescent, adaxially sparsely pubescent, base cuneate or broadly so, margin obtusely or acutely incised serrate, apex obtuse. Inflorescence corymbiform, 2–4(or 5)-flowered, with a greenish, subulate or petiolate, leafletlike bract. Pedicel 1–3 cm, appressed pilose. Sepals ovate-lanceolate, apex caudate; epicalyx segments linear-lanceolate or subulate, shorter than sepals. Petals white, obovate, base tapering into a short claw. Stamens 2–5(or 6)-flowered, with a greenish, subulate or petiolate, leafletlike bract at base. Flowers bisexual; pedicel 1.5–2 cm. Sepals 5, ovate-lanceolate, abaxially pubescent; epicalyx segments lanceolate, occasionally 2-fid, nearly equaling but narrower than sepals. Petals white, suborbicular, base tapering into a short claw, Stamens ca. 20, unequal. Carpels numerous. Aggregate fruit ripening red, ovoid; persistent sepals prominently reflexed. Achenes ovoid, ca. 0.5 mm wide, rugose only at base. Fl. Apr–May; fr. May–Jun. 2n = 14.

- Forests, forest clearings, scrub, mountain meadows, open gravel; 1000–2700 m. Chongqing, Gansu, Shaanxi, Xizang.

White-fruited plants from SE Xizang (Mt. Gyala Peri) were described as *Fragaria pentaphylla* f. alba Staudt & Dickoré (Bot. Jahrb. Syst. 123: 348. 2001). *Fragaria tibetica* Staudt & Dickoré (loc. cit.: 349) was described from S Xizang, extending to NW Yunnan and possibly W Sichuan. It differs from *F. pentaphylla* in having unisexual flowers (plants dioecious) and a tetraploid chromosome number (2n = 28). White-fruited plants from the Langang Jiang-Nu Jiang divide in SE Xizang and NW Yunnan were described as *F. alba* Staudt & Dickoré (loc. cit.: 351).


**Fragaria corymbosa** Losinskaja; *F. uniflora* Losinskaja.

Herbs perennial, robust, 5–25 cm tall. Stems densely tufted, nearly equaling leaves, together with petioles densely yellow-brown sericous. Petiole 4–18 cm; leaf blade 3-foliolate; leaflets shortly petiolulate, abaxially pale green, adaxially dark green, obovate or elliptic, 1–4.5 × 0.8–3 cm, thick, abaxially yellow-brown sericous or waxy white papillate, adaxially sparsely pubescent, base cuneate on central leaflet, oblique on lateral ones, margin obtusely or acutely incised serrate, apex rounded. Inflorescence cymose, (1 or)2–5(or 6)-flowered, proximally with a petiolute, 1- or 3-foliolate bract. Flowers bisexual, 1–2 cm in diam. Sepals ovate-lanceolate, as broad as or broader than epicalyx segments; epicalyx segments lanceolate, margin entire or 2-fid. Petals white, rarely reddish purple at base, orbicular, rarely obovate or broadly so, base tapering into a short claw. Stamens ca. 20, unequal. Aggregate fruit ripening white, tinged yellow or red, globose; persistent sepals erect, appressed to aggregate fruit. Achenes ovoid, glabrous. Fl. Apr–Jul; fr. Jun–Aug. 2n = 14.
Valley forests, forest margins, thickets, meadows on mountain slopes, valleys; 700–3000 m. Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Taiwan, Yunnan [E India, Nepal, Sikkim, N Vietnam].

1a. Leaves abaxially yellow-brown sericeous, not papillate, hairs dense and long on veins ........................................ 4a. var. nilgerrensis

1b. Leaves abaxially waxy white papillate ......  4b. var. mairei

4a. Fragaria nilgerrensis var. nilgerrensis


Herbs perennial, 5–20 cm tall. Stems slender, appressed pilose. Leaf blade 3-foliolate or pinnately 5-foliolate; leaflets sessile or terminal one shortly petiolulate, elliptic, long elliptic, or obovate-elliptic, 1.5–5 × 0.8–3 cm, abaxially appressed pubescent with hairs dense and long on veins, adaxially pilose, base cuneate or oblique, margin incised serrate, apex rounded or acute. Inflorescence corymbose, 1–3(or 4)-flowered. Flowers 1–2 cm in diam.; pedicel appressed pubescent. Sepals ovate-lanceolate, apex clefted; epicalyx segments linear-lanceolate or linear, equaling sepal, margin entire or lobed. Petals suborbicular, base tapering into a short claw. Stamens ca. 20, unequal. Aggregate fruit globose or ellipsoid; persistent sepal markedly reflexed. Achenes ovoid, glabrous, inconspicuously rugose at base. Fl. Jun–Aug, fr. Aug–Oct.


1a. Leaflets 2–3.5 cm; flowers 0.5–1.5 cm in diam., rarely smaller; aggregate fruit ripening red, shining, 1–2 cm in diam.; achenes shining when fresh, glabrous or inconspicuously papillate ........................................... 1. *D. indica* 1b. Leaflets 1.5–2.5 cm; flowers 0.5–1.5 cm in diam.; aggregate fruit ripening pale pink, not shining, 0.8–1.2 cm in diam.; achenes not shining when fresh, rugose .................................................................................................. 2. D. chrysantha


西藏草莓 xi zang cao mei


蛇莓 she mei shu

Li Chaoluan (李朝銮 Li Chao-luand); Hiroshi Ikeda, Hideaki Ohba


- Valley forests, meadows on mountain slopes; 1600–3900 m. Gansu, Henan, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan.

Two species: Afghanistan, Bhutan, China, India, Indonesia, Japan, Korea, Malaysia, Nepal, Sikkim; naturalized in Africa, Europe, and North America; two species in China.

1a. Leaflets 2–3.5 cm, rarely smaller or larger; flowers 1.5–2.5 cm in diam., rarely smaller; aggregate fruit ripening red, shining, 1–2 cm in diam.; achenes shining when fresh, glabrous or inconspicuously papillate ........................................... 1. *D. indica* 1b. Leaflets 1.5–2.5 cm; flowers 0.5–1.5 cm in diam.; aggregate fruit ripening pale pink, not shining, 0.8–1.2 cm in diam.; achenes not shining when fresh, rugose .................................................................................................. 2. *D. chrysantha*


蛇莓 she mei


Mountain slopes, meadows, river banks, wet places, ravines, field margins; below 3100 m. Provinces S of Liaoning [Afghanistan, Bhutan, India, Indonesia, Japan, Korea, Nepal, Sikkim; naturalized in Africa, Europe, and North America].

1a. Leaflets 2–3.5(–5) × 1–3 cm, both surfaces together with petiole pilose or adaxially glabrous; flowers 1.5–2.5 cm in diam., pedicel 3–6 cm, pilose ........................................... 1a. var. indica 1b. Leaflets to 1 cm; abaxially together with petiole densely villous; flowers to 1 cm in diam., pedicel 0.5–1.5 cm, densely villous .................................................................................................. 1b. var. microphylla

**1a. Duchesnea indica** var. indica

蛇莓(原变种) she mei (yuan bian zhong)


Leaflets 2–3.5(–5) × 1–3 cm, both surfaces together with
petiole pilose or adaxially glabrous. Flowers 1.5–2.5 cm in diam.; pedicel 3–6 cm, pilose. 2n = 84.

Mountain slopes, meadows, river banks, wet places; below 1800 m. Provinces S of Liaoning [Afghanistan, Bhutan, India, Indonesia, Japan, Korea, Nepal, Sikkim; naturalized in Africa, Europe, and North America].

This variety is used medicinally.


Fragsia chrysantha Zollinger & Moritzi, Syst. Verz. 7. 1846; Duchesnea formosana Odashima; D. wallichiana (Seringe) Nakai ex H. Hara; F. indica Andrews var. wallichii Franchet & Savatier; Potentilla indica (Andrews) Th. Wolf var. wallichii (Franchet & Savatier) Th. Wolf; P. wallichiana Seringe.

Herbs perennial. Stolons 30–50 cm, together with stipules and petioles pilose. Stipules lanceolate, 2–3 mm; petiole 1.5–3 cm; leaflets petiolulate, rhombic, obovate, or ovate, 1.5–2.5 × 1–2 cm, abaxially sparsely villous, adaxially subglabrous, base cuneate, margin obtusely or acutely serrate, but entire near base, apex rounded, sometimes mucronate; lateral leaflets sometimes 2–3-fid. Flowers 0.5–1.5 cm in diam.; pedicel 2–3 cm. Sepals ovate or ovate-lanceolate, 3–5 mm, abaxially villous, margin ciliate, apex acuminate; epicalyx segments triangular-obovate, 3–7 mm, abaxially sparsely villous, apex 3–5-serrate. Petals 2.5–5 mm, glabrous, apex emarginate or rounded. Aggregate fruit ripening pale pink, not shining, 0.8–1.2 cm in diam. Achenes red, not shining when fresh, ovoid, 4–6 mm, rugose. Fl. May–Jul. fr. Jun–Sep. 2n = 14.

Meadows. Fujian, Guangdong, Guangxi, Shanxi, Sichuan, Taiwan, Yunnan [India, Indonesia, Japan, Korea, Malaysia].

This species is used medicinally.


蔷薇属 qiang wei shu

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Kenneth R. Robertson

Shrubs, erect, diffuse or climbing, mostly prickly, bristly, or rarely unarmed, pubescent, glandular pubescent, or glabrous. Leaves alternate, odd pinnate, rarely simple; stipules adnate or inserted at petiole, rarely absent. Flowers solitary or in a corymb, rarely in a compound corymb or a panicle; bracts solitary, several, or absent. Hypanthium globose, urceolate, or cupular, constricted at neck. Sepals 5, rarely 4, quincuncial: 2 outer, 2 inner, and 1 middle, margin entire or variously pinnately lobed. Petals 5, rarely 4, imbricate, white, yellow, pink, or red; disk inserted at mouth of hypanthium. Stamens numerous, in several whorls, inserted at disk. Carpels free, numerous, rarely few, inserted at margin or base of hypanthium, not or rarely stalked; ovule pendulous; styles terminal or lateral, exserted or not, free or connate at upper part. Fruit a hip, formed from fleshy hypanthium, woody. Seed pendulous. x = 7.

About 200 species: widely distributed from subtropical to cold-temperate regions; 95 species (65 endemic) in China.

The following three species require further study. We are unable to treat them in this account because we have seen no specimens. Rosa atroglandulosa C. K. Schneider (Bot. Gaz. (Crawfordsville) 64: 75. 1917), described from Sichuan; R. beaufaisii Cardot (Notul. Syst. (Paris) 3: 261. 1916), described from N Vietnam, also reported for SW Guangxi (Longzhou Xian) (Kai Larsen, pers. comm.); and R. tunquinensis Crépin (Bull. Soc. Roy. Bot. Belgique 25(2): 192. 1886), described from N Vietnam and China, also reported for Laos (Kai Larsen, pers. comm.).

Several species and hybrids are cultivated in China. The following occur in addition to those mentioned below: Rosa ×alba Linnaeus (of uncertain parentage), R. centifolia Miller, R. ×fortuneana Lindley (probably R. banksiae × R. laevigata), and R. gallica Linnaeus.

Key based mainly on fertile characters

1a. Leaves simple, extipulate; flower solitary; petals yellow (1. R. subgen. Haltheonia) ........................................ 1. R. berberifolia

1b. Leaves compound, stipulate; flowers solitary to many; petals various shades of white, yellow, pink, or red


3a. Leaflets pubescent on both surfaces; sepals entire; petals red; flowers 8–9 cm in diam. ................................. 95. R. praerucens

3b. Leaflets glabrous; sepals pinnately lobed; petals reddish, pink, or white; flowers 2.5–6 cm in diam.

4a. Petals reddish or pink; flowers solitary, or 2 or 3 and fasciculate, 4–6 cm in diam. ........................................ 93. R. roxburghii

4b. Petals white; flowers 7–17 in corymb, 2.5–3 cm in diam. ................................................................. 94. R. kweichowensis

2b. Hypanthium globose to urceolate, rarely depressed-globose; achenes inserted at walls and flat base of hypanthium; styles free or connate into a column, exserted or not.

5a. Stipules free or nearly free from petioles, caducous.
6a. Branchlets tomentose; leaflets (5–7–9, stipules pectinate; flower solitary, or 2 or 3 and fasciculate, with large pectinate bracts; styles slightly exserted (7. R. sect. Bracteateae) ........................................ 92. R. bracteata
6b. Branchlets glabrous; leaflets 3–5, stipules dentate or subulate; flowers solitary or numerous, with smaller bracts; styles not exserted.
7a. Pedicel and hypanthium densely glandular bristly; flowers large, solitary; petals white; stipules dentate (6. R. sect. Laevigatae) ................................................................. 91. R. laevigata
7b. Pedicel and hypanthium not glandular bristly; flowers small, numerous in corymb; petals yellow or white; stipules subulate (5. R. sect. Banksianae).
8a. Flowers in simple umbels or corymbs; sepals entire ............................................................. 89. R. banksiae
8b. Flowers in compound corymbs; sepals pinnately lobed .......................................................... 90. R. cymosa
5b. Stipules adnate to petioles, persistent.
9a. Styles exserted, free or connate into a column, slightly shorter than or nearly equaling stamens.
11a. Shrubs; leaflets 3–5; stipules glandular pubescent at margin; flowers 4 or 5, rarely solitary, slightly fragrant or not; sepals often pinnately lobed; hip ovoid or pyriform ........................................ 56. R. chinensis
11b. Liana; stipules not glandular or only glandular at margin of free part; flowers 1–3, fragrant; sepals entire or slightly incised; hip depressed globose, pyriform, or obovoid.
12a. Branchlets sparsely hooked prickly; leaflets 5–9; petals pinkish, yellow, or white; flowers 1–3, 5–10 cm in diam., very fragrant; hip depressed globose ............................................. 57. R. odorata
12b. Branchlets prickly, setose; leaflets 3–5; petals purple-red; flower solitary, 3–3.5 cm in diam.; hip pyriform or obovoid ......................................................... 58. R. lucidissima
10b. Styles connate into a column, nearly equaling stamens; leaflets 5–9 (4. R. sect. Synstylae).
13a. Stipules pectinate or irregularly serrate at margin.
14a. Leaflets 3 or 5(or 7).
15a. Leaflets usually 3, ovate-lanceolate; petals pink .............................................................. 73. R. anemoniflora
15b. Leaflets usually 5, rarely 3 or 7; petals white.
16a. Leaflets 4–8 × 1.5–3 cm; flowers 2.5–3.5 cm in diam. ...................................................... 67. R. sambucina
16b. Leaflets 1.5–3.6 × 0.8–1.5 cm; flowers ca. 2.5 cm in diam. ........................................... 68. R. taiwanensis
14b. Leaflets (5 or)7 or 9.
17a. Stipules pectinate at margin.
18a. Styles and leaflets densely pubescent ............................................................................. 63. R. kunmingensis
18b. Styles glabrous; leaflets pubescent on both surfaces or only abaxially sparsely pubescent or subglabrous.
19a. Flower solitary; leaflets not exceeding 1 cm, both surfaces pubescent ....................................... 62. R. uniflora
19b. Flowers numerous in panicle; leaflets (1.3–)1.5–5 cm, only abaxially sparsely pubescent or subglabrous.
20a. Leaflets doubly serrate at margin; sepals pinnately lobed, lobules linear, abaxially glandular pubescent .............................................................................. 61. R. daishanensis
20b. Leaflets usually simply serrate at margin; sepals 2-lobed usually at middle part, abaxially glabrous.
21a. Leaflets 7 or 9, rhomboid-elliptic, base cuneate, margin deeply serrate; sepals entire at margin ................................................................. 59. R. langyashanica
21b. Leaflets 5–9, obovate, oblong, or ovate, base rounded or broadly cuneate, margin shallowly serrate; sepals usually 2-lobed sometimes entire at margin .......................... 60. R. multiflora
17b. Stipules irregularly serrate, rarely pectinate at margin.
22a. Leaflets abaxially densely villos; styles pubescent.
23a. Petals white; flowers 1.5–3 cm in diam., in corymb; pedicel and hypanthium densely pubescent and glandular pubescent; leaflets adaxially pubescent along veins ....... 64. R. kwangtungensis
23b. Petals pink; flowers 2.5–3 cm in diam., in umbel-like corymb; pedicel and hypanthium glabrous or sparsely glandular pubescent; leaflets adaxially glabrous .......... 65. R. lichiangensis
22b. Leaflets abaxially glabrous or subglabrous; styles pubescent or not.
24a. Styles glabrous ........................................................................................................ 72. R. maximowicziana
24b. Styles pubescent.
25a. Flowers double, numerous in panicle .............................................................................. 71. R. miyiensis
25b. Flowers with 5 petals, usually numerous in corymb.
26a. Shrub prostrate, sprawling, or procumbent; pedicel and hypanthium glabrous .............. 70. R. luciae
26b. Shrub erect; pedicel and hypanthium glandular and sparsely pubescent ....................... 69. R. pricei
13b. Stipules entire at margin, often glandular pubescent.
27a. Leaflets pubescent on both surfaces or only abaxially.
28a. Leaflets thicker in texture, adaxially rugose; abaxially densely gray-white pubescent, with prominent veins ................................................................. 75. *R. glomerata*
28b. Leaflets thinner in texture, adaxially not rugose, abaxially sparsely pubescent or along veins more densely pubescent.
29a. Leaflets usually 5; sepals usually entire ................................................................. 76. *R. rubus*
29b. Leaflets 7–9, often fewer just below inflorescence; sepals often with lateral lobes.
30a. Inflorescences umbel-like .................................................................................... 77. *R. heleneae*
30b. Inflorescences compound corymb ........................................................................ 74. *R. brunonii*
27b. Leaflets glabrous or sparsely pubescent abaxially along veins.
31a. Leaflets leathery, lucid, abaxially glabrous or sparsely pubescent; petals abaxially sericeous.
32a. Leaflets 5–9, 3–7 × 1–3.5 cm; sepals 0.8–1.2 cm, both surfaces glandular pubescent; flowers in corymb ................................................................. 78. *R. longicuspus*
32b. Leaflets 3–5, 7–12 × 3–6 cm; sepals 1.5–2 cm, both surfaces densely whitish tomentose, not glandular; flowers in compound corymb .................................................. 79. *R. lasiosepalus*
31b. Leaflets not leathery, not lucid; petals abaxially glabrous.
33a. Leaflets 3–5.
34a. Leaflets 3.5–9 cm, abaxially not glandular, margin simply serrate ....................... 86. *R. henryi*
34b. Leaflets smaller, less than 2.5 cm, abaxially glandular, margin doubly serrate.
35a. Leaflets 8–15 mm, apex rounded-oblute or truncate; flowers solitary, or 2 or 3 and fasciculate ......................................................................................... 87. *R. duplicata*
35b. Leaflets larger, 12–25 mm, apex acute or shortly acuminate; flowers 5–10, in corymb .... 88. *R. weisiensis*
33b. Leaflets (5–)7–9.
36a. Leaflets abaxially glandular, larger.
37a. Leaflets obovate, 7–10 × 5–8 mm, margin doubly serrate, teeth apically glandular ....... 80. *R. deqenensis*
37b. Leaflets ovate, elliptic, or ovate-oblong, larger, margin simply serrate, teeth not apically glandular.
38a. Leaflets oblong-ovate or lanceolate, 4–7 cm; pedicel 2–3 cm .................................. 81. *R. filipes*
38b. Leaflets elliptic or ovate, 3–6 cm; pedicel 1.5–1.8 cm ............................................. 82. *R. ludingensis*
36b. Leaflets abaxially not glandular, smaller.
39a. Leaflets 5(or 7); styles glabrous ........................................................................... 83. *R. derongensis*
39b. Leaflets usually 7; styles pubescent.
40a. Pedicel longer, 2–2.5 cm, and hypanthium, sepals abaxially glandular ................. 84. *R. shangchengensis*
40b. Pedicel shorter, not exceeding 1 cm, and hypanthium, sepals usually glabrous, occasionally glandular ................................................................. 85. *R. soulieana*
9b. Styles free, not exerted or only slightly so, shorter than stamens.
41a. Flowers solitary, rarely several, ebracteate (1. *R. sect. Pimpinellifoliae*).
42a. Sepals and petals 5.
43a. Flowering branches densely bristly and prickly, rarely without bristles.
44a. Leaflets doubly serrate at margin, glandular abaxially ....................................... 5. *R. kokanica*
44b. Leaflets simply serrate at margin, or both simply serrate and doubly serrate on same plant, not glandular punctate abaxially.
45a. Leaflets 7–11–15), elliptic, obovate-elliptic, or oblong-elliptic .................................. 4. *R. koreana*
45b. Leaflets 7–9, rarely 5 or 11, oblong, oblong-ovate, suborbicular, ovate, or elliptic.
46a. Leaflets oblong, oblong-ovate, or suborbicular, 1–2.2 cm; flowers 2–6 cm in diam.; hip black or dark brown, subglobose ......................................................... 2. *R. spinossissima*
46b. Leaflets ovate or elliptic, 5–18 mm; flowers 1.5–2 cm in diam.; hip deep red, ellipsoid or ovoid-oblong ................................................................. 3. *R. farreri*
43b. Flowering branches only prickly, rarely bristly.
47a. Petals white, pinkish, or red.
48a. Leaflets 3–7, elliptic or oblong, margin simply serrate; stipules lanceolate, filiform dissected, glandular dentate; petals white; flowers 1.8–2.5 cm in diam.; sepals ovate; pedicel ca. 1.5 cm, glandular or not ......................................................... 66. *R. transmorrisonensis*
48b. Leaflets 9–13, ovate or elliptic, margin doubly serrate; stipules broadly oblanceolate, glandular pubescent; petals pink or white; flowers 2.5–4 cm in diam.; sepals ovate-lanceolate or triangular-lanceolate; pedicel 1.5–3 cm, glandular pubescent or glabrous.
49a. Leaflets (7–9)–11; petals pink or red; pedicel glandular pubescent or glabrous .......... 11. *R. graciliflora*
49b. Leaflets 11–13; petals white; pedicel glabrous, but sparsely glandular pubescent .......... 12. *R. tsinglingensis*
47b. Petals yellow.
50a. Leaflets doubly serrate, abaxially glandular.
51a. Leaflets 9–15, rarely 7, elliptic, elliptic-ovate, or long elliptic, abaxially glabrous; petals yellowish or yellow-white; flowers 2.5–4 cm in diam.; sepals apically acuminate .......................... 9. R. primula

51b. Leaflets 5–9, rarely 11, broadly ovate or obovate, abaxially pubescent; petals yellow; flowers double, 4–6.5 cm in diam.; sepals leaflike ................................................................. 10. R. foetida

50b. Leaflets simply serrate, abaxially not glandular.

52a. Leaflets 5–9, suborbicular, obovate, or elliptic, glabrous, margin serrate at upper part, entire near base ......................................................................................................................... 6. R. platyacantha

52b. Leaflets 5–13, ovate, elliptic, obovate, or suborbicular, pubescent or glabrous, margin serrate from base to apex.

53a. Leaflets ovate, elliptic, or obovate, glabrous, margin acutely serrate or entire; flowers 4–5.5 cm in diam.; branches sometimes bristly at base ........................................................................... 7. R. hagonis

53b. Leaflets broadly ovate or suborbicular, rarely elliptic, abaxially sparsely pubescent, margin obtusely serrate or crenate; flowers 3–4(–5) cm in diam.; branches not bristly at base .......... 8. R. xanthina

42b. Sepals and petals 4.

54a. Leaflets abaxially glandular or at least margin doubly glandular serrate.

54b. Leaflets oblong or obovate, abaxially glabrous, adaxially glabrous or pilose; hip subglobose, abaxially glandular ................................................................. 18. R. sikangensis

55b. Leaflets obovate, adaxially densely pubescent, abaxially glabrous, glandular only along veins; hip obovoid, abaxially not glandular ........................................... 19. R. zhongdianensis

54b. Leaflets abaxially not glandular, margin simply serrate.

56a. Fruiting pedicel turgid.

57a. Leaflets 7–9(–13), oblong or oblong-ovate, abaxially glabrous, nearly bristly, margin only near apex serrate; petals yellowish; hip orange-yellow, obconic .............................................. 13. R. taronensis

57b. Leaflets 9–17, oblong or elliptic-oblong, abaxially glabrous or puberulous along midvein, margin serrate from base to apex; petals white; hip red or yellow, obovoid or pyriform ........ 14. R. omeiensis

56b. Fruiting pedicel not turgid.

58a. Leaflets glabrous on both surfaces, 7–11, oblong or broadly obovate; hip pyriform or obovoid .................................................................................................................. 15. R. morrisonensis

58b. Leaflets abaxially densely pubescent, 5–13, obovate, or oblong-ovate; hip globose, obovoid, or obovoid-globose.

59a. Leaflets 7–11(–13), ovate, obovate, or obovate-obleng, abaxially glabrous, abaxially sericeous; hip globose or obovoid, 8–15 mm in diam. ........................................................................... 16. R. sericea

59b. Leaflets 5–9(–11), oblong-ovate, both surfaces sericeous; hip obovoid-globose, ca. 1 cm in diam. .................................................................................................................. 17. R. mairei

41b. Flowers numerous in corymb or solitary, bracteate (2. R. sect. Cinnamomeae).

60a. Apical part of hypanthium with sepals, disk, and styles deciduous at fruit ripening.

61a. Prickles hooked; flowers numerous in corymb or panicle; hip globose ........................................... 20. R. beggeriana

61b. Prickles straight; flowers 1–4; hip subglobose, pyriform, or ellipsoid.

62a. Branchlets often prickly and setose; leaflets abaxially pubescent; petals white ................................ 21. R. albertii

62b. Branchlets usually only prickly, rarely setose; leaflets abaxially glabrous or pubescent along veins; petals purple-red or pink.

63a. Leaflets 7–15, oblong or elliptic, abaxially along veins pubescent, margin usually simply serrate; hip ovoid or ellipsoid ................................................................. 22. R. pratii

63b. Leaflets 7–9, elliptic, obovate, or suborbicular, abaxially glabrous, margin usually simple serrate or doubly serrate at upper part; hip subglobose .................................................. 23. R. willmottiae

60b. Apical part of hypanthium and sepals, disk, and styles deciduous at fruit ripening.

64a. Leaflets ca. 1.5 cm or less, apex usually obtuse; flowers solitary or a few in corymb.

65a. Bracteoles 2 or 3 or more, suborbicular, ovate, or broadly ovate, apex rounded-obtuse or acute.

66a. Leaflets doubly serrate at margin; bracteoles suborbicular or ovate.

67a. Sepals pinnately lobed; leaflets usually 5, rarely 7, abaxially densely glandular pubescent ................................................................. 45. R. pinnatisepala

67b. Sepals undivided; leaflets 5–7, rarely 9, abaxially sparsely puberulous or glandular pubescent ........................................................................... 46. R. forrestiana

66b. Leaflets simply serrate at margin; bracteoles ovate or broadly ovate.

68a. Flowers in corymb or panicle, 3–5 cm in diam.; leaflets 7–9 .............................................. 47. R. multibracteata

68b. Flower solitary, 2–2.5 cm in diam.; leaflets usually 5, rarely 3 or 7 .................................... 48. R. calyptopoda

65b. Bracteoles usually 1, rarely 2, ovate, apex shortly acuminate.

69a. Pedicel shorter, 8–15 mm; leaflets abaxially puberulous or sparsely pubescent.
70a. Leaflets usually 7–9, suborbicular, obovate, or elliptic, abaxially puberulous, margin acutely serrate; petals pink; pedicel glandular pubescent ................................................................. 51. *R. giraldii*

70b. Leaflets 3–5(–7), abaxially sparsely pubescent, margin obtusely serrate; petals white or pink; pedicel glandular pubescent or not.

71a. Leaflets rhomboid-ovate or oblong, abaxially sparsely pubescent, margin obtusely serrate or crenate; petals white, before anthesis pink; pedicel not glandular pubescent ................................................................. 49. *R. pseudobanksiae*

71b. Leaflets ovate or ovate-elliptic, abaxially sparsely pubescent and densely glandular; petals pink; pedicel glandular pubescent ................................................................. 50. *R. baiyushanensis*

69b. Pedicel longer, 15–30 mm; leaflets glabrous or abaxially along veins pubescent.

72a. Leaflets abaxially glandular punctate, 5–7, oblong, margin doubly serrate; petals white; flower solitary, 3.5–4 cm in diam.; hip globose, glabrous ................................................................. 55. *R. tibetica*

72b. Leaflets abaxially not glandular punctate, 5–11, elliptic to obovate or suborbicular, margin simply serrate; petals pink, purple-red, or white; flowers 1 to several, 2–5 cm in diam.; hip subglobose or ovoid.

73a. Leaflets 7–15, broadly elliptic or ovate-elliptic, glabrous; petals pink or purple-red; flowers 1–3, 2–3.5 cm in diam. ................................................................. 52. *R. sertata*

73b. Leaflets 5–9, suborbicular, obovate, or broadly elliptic; petals pinkish or white; flowers 1–4, 3–5 cm in diam.

74a. Petals pinkish; flowers 3.5–5 cm in diam.; hip subglobose or ovoid, glabrous, rarely glandular punctate; leaflets abaxially often pubescent ................................................................. 53. *R. webbiana*

74b. Petals white; flowers 3–4 cm in diam.; hip oblong or ovoid, densely glandular pubescent; leaflets glabrous ................................................................. 54. *R. fedtschenkouana*

64b. Leaflets 1.5–7 cm, apex usually acute; flowers numerous, rarely a few in corymb, rarely solitary.

75a. Flowers numerous in corymb.

76a. Sepals pinnately lobed; leaflets 5–9, abaxially often glandular, glabrous or pubescent along veins, margin often glandular and doubly serrate ................................................................. 24. *R. setipoda*

76b. Sepals undivided; leaflets 3–11, abaxially puberulous, subglabrous or glabrous, margin simply serrate, or simple and doubly serrate.

77a. Branchlets prickly and setose; leaflets 7–9, abaxially puberulous, margin simply serrate; petals red; flowers in corymb ................................................................. 42. *R. persetosa*

77b. Branchlets usually only prickly, sometimes nearly not prickly; leaflets 3–11, abaxially pubescent, subglabrous, or glabrous, margin simple and/or doubly serrate; petals pink or red; flowers in umbel or corymb.

78a. Leaflets 3–5(–7), abaxially pubescent or glabrous, margin doubly serrate, or both simple and doubly serrate ................................................................. 25. *R. corymbulosa*

78b. Leaflets 7–11, abaxially glabrous, subglabrous, or densely pubescent, margin entire below middle or serrate.

79a. Leaflets abaxially glabrous or subglabrous; petals red.

80a. Leaflets 3–10 cm, margin serrate from base to apex; pedicel 1.5–4 cm, densely glandular pubescent, rarely glabrous; flowers 3.5–6 cm in diam. ................................................................. 26. *R. caudata*

80b. Leaflets 1–2.5 cm, margin entire below middle; pedicel 1.5–3 cm, glabrous or sparsely glandular pubescent; flowers 2–3.5 cm in diam. ................................................................. 52. *R. sertata*

79b. Leaflets abaxially densely pubescent, at least along veins pubescent; petals pink.

81a. Styles exerted, slightly shorter than stamens; receptacle glandular pubescent, or sometimes puberulous ................................................................. 27. *R. davidii*

81b. Styles slightly exerted, much shorter than stamens; receptacle glabrous, rarely glandular pubescent ................................................................. 28. *R. banksiopsis*

75b. Flowers solitary or few in corymb.

82a. Stipules abaxially not prickly.

83a. Branchlets and prickles tomentose; leaflets thick in texture, adaxially rugose ................................................................. 29. *R. rugosa*

83b. Branchlets and prickles glabrous; leaflets thinner in texture, not rugose.

84a. Leaflets abaxially glandular punctate; prickles straight, slender; hypanthium depressed globose or ovoid-globose.

85a. Leaflets 7 or 9, abaxially glaucous, oblong or broadly lanceolate, margin simple or doubly serrate; hypanthium depressed globose ................................................................. 30. *R. davurica*

85b. Leaflets 5–9, abaxially not glaucous, ovate or elliptic, margin doubly serrate; hypanthium ovoid-globose ................................................................. 31. *R. hezhangensis*
84b. Leaflets abaxially not glaucous, not glandular; prickles straight, weak, sometimes absent; hypanthium ellipsoid or oblong.

86a. Leaflets abaxially glabrous, margin partly doubly serrate; pedicel 1.5–2 cm ............... 34. R. oxyacantha
86b. Leaflets abaxially puberulous or hirsute, margin simply serrate or sharply doubly serrate; pedicel 2–4 cm.

87a. Leaflets abaxially puberulous, margin simply serrate; pedicel 2–3.5 cm .................... 32. R. acicularis
87b. Leaflets abaxially brown hirsute, margin sharply doubly serrate; pedicel 3–4 cm ..... 33. R. fargesiana

82b. Stipules abaxially prickly.

88a. Prickles hooked; leaflets 7–9, abaxially glabrous or puberulous; petals white or pink; flowers (1 or)3–6; pedicel glandular ................................................................................................................ 35. R. laxa
88b. Prickles straight or absent; leaflets 7–11, abaxially glabrous, subglabrous, or pubescent; petals pink or red; flowers 1 to several; pedicel glandular pubescent or not.

89a. Leaflets abaxially glabrous or subglabrous.

90a. Leaflets 7, ovate or ovate-lanceolate, 2.5–6.5 cm; petals dark red; flowers often solitary; pedicel 15–25(–30) mm, usually glabrous ........................................................................... 36. R. saturata
90b. Leaflets 7–9(–11), elliptic or ovate, 1–3 cm; petals pink; flowers 1–3; pedicel 5–30 mm, densely glandular pubescent or glabrous.

91a. Pedicel 1.5–3 cm, glabrous, rarely glandular pubescent; leaflets 0.6–2.5 cm, apex rounded, obtuse, or acute; flowers 2–3.5 cm in diam. ......................................................... 52. R. sertata
91b. Pedicel 1.5–10 mm, densely glandular pubescent; leaflets 1–3 cm, apex acute or obtuse; flowers 2–5 cm in diam. ........................................................................................................... 36. R. persetosa

92a. Leaflets 5, rarely 7 or 3, adaxially glabrous, abaxially pubescent or glandular, margin doubly serrate; petals pink; flowers solitary or several, 2.5–3 cm in diam.; pedicel 1.5–3 cm ..................................................................................................................................................... 36. R. chengkouensis
92b. Leaflets 7–13, adaxially glabrous, abaxially sparsely pubescent, not glandular, margin simple or doubly serrate; petals white, pink, or red; flowers 2 or more; pedicel to 1–4 cm.

93a. Flowers 2, fasciculate; pedicel shorter than 1 cm; stipules larger, hooked ................... 39. R. sinobiflora
93b. Flowers often more than 2; pedicel 1–4 cm; stipules shorter, not hooked.

94a. Sepals pinnately lobed, often glandular pubescent.

95a. Branches prickly and setose; leaflets 7–11, 2–5 cm, margin doubly serrate, rarely partly simply serrate; petals pink; flowers 3–5 cm in diam. ................................. 40. R. sweginzowii
95b. Branches only prickly; leaflets 7–13, 1–5 cm, margin usually simply serrate; petals dark red; flowers 4–6 cm in diam. .............................................................. 41. R. moyesii

96a. Petals white or pinkish; branchlets prickly and bristly; leaflets 9–15, elliptic or oblong, 1–4.5 cm, abaxially along veins pubescent, margin simply serrate; flowers 2–3 cm in diam. ........................................................................................................... 44. R. murielae
96b. Petals rosy or red; branchlets densely setose or sparsely prickly or not prickly; leaflets 7–11, elliptic, ovate-elliptic, or oblong, abaxially glabrous, sparsely pubescent, or densely puberulous, margin simply serrate, rarely doubly serrate; flowers 2.5–5 cm in diam.

97a. Branchlets usually densely setose; leaflets 7–9(–11), elliptic or ovate-elliptic, 1.2–3 cm, abaxially glabrous or sparsely pubescent, margin simply serrate, rarely doubly serrate; flowers 2.5–5 cm in diam.; pedicel and receptacle glabrous .......... 42. R. persetosa
97b. Branchlets usually sparsely prickly or not prickly; leaflets 9–11, oblong or elliptic-ovate, 2.5–6 cm, abaxially densely puberulous, margin simply serrate; flowers 3.5–5 cm in diam.; pedicel and receptacle densely glandular pubescent, rarely glabrous ........................................................................................................... 43. R. macrophylla

Key based mainly on vegetative characters
1a. Leaves simple, exstipulate; flower solitary; petals yellow .......................................................................................................................... 1. R. berberifolia
1b. Leaves compound, stipulate; flowers solitary to numerous; petals variously colored.

2a. Stipules free, deciduous.

3a. Leaflets 5–9, elliptic or obovate; stipules pectinate; petals white; flowers solitary, or 2 or 3 and fasciculate, 4.5–7 cm in diam.; bracts large, laciniate, abaxially tomentose .......................................................................................................................... 92. R. bracteata
3b. Leaflets 3–5(–7), elliptic, ovate, elliptic-ovate, obovate, or oblong-ovate; stipules pectinate or not; petals variously colored; flowers solitary or several in umbel or corymb; bracts small or absent.
4a. Leaflets 3(or 4), elliptic-ovate or obovate, glabrous; petals white; flower solitary, 5–10 cm in diam.; pedicel and hypanthium densely glandular bristly ................................................................. 91. R. laevigata
4b. Leaflets 3–5(–7), elliptic, ovate, or oblong-lanceolate; petals yellow or white; flowers 1–3, 1.5–2.5 cm diam.; pedicel and hypanthium often glabrous.
5a. Flowers in umbel or corymb; sepals entire ........................................................................ 89. R. banksiae
5b. Flowers in compound corymb; sepals pinnately lobed ...................................................... 90. R. cymosa
2b. Stipules adnate to petiole, persistent.
6a. Stipules pectinate or irregularly serrate at margin; styles connate, exserted.
7a. Stipules pectinate.
8a. Styles hairy; flowers 5–7–flowered, in corymb; leaflets abaxially densely tomentose-pubescent .......................... 63. R. kunmingensis
8b. Style glabrous; flowers solitary to numerous, in panicle or corymb; leaflets abaxially pubescent or tomentose-pubescent.
9a. Flower solitary; leaflets 5–7, obovate or broadly elliptic .................................................. 62. R. uniflora
9b. Flowers numerous in panicle; leaflets 5–9, rhomboid-elliptic, obovate, oblong, or ovate.
10a. Leaflets 5–7, margin doubly serrate; sepals pinnately lobed, lobules linear, abaxially glandular pubescent .......................................................... 61. R. daishanensis
10b. Leaflets 5–9, margin simple-serrate, occasionally doubly serrate; sepals entire or 2-lobed, abaxially not glandular pubescent.
11a. Leaflets 7–9, rhomboid-elliptic, base cuneate, margin deeply serrate; sepals entire at margin ........................................................................................................ 59. R. langyashanica
11b. Leaflets 5–9, obovate, oblong, or ovate, base rounded or broadly cuneate, margin shallowly serrate; sepals 2-lobed or entire ........................................................................ 60. R. multiflora
7b. Stipules irregularly serrate at margin.
12a. Leaflets 3–5, ovate-lanceolate, oblong-lanceolate, oblong, or oblong-ovate; flowers solitary or 4 to several in corymb.
13a. Leaflets ovate-lanceolate or oblong-lanceolate; flowers solitary or in corymb ............................ 73. R. anemoniflora
13b. Leaflets oblong to oblong-ovate; flowers 4 to several in terminal corymb ......................... 67. R. sambucina
12b. Leaflets (5–)7–9, elliptic, oblong, ovate or obovate, not lanceolate; flowers several in corymb.
14a. Leaflets abaxially densely villose; styles pubescent.
15a. Leaflets 5–9, adaxially along midvein pubescent; petals white or red; flowers 1.5–3 cm in diam.; pedicel and hypanthium densely pubescent and glandular pubescent .......................... 64. R. kwangtungensis
15b. Leaflets 3–5(–7), abaxially glabrous; petals pink; flowers 2.5–3 cm in diam.; pedicel and hypanthium glabrous, rarely sparsely glandular pubescent .............................................. 65. R. lichiangensis
14b. Leaflets abaxially glabrous or subglabrous; styles glabrous or pubescent.
16a. Leaflets 7–9, rarely 5, apex acute or acuminate, abaxially along veins pubescent; styles glabrous; hip ovoid .......................................................... 72. R. maximowicziana
16b. Leaflets 5–7, rarely 9, apex rounded-obtuse or acute, abaxially glabrous or sparsely pubescent; styles pubescent; hip globose or subglobose.
17a. Leaflets elliptic, ovate, or obovate; hypanthium and sepals abaxially subglabrous ...................... 70. R. luciae
17b. Leaflets ovate or oblong; hypanthium abaxially glandular setulose; sepals glandular setulose on both surfaces ............................................................................. 69. R. pricei
6b. Stipules entire; styles free, rarely connate.
18a. Leaflets 3–5(–7).
19a. Leaflets doubly serrate at margin.
20a. Leaflets glabrous or abaxially pubescent along veins.
21a. Leaflets ovate-oblong or elliptic, 2.5–6 cm, apex acute or rounded-obtuse; petals red; flowers numerous in corymb, 2–2.5 cm in diam.; styles free, obviously exserted ......................... 25. R. corymbulosa
21b. Leaflets oblong or elliptic, smaller, 0.8–1.5 cm, apex rounded-obtuse or truncate; petals yellowish or white; flowers 1–3 and fasciculate, ca. 1 cm in diam.; styles connate, slightly exserted .......................................................... 87. R. duplicata
20b. Leaflets abaxially sparsely pubescent and glandular pubescent.
22a. Leaflets 3–5; styles connate or free, exserted or slightly so.
23a. Styles connate, exserted; petals white; flowers ca. 1.5 cm in diam., in corymb ..................... 88. R. weisiensis
23b. Styles free, slightly exserted; petals pink; flowers ca. 2.5 cm in diam., solitary, rarely 2 or 3 and fasciculate .................................................................................................................. 50. R. baiyushanensis
22b. Leaflets 5(–7); styles free, slightly exserted.
24a. Leaflets elliptic, oblong, or ovate, 15–35 mm; flowers solitary or several; sepals oblong-lanceolate, margin entire, pubescent outside ......................................................... 38. R. chengkouensis
24b. Leaflets obovate or oblong, 5–11 mm; flowers 2 or 3 and fasciculate, rarely solitary; sepals triangular-lanceolate, pinnately lobed, glabrous outside ......................................................... 45. *R. pinnatisepala*

19b. Leaflets simply serrate, rarely partly doubly serrate at margin.

25a. Old branches prickly, bristly, or setose.

26a. Leaflets 5–7(–9), thick, adaxially rugose, abaxially tomentose; branchlets and prickles tomentose; petals purple-red or white; flowers 1–3; hip black-purple, pyriform or obovoid. 29. *R. rugosa*

26b. Leaflets 3–7, thin, adaxially not rugose, glabrous, abaxially pubescent or only along midvein pubescent; branchlets glabrous or subglabrous; petals pink or purple-red; flowers 1–3 or 8–12; hip black-purple, pyriform or obovoid.

27a. Petals pink; leaflets 3–7; hip red, pyriform or long ellipsoid, with a distinct neck .................. 32. *R. acicularis*

27b. Petals purple-red; leaflets 3(–5); hip purple, obovoid or pyriform, without neck ................. 58. *R. lucidissima*

25b. Old branches only prickly, not bristly and setose.

28a. Leaflets abaxially ± pubescent.

29a. Leaflets less than 1.5 cm, 3–5, margin obtusely serrate; flowers 3–5 in corymb; petals white but pink before anthesis; styles free ................................................................. 49. *R. pseudobanksiae*

29b. Leaflets more than 2 cm, 3–7, margin acutely serrate; flowers numerous in compound corymb; petals white; styles connate.

30a. Leaflets with both surfaces pubescent, 5–7, oblong or long-lanceolate; branchlets densely pubescent; hip purple-brown, ovoid ......................................................... 74. *R. brunonii*

30b. Leaflets adaxially glabrous, 3–7, oblong to ovate or lanceolate; branchlets glabrous or slightly pubescent; hip orange-red or subglobose.

31a. Leaflets adaxially rugose, abaxially densely grayish pubescent and with prominent veins, 5–7, oblong or oblong-ovate; hip orange-red ................................................................. 75. *R. glomerata*

31b. Leaflets abaxially smooth, abaxially with only midvein prominent, 3–7, oblong-ovate, lanceolate, or ovate-elliptic to obovate; hip red.

32a. Leaflets abaxially glandular, subglabrous, 5–7, oblong-ovate or lanceolate, apex acuminate .... 81. *R. filipes*

32b. Leaflets abaxially not glandular, densely pubescent, (3–)5, ovate-elliptic or obovate, apex caudate-acuminate or acute ......................................................... 76. *R. rubus*

28b. Leaflets abaxially glabrous.

33a. Erect shrub.

34a. Leaflets (5–)7(–9), elliptic or ovate, 1–3 cm, apex rounded-obtuse or acute; styles connate; hip ovoid-globose, orange-red ................................................................. 85. *R. soulieana*

34b. Leaflets 3–5(–7), obovate or broadly ovate to ovato-oblong, 0.9–6 cm, apex acuminate or rounded-obtuse; styles free or connate; hip ovoid to pyriform or globose to obovoid-globose, red or red-brown.

35a. Leaflets broadly ovate to ovato-oblong, 2.5–6 cm, apex acuminate; styles free; hip red, ovoid to pyriform ................................................................. 56. *R. chinensis*

35b. Leaflets obovate, 9–15 × 6–10 mm, apex rounded-obtuse; styles connate; hip red-brown, globose or obovoid-globose ................................................................. 83. *R. derongensis*

33b. Climbing liana.

36a. Flowers 1–3; styles free.

37a. Leaflets 5–9, elliptic or ovate, apex acute or acuminate; petals yellow, pink, or white; sepals entire; hip depressed-ovoid ................................................................. 57. *R. odorata*

37b. Leaflets 3(–5), oblong-ovate or long elliptic, apex caudate-acuminate or acute; petals purple-red; sepals entire or slightly incised; hip pyriform or obovoid ........................................... 58. *R. lucidissima*

36b. Flowers numerous in corymb or compound corymb; styles connate.

38a. Leaflets 5–9, rarely 3, leathery, shorter, 3–7 cm; petals abaxially pubescent; flowers in corymb ................................................................. 78. *R. longicuspis*

38b. Leaflets 3–5, papery or leathery, longer, 3.5–12 cm; petals abaxially glabrous or pubescent; flowers in corymb or compound corymb.

39a. Leaflets papery; petals abaxially glabrous; flowers 5–15, in corymb .................................. 86. *R. henryi*

39b. Leaflets leathery; petals abaxially pubescent; flowers numerous, in compound corymb .......... 79. *R. lasiosepala*

18b. Leaflets more than (5–)7.

40a. Leaflets more than 2 cm.

41a. Leaflets doubly serrate at margin.

42a. Branches prickly and setose.

43a. Leaflets 7–9, oblong or broadly lanceolate, abaxially puberulous and glandular punctate, apex acute or rounded-obtuse; petals deep pink; hip subglobose or ovoid; sepals persistent .............. 30. *R. davurica*
43b. Leaflets 5–7, ovate, elliptic, or obovate, abaxially pubescent, not glandular punctate, apex rounded-obtuse, rarely acute; petals white; hip pyriform or ellipsoid; sepals deciduous .......................... 21. R. albertii

42b. Branches only prickly, not bristly and setose.

44a. Leaflets abaxially pubescent or subglabrous.

45a. Prickles straight, stout; leaflets 7–9, oblong or elliptic, abaxially subglabrous, apex rounded-obtuse or acute ................................................................. 34. R. oxyacantha

45b. Prickles broad, plain; leaflets 7–11, elliptic or ovate-oblong, abaxially pubescent, apex acute, rarely rounded-obtuse ................................................................. 40. R. sweginzowii

44b. Leaflets abaxially pubescent or subglabrous and glandular.

46a. Leaflets 5–9; flowers in lax corymb; styles free, slightly exserted ................................................ 24. R. setipoda

46b. Leaflets usually 7; flowers in corymb-panicle; styles connate, exserted .................................. 82. R. ludingensis

41b. Leaflets simply serrate at margin.

47a. Leaflets abaxially glabrous or subglabrous.

48a. Branches with hooked prickles.

49a. Leaflets 5–9, broadly elliptic or elliptic-obovate; flowers several or numerous, rarely solitary; petals white, rarely pinkish; hip red or dark purple, subglobose, with sepals deciduous when ripe ................................................................. 20. R. beggeriana

49b. Leaflets 7–9, elliptic, oblong, or ovate, rarely obovate; flowers (1 or)3–6; petals white or pink; hip red, oblong or ovoid, with persistent sepals .................................................. 35. R. laxa

48b. Branches with straight prickles.

50a. Old branches prickly, sometimes densely setose.

51a. Branchlets densely bristly; pedicel 1.2–3 cm ........................................................................ 42. R. persetosa

51b. Branchlets often only prickly; pedicel shorter, 5–10 mm ............................................................. 37. R. bela

50b. Old branches only prickly, usually not setose.

52a. Prickles broad, plain, scattered.

53a. Petals red; flowers in corymb; sepals caudate, leaflike; pedicel and hypanthium often glandular, rarely smooth ................................................................. 26. R. caudata

53b. Petals white; flowers compound corymb; sepals pinnately lobed; hypanthium prickly abaxially ........................................................................................................ 94. R. kweichowensis

52b. Prickles slender, straight, rarely few or absent.

54a. Leaflets 9–15, elliptic or oblong, apex acute or shortly acuminate; petals white; pedicel 2–4 cm ........................................................................................................ 44. R. murielae

54b. Leaflets 7–9(–15), ovate, long elliptic, or ovate-lanceolate, apex acute, acuminate, or rounded-obtuse; petals pink or deep red; pedicel 1.5–3 cm.

55a. Leaflets 7–15, ovate, long elliptic, or ovate-lanceolate, apex acute or rounded-obtuse; petals pink; flowers solitary to several, 2–3.5 cm in diam.; sepals, pedicel, and hypanthium often smooth .......... 52. R. sertata

55b. Leaflets 7–9, ovate-lanceolate, apex acuminate or acute; petals deep red; flowers solitary, rarely 2 or 3, 3.5–5 cm in diam.; pedicel and hypanthium usually glabrous, or sparsely glandular pubescent .................................................. 36. R. saturata

47b. Leaflets abaxially pubescent or along midvein and lateral veins pubescent.

56a. Flowers numerous in corymb.

57a. Pedicel and hypanthium glabrous; leaflets 7–9, ovate or oblong, rarely long elliptic-ovate; petals pink; styles free ........................................................................................................... 28. R. banksiopsis

57b. Pedicel and hypanthium glandular pubescent; leaflets 5–9, oblong-ovate, ovate-lanceolate, or ovate; petals pink or white; styles free or connate.

58a. Petals pink; styles free, slightly exserted ............................................................................................ 27. R. davidii

58b. Petals white; styles connate in column.

59a. Leaflets (5–)7–9, oblong-ovate or ovate-lanceolate, 2.5–4.5 cm ........................................ 77. R. helena

59b. Leaflets 5–7, ovate to oblong-ovate, 1.5–3.6 cm ........................................................................ 68. R. taiwanensis

56b. Flowers solitary, rarely 2 or 3.

60a. Pedicel and hypanthium often glandular pubescent, rarely glabrous.

61a. Leaflets 7–13, ovate, elliptic, or oblong-ovate, apex acute or rounded-obtuse; petals deep red; sepals often pinnately lobed; hip orange-red or purple-red, oblong-ovoid or ovoid, to 5 cm ........................................................................................................ 41. R. moyesii

61b. Leaflets 9–11(–13), oblong or elliptic-ovate, apex acute, rarely rounded-obtuse; petals red; sepals entire; hip deep red, oblong-ovoid or long ovoid, 1.5–3 cm ........................................ 43. R. macrophylla

60b. Pedicel and hypanthium glabrous.

62a. Leaflets oblong or broadly lanceolate, abaxially usually glandular, apex acute or rounded-obtuse ........................................................................................................... 30. R. davurica

ROSACEAE
62b. Leaflets ovate or ovate-lanceolate or oblong-lanceolate, abaxially eglandular.
63a. Leaflets ovate or ovate-lanceolate, apex acuminate or acute; flowers solitary, rarely 2, pedicel 1.5–2.5 cm ................................................................. 36. *R. saturata*
63b. Leaflets ovate-lanceolate or oblong-lanceolate, apex acuminate or caudate; flowers 2, pedicel 0.5–1 cm ........................................................................ 39. *R. sinobiflora*
40b. Leaflets less than 1.5(–2) cm.
64a. Leaflets doubly serrate at margin.
65a. Leaflets abaxially glabrous, not glandular; branches prickly, bristly, or setose; leaflets (5–)7–9(–11), suborbicular or oblong-ovate; flowers solitary, or 2 or 3 and fasciculate; petals yellow, white, or pink; hip subglabose, black .............................................................. 2. *R. spinosisima*
65b. Leaflets abaxially glandular or pubescent; branches prickly, sometimes also bristly and setose; leaflets 5–15, oblong, obovate, ovate, or elliptic; flowers 1–5; petals white, yellow, pink, or red; hip obvoid or subglabose, red or red-brown.
66a. Branches prickly, bristly, and setose.
66b. Branches only prickly, not bristly and setose.
70a. Leaflets hairy on both surfaces or only abaxially hairy.
71a. Leaflets abaxially brown hirsute, densely so along veins, elliptic or oblong-elliptic .............. 33. *R. fargesiana*
71b. Leaflets pubescent on both surfaces, broadly ovate, ovate, or ovate-elliptic.
72a. Leaflets broadly ovate or ovoblate; flower double, solitary, rarely several, without bracts ...... 10. *R. foetida*
72b. Leaflets ovate or elliptic; flowers 3–5 in corymb, with 3–5 bracts ................................. 31. *R. hezhangensis*
70b. Leaflets abaxially glabrous or subglabrous.
73a. Leaflets apically acute or rounded-obtuse.
74a. Leaflets (7–)9–15, elliptic, elliptic-ovoblate, or long elliptic, abaxially glandular, margin obtusely serrate; petals yellowish; hip black-brown, subglabose ................................................. 9. *R. primula*
74b. Leaflets 9–11, ovate or elliptic, abaxially pubescent or glabrous, margin acutely serrate; petals pink; hip red, obvoid ................................................................. 11. *R. graciliflora*
73b. Leaflets apically rounded-obtuse or truncate.
75a. Sepals and petals 4; leaflets obovate, abaxially not glandular or only glandular along veins ................................................................................................................. 19. *R. zhongdianensis*
75b. Sepals and petals 5; leaflets ovate or ovoblate, abaxially sparsely glandular or not glandular.
76a. Styles free, slightly exserted; leaflets 5–7(–9), subrounded, ovate or obovate, abaxially not or sometimes glandular pubescent ................................................................. 46. *R. forrestiana*
76b. Styles connate, exserted; leaflets usually 7, obovate, abaxially sparsely glandular pubescent .................................................................................................................. 80. *R. deqenensis*
64b. Leaflets simply serrate, rarely partly doubly serrate at margin.
77a. Leaflets abaxially glabrous, rarely pubescent when young and wholly soon glabrate.
78a. Branches prickly, bristly, and setose.
79a. Leaflets entire near base of margin, 7–11, elliptic or ovate; petals pink; hip bright red ................ 3. *R. farreri*
79b. Leaflets serrate from base to apex, 5–13, suborbicular to ovate, elliptic, or obovate; petals white or yellow; hip black or purple-red.
80a. Leaflets (5–)7–9(–11), suborbicular or oblong-ovate; petals white, pink, or yellow; hip black ............................................................. 2. *R. spinosisima*
80b. Leaflets 5–13, ovate, elliptic, or obovate; petals yellow; hip purple-red .................................... 7. *R. hugonis*
78b. Branches only prickly, not bristly and setose.
81a. Prickles slender, straight; styles free.
82a. Leaflets serrate from base to apex, 9–15, elliptic, oblong, or obovate, apex mostly acute; petals pink; hip densely prickly ................................................................................................................. 93. *R. roxburghii*
82b. Leaflets entire near base of margin, 5–13, elliptic, ovate-elliptic, suborbiculare, oblong, or broadly obovate, apex mostly rounded-obtuse or truncate; petals pink or white; hip glabrous or stipitate glandular.
83a. Branches with prickles often in pairs; leaflets 7–11(–13), oblong or broadly obovate; petals white; hip red ............................................................... 15. R. morrisonensis
83b. Branches sparsely prickly; leaflets 5–9, suborbicular or ovate, or broadly elliptic; petals pink; hip deep red or reddish.
84a. Leaflets 7–15, elliptic, ovate-elliptic; pedicel 1.5–3 cm; hip deep red, ovoid ............................. 52. R. sertata
84b. Leaflets 5–9, suborbicular, obovate or broadly elliptic; pedicel 1–1.5 cm; hip reddish, subglobose ................................................................................................................................. 53. R. webbiana
81b. Prickles dilated at base; styles connate, exserted.
85a. Branches with prickles often in pairs; leaflets 5–9, suborbicular, obovate, or broadly elliptic; petals pink; hip deep red or reddish.
85b. Styles free, slightly exserted.
87a. Styles connate, exerted.
86a. Leaves usually 7, obovate or oblong; flowers 2 or 3 and fasciculate, simple ............ 84. R. shanghengensis
86b. Leaflets 5–7, suborbicular, obovate, or broadly elliptic; petals yellow; hip red ................................................................................................................................. 71. R. miyiensis
85a. Branches densely prickly; leaflets 5–11, ovate or broadly elliptic, in pairs; petals pink; hip deep red or purple-brown, glandular pubescent or glabrous outside.
80a. Leaflets 5–8, suborbicular, obovate, or broadly elliptic; petals yellow; flowers without bracts; hip glabrous ................................................................................................................................. 6. R. platycartha
80b. Leaflets (5–)7(–9), suborbicular or ovate; petals white, rarely pink; flowers with bracts; hip densely glandular pubescent ................................................................................................................................. 54. R. fedtschenkoana
77b. Leaflets abaxially or only along midvein pubescent.
91a. Branches prickly, sometimes densely bristly or setose.
92a. Leaflets serrate from base to apex at margin.
93a. Petals 4, white; hip bright red or yellow; fruiting pedicel short, thickened .................................. 14. R. omeiensis
93b. Petals 5, white or pinkish white; fruiting pedicel slender, not thickened.
94a. Branchlets densely prickly; leaflets 7–11; petals pinkish white .................................................. 4. R. koreana
94b. Branchlets sparsely prickly, occasionally bristly; leaflets 11–13; petals white ........... 12. R. tsinglingensis
95a. Leaflets entire near base of margin.
99a. Leaflets apically acute or acuminate, rarely rounded-obtuse.
100a. Flowers solitary, or 3–5 in a cyme, without bracts; petals white .......................... 66. R. transmorrisonensis
100b. Flowers numerous in corymb or rarely in panicle; petals red or white.
101a. Leaflets ovate, obovate, or suborbicular, apex rounded-obtuse; petals red; flowers in a corymb, rarely in panicle; bracts many, in 2 whorls; 1 of ovate and 1 of lanceolate bracts; styles free, slightly exserted ........................................... 47. *R. multibracteata*

101b. Leaflets oblance-ovate or ovate-lanceolate, apex shortly acuminate; petals white; flowers in a corymb; bracts caducous, narrowly lanceolate; styles connate, exserted ...... 77. *R. helenae*

99b. Leaflets apically usually rounded-obtuse, rarely acute.

102a. Sepals deciduous when fruit ripens; leaflets 7–9(–11) ..................................................... 23. *R. willmottiae*

102b. Sepals persistent; leaflets 5–9.

103a. Bracts 3–5, leaflike, ovate, persistent; leaflets usually 5, rarely 3 or 7 ....................... 48. *R. calypтопoda*

103b. Bracts 1 or 2, membranous, ovate-lanceolate, deciduous, rarely persistent; leaflets 7–9.

104a. Leaflets serrate from base to apex at margin; petals pink; pedicel not exceeding 1 cm; hip ovoid; prickles shorter ................................................................................................. 51. *R. giraldii*

104b. Leaflets entire near base of margin; petals reddish; pedicel 1–1.5 cm; hip subglobose; prickles longer, yellowish ............................................................................................. 53. *R. webbiana*


Leaves exstipulate; leaf blade simple. Flower solitary. Hypanthium globose, bristly.

Two species: Asia; one species in China.


小檗叶蔷薇  xiao bo ye qiang wei

*Hulthemia berberifolia* (Pallas) Dumortier.

Shrubs diffuse, dwarf, 30–50 cm tall. Branchlets yellow, smooth when young, becoming dark brown and rough when old, glabrous; prickles in pairs at leaf bases, sparse, yellow, curved, somewhat hooked. Leaves simple, exstipulate, sessile or sub sessile; leaf blade elliptic, oblong, rarely ovate, 1–2 × 0.5–1 cm, leathery, glabrous or abaxially sparsely puberulous when young, base subrounded or cordate, rarely broadly cuneate, margin coarsely serrate, becoming entire toward base, apex rounded-obtuse or acute. Flower solitary, 2–2.5 cm in diam.; pedicel 1–1.5 cm, glabrous; bracts absent. Hypanthium globose, abaxially long pubescent, sparsely long pubescent, adaxially grayish pubescent, margin entire, apex caudate or long acuminate. Petals 5, yellow, purplered spotted at base, obovate, slightly longer than sepals. Stamens purple. Styles free, slightly protruding, densely villous. Hip purple-brown, subglobose, ca. 1 cm in diam., densely setose, with persistent sepals. Fl. May–Jun, fr. Jul–Sep.

Slopes, waste fields; 100–600 m. Xinjiang [Kazakhstan, Russia].

2. *Rosa* subgen. *Rosa*

蔷薇亚属 qiang wei ya shu

Leaves stipulate; leaf blade pinnate. Flowers numerous in corymbs, or solitary. Hypanthium urceolate, rarely cupular.

Between 150 and 200 species: N Africa, Asia, Europe, North America; 94 species (65 endemic) in China.


芹叶组 qin ye zu

Shrubs erect. Branches often with straight prickles and bristles. Leaflets 7–9, rarely 15–17, often small; stipules narrow, adnate to petiole, auriculate. Flower solitary. Sepals persistent, erect, margin entire.

About 25 species: Asia, Europe; 18 species (12 endemic) in China.


密刺蔷薇  mi ci qiang wei

Shrubs low, ca. 1 m tall. Branches spreading or curved, glabrous; branchlets of present year purple-brown or red-brown; prickles dense to sparse, terete, straight or slightly curved, to 4 mm, fine, bristelike, abruptly broadening at base, intermixed with smaller bristles. Leaves including petiole 4–8 cm; stipules mostly adnate to petiole, free part ovate, margin entire or serrate, teeth often glandular apically; rachis and petiole sparsely prickly and glandular pubescent; leaflets (5–)7–9(–11), oblong, oblong-ovate, or suborbicular, 1.2 × 0.6–1.2 cm, glabrous, base rounded or broadly cuneate, margin simply serrate or partly doubly serrate, teeth glandular apically when young, apex rounded-obtuse or acute. Flowers solitary, or 2 or 3 and fasciculate, axillary, 2–6 cm in diam.; pedicel 1.5–3.5 cm, sparsely pubescent or glabrescent, glandular pubescent or not; bracts absent. Hypanthium subglobose, glabrous. Sepals lan-
ceolate, abaxially glabrous, adaxially pubescent, margin entire, apex acuminate or caudate-acuminate. Petals 5, white, pink, or yellowish, broadly obovate, base broadly cuneate, apex emarginate. Styles free, much shorter than stamens, pubescent. Hip black or dark brown, subglobose, 1–1.6 cm in diam., glabrous, shiny, with persistent sepal; pedicel to 4 cm, often glandular. Fl. May–Jun, fr. Oct.–Sep.

Scrub in forests, grassy slopes, river sides; 1100–2300 m. Xinjiang [Russia (Siberia)]; C and SW Asia, Europe.

1a. Branchlets densely prickly; flowers smaller, 2–5 cm in diam.; petals white, pink, or yellowish; pedicel pubescent and glandular when young ............ 2a. var. spinosissima

1b. Branchlets slightly prickly; flowers larger, 4–6 cm in diam.; petals white; pedicel glabrous ........................................ 2b. var. altaica

2a. Rosa spinosissima var. spinosissima


One of us (Robertson) has seen no specimens of this species.


长白蔷薇 chang bai qiang wei

Shrubs small, ca. 1 m tall, dense. Branchlets dense, dark purple-red, prickles paired below each node and densely scattered, terete, straight, brisketlike, to 6 mm, fine, abruptly flaring to an elliptic base; branches of present year sparsely prickly. Leaves including petiole 4–7 cm; stipules mostly adnate to petiole, free parts ovate-lanceolate, glabrous, margin glandular serrate; rachis and petiole sparsely prickly and glandular; leaflets 7–11(–15), elliptic, obovate-elliptic, or oblong-elliptic, 6–15 × 4–8 mm, abaxially subglabrous or along veins sparsely pubescent, rarely sparsely glandular, adaxially glabrous, base sub-rounded or broadly cuneate, margin acutely glandular serrate, partly doubly serrate, apex rounded-obtuse. Flower solitary, axillary, 2–3 cm in diam.; pedicel 1.2–2 cm, glandular pubescent; bracts absent. Hypanthium oblong. Sepals 5, lanceolate, abaxially glabrous, adaxially sparsely pubescent, not glandular, rarely sparsely glandular at margin, apex long acuminate or caudate-acuminate. Petals 5, tinged with pinkish, obovate, base cuneate, apex emarginate. Styles free, much shorter than stamens, slightly exserted. Hip orange-red, oblong, 1.5–2 cm, shiny, with persistent, erect sepals; pedicel 1.2–2 cm, glandular pubescent. Fl. May–Jun, Jul–Sep.

Forest margins, scrub, rocky places on slopes; 600–1200 m. Heilongjiang, Jilin, Liaoning [Korea].

1a. Abaxial surface of leaflets, petiole, and rachis usually eglandular ..................  4a. var. koreana

1b. Abaxial surface of leaflets, petiole, and rachis densely glandular ..................  4b. var. glandulosa

4a. Rosa koreana var. koreana


4a. Rosa koreana var. koreana

4b. Rosa koreana var. glandulosa

Based on its original description, the present authors suspect that R. ussuriensis Juzepczuk (in Komarov Fl. URSS 10: 451, 637. 1941) may be identical with R. koreana var. glandulosa, although Juzepczuk compared it with R. oxyacantha. The status of R. ussuriensis needs further study.

5. Rosa kokanica (Regel) Regel ex Juzepczuk in Komarov, Fl. URSS 10: 476. 1941.

5. Rosa kokanica (Regel) Regel ex Juzepczuk in Komarov, Fl. URSS 10: 476. 1941.
Shrubs small, 1.5–2 m tall. Branchlets spreading, straight, rough; prickles dense, straight, fine, firm, flat, tapering to an elliptic base, intermixed with glandular hairs on young branches. Leaves including petiole 4.5–8 cm; stipules mostly adnate to petiole, free parts ovate, margin serrate and glandular; rachis and petiole with short bristles, glandular; leaflets 5–7–(9), ovate, elliptic, or obovate, 1–2.2 × 0.6–1.3 cm, abaxially glandular or sparsely pubescent, with prominent midvein, adaxially glabrous or subglabrous, base broadly cuneate or subrounded, margin acutely doubly serrate, teeth often glandular apically, rounded-obtuse, rarely acute. Flower solitary, axillary, 2–4(–6) cm in diam.; pedicel 1.5–3 cm, glandular or not, glabrous; bracts absent. Hypanthium subglobose, abaxially glandular hispid, with short prickles, or glabrous. Sepals 5, lanceolate, abaxially glandular or not, adaxially sparsely puberulous, irregularly 2- or 3-annately lobed, apex long acuminate. Petals 5, pale yellow or white, broadly obovate, apex margin entire. Styles free, much shorter than stamens, slightly exserted, densely pubescent. Hip dark purple or dark brown, subglobose, ca. 1 cm in diam., with persistent, spreading or erect sepals; pedicel 1.5–3 cm, glabrous, with short prickles or glabrous. Fl. May–Aug, fr. Aug–Nov.

Slopes at forest margins, an important species in Larix forests; 1500–2500 m. Xinjiang [Afghanistan, Kazakhstan, Mongolia; SW Asia (Iran)].


黄蔷薇

Shrubs small, 1–2 m tall. Branchlets spreading, robust, glabrous; prickles abundant, yellow, straight or curved, to 8 mm, firm, flat, widening to a broad elliptic base. Leaves including petiole 3–5 cm; stipules mostly adnate to petiole, free parts lanceolate, glandular serrate; rachis and petiole glandular when young; leaflets 5–7–(9), suborbicular, obovate, or oblong, 8–15 × 5–10 mm, leathery, glabrous or abaxially along veins sparsely pubescent, base broadly cuneate or subrounded, margin 4–6-serrate at upper part, entire below, apex rounded-obtuse. Flower solitary, or 2 or 3 and fasciculate, axillary, 3–5 cm in diam.; pedicel 1.3–3.5 cm, usually glabrous; bracts absent. Hypanthium globose or ovoid, abaxially glabrous. Sepals 5, lanceolate, ca. 2 × as long as hypanthium, adaxially pubescent, margin entire, apex acuminate. Petals 5, yellow, obovate, base cuneate, apex margin entire. Styles free, shorter than stamens, slightly exserted, yellowish white villous. Hip dark red or purple-brown, globose or ovoid, ca. 1 cm in diam., shiny, with persistent, erect sepals; pedicel 1–3.5 cm, usually glabrous. Fl. May–Aug, fr. Aug–Nov. 2n = 14*.

Forests, forest margins, scrub, stream sides, arid slopes, waste fields; 1100–1800 m. Xinjiang [Kazakhstan, Mongolia].


黄蔷薇

Shrubs small, ca. 2.5 m tall. Branchlets purple-red, terete, glabrous, robust when old; prickles scattered, straight, to 1.2 cm, stout, flat, gradually tapering to a broad, elliptic base, base often ca. as long as prickle, intermixed with smaller prickles and bristles. Leaves including petiole 4–8 cm; stipules elongate, mostly adnate to petiole, free parts short, auriculate, glabrous, margin sparsely glandular pubescent; rachis and petiole glandular when young; leaflets 5–13, ovate, elliptic, or obovate, 8–20 × 5–12 mm, glabrous, abaxially with prominent midvein, adaxially concave, base broadly cuneate or subrounded, margin entire or acutely serrate, apex acuminate. Flowers axillary, solitary, 4–5.5 cm in diam.; pedicel 1–2 cm, glabrous; bracts absent. Hypanthium subglobose, abaxially glabrous. Sepals 5, lanceolate, ca. 2 × as long as hypanthium, abaxially glabrous, adaxially slightly pubescent, midvein conspicuous, margin entire, apex acuminate. Petals 5, light yellow, broadly obovate, base broadly cuneate, apex margin entire. Styles free, shorter than stamens, slightly exserted, white villous. Hip purple-red or black-brown, depressed-globose, 1.2–1.5 cm in diam., glabrous, shiny, with persistent, reflexed sepals; pedicel 1–2 cm, glabrous. Fl. May–Jun, fr. Jul–Aug.

● Scrub at forest margins, thickets, open slopes; 600–2300 m. Gansu, Qinghai, Shaanxi, Shanxi, Sichuan.

8. Rosa xanthina Lindley, Ros. Monogr. 132. 1820

黄刺玫 huang ci mei

Rosa xanthinoides Nakai.

Shrubs erect, 2–3 m tall. Branchlets diffuse, dense, glabrous, robust when old; prickles paired below some leaves, frequently opposite elsewhere, straight, to 1.2 cm, stout, flat, abruptly flaring to an elliptic base, small prickles and bristles absent. Leaves including petiole 3–5 cm; stipules mostly adnate to petiole, free parts linear-lanceolate, margin serrate and glandular; rachis and petiole sparsely pubescent, sometimes with small prickles; leaflets 7–13, broadly ovate or suborbicular, rarely elliptic, 6–18 × 5–10, abaxially sparsely pubescent when young, glabrescent, adaxially glabrous, base broadly cuneate or subrounded, margin crenate or obtusely serrate, apex rounded-obtuse. Flower solitary, axillary, 3–4(–5) cm in diam.; pedicel 1–1.5 cm, glabrous, not glandular; bracts absent. Hypanthium subglobose or obovate, abaxially glabrous. Sepals 5, lanceolate, abaxially glabrous, adaxially sparsely pubescent, margin entire, apex acuminate. Petals 5 or double, yellow, broadly obovate, base broadly cuneate, apex margin entire. Styles free, much shorter than stamens, slightly exserted, villous. Hip purple-brown or black-brown, subglobose or obovoid, 8–10 mm in diam., glabrous, with persistent, reflexed sepals; pedicel 1–1.5 cm, glabrous. Fl. Apr–Jun, fr. Jul–Aug. 2n = 14*.

● Scrub, open slopes. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi; also frequently cultivated in N and NE China.

Two forms may be recognized: Rosa xanthina f. normalis Rehder & E. H. Wilson (in Sargent, Pl. Wilson. 2: 342. 1915: R. xanthina f. spontanea Rehder), which has single flowers with 5 petals, and f. xanthina, which has double or semidouble flowers and is frequently planted in gardens and parks.


樱桃蔷薇 ying cao qiang wei

ROSACEAE
Shrubs erect, small, 1–2 m tall. Branchlets terete, slender, glabrous; prickles sparse to numerous, paired below some leaves, frequently opposite elsewhere, straight, to 1.5 cm, stout, flat, gradually tapers to a broad elliptic base, small prickles and bristles absent. Leaves including petiole 3–7 cm; stipules mostly adnate to petiole, free parts ovate-lanceolate, glabrous, margin inconspicuously serrate and glandular; rachis and petiole sparsely glandular; leaflets (7–)9–15, elliptic, elliptic-ovate, or long elliptic, 6–15 × 3–8 mm, glabrous, abaxially with prominent midvein, densely glandular punctate, base sub-rounded or broadly cuneate, margin doubly or oblong serrate, apex rounded-obtuse or acute. Flower solitary, axillary, 2.5–4 cm in diam.; pedicel 8–10 mm, glabrous; bracts absent. Hypanthium ovoid or subglobose, glabrous. Sepals 5, lanceolate, abaxially glabrous, adaxially sparsely villous, margin entire, apex acuminated. Petals 5, yellowish or white-yellow, obovate, base broadly cuneate, apex emarginate. Styles free, shorter than stamens, slightly exserted, villous. Hip red or black-brown, ovoid or subglobose, ca. 1 cm in diam., glabrous, with persistent, reflexed sepals; pedicel to 1.5 cm, glabrous. Fl. May–Jul, fr. Jul–Nov.

- Forests, scrub, slopes; 800–2500 m. Gansu, Hebei, Henan, Shaanxi, Shanxi, Sichuan.


异味蔷薇 yi wei qiang wei


Shrubs 1.5–3 m tall. Branchlets red-brown, slender, glabrous; prickles sparse, terete, straight, to 7 mm, abruptly flaring at base, sometimes intermixed with some prickles and bristles. Leaves including petiole 4–6 cm; stipules mostly adnate to petiole, free parts ovate-lanceolate, margin glandular pubescent, apex acuminate; rachis and petiole pubescent and glandular pubescent; leaflets 5–9, rarely 11, dark green adaxially, broadly ovate or obovate, abaxially sparsely pubescent and glandular pubescent, adaxially pubescent or subglobose, base subrounded or broadly cuneate, margin doubly serrate, apex acute or truncate. Flowers solitary, rarely several, double, 4–6.5 cm in diam.; pedicel 4–5 cm, glabrous; bracts absent. Hypanthium depressed-globose, glabrous. Sepals 5, ca. 2 × as long as hypanthium, triangular-lanceolate, leaflike, abaxially sparsely pubescent and glandular pubescent, adaxially densely villous, margin entire or outer ones with a few fine lateral appendages. Petals 5, deep yellow. Styles free, not exerted, pubescent. Hip red, globose, with persistent, erect sepals.

Cultivated. S Xinjiang (Yutian Xian) [native to SW Asia].


细梗蔷薇 xi geng qiang wei

Shrubs erect, small, ca. 4 m tall. Branchlets terete, slender, glabrous or subglabrous, sometimes glandular pubescent; prickles sparse, terete, mostly straight, to 1 cm, fine, abruptly flaring to a broad base. Leaves including petiole 5–8 cm; stipules mostly adnate to petiole, free parts auriculate, glabrous, margin glandular serrate; rachis and petiole shortly prickly and glandular pubescent; leaflets 9–11, rarely 7, ovate or elliptic, 8–20 × 7–12 mm, abaxially glabrous or sparsely pubescent, often glandular, adaxially glabrous, base cuneate or subrounded, margin acutely doubly serrate or partly simply serrate, teeth sometimes glandular apically, apex acute or rounded-obtuse. Flower solitary, axillary, 2.5–3.5 cm in diam.; pedicel 1.5–2.5 cm, glabrous, sometimes sparsely glandular pubescent; bracts absent. Hypanthium oblong-ovoid, glabrous. Sepals 5, ovate-lanceolate, leaflike, abaxially glabrous, axially white tomentose, margin entire or sometimes serrate. Petals 5, pink or deep red, obovate, base cuneate, apex emarginate. Styles free, slightly exserted, slightly shorter than stamens, densely pubescent. Hip red, obovate or oblong-ovoid, 2–3 cm, with persistent, erect sepals; pedicel 1.5–2.5 cm, glabrous. Fl. Jul–Aug, fr. Sep–Oct.

- *Picea* forests, scrub at forest margins, slopes; 3300–4500 m. Sichuan, Xizang, Yunnan.


秦岭蔷薇 qin ling qiang wei

Shrubs small, 2–3 m tall. Branchlets slender; prickles sparse, occasionally bristly and glandular pubescent. Leaves including petiole 5–11 cm; stipules mostly adnate to petiole, apical free parts auriculate, glabrous, margin glandular serrate; rachis and petiole sparsely prickly and glandular pubescent; leaflets 11–13, rarely 9, elliptic or oblong, 1–2 × 0.8–1.2 cm, abaxially glabrous or subglobose, along midvein glandular pubescent, adaxially glabrous, with concave veins, base subrounded or broadly cuneate, margin doubly or simply serrate, teeth glandular apically when young, apex rounded-obtuse or acute. Flower solitary, axillary, 2.5–3 cm in diam.; pedicel 1.5–2 cm, sparsely glandular pubescent; bracts present or not. Hypanthium glabrous. Sepals 5, triangular-lanceolate, leaflike, abaxially glabrous, adaxially densely pubescent, margin entire or serrate. Petals 5, white, obovate, base cuneate, apex emarginate. Styles free, slightly exserted, much shorter than stamens, densely pubescent. Hip red-brown, obovate or oblong-ovoid, 2–3 cm, with persistent, erect sepals; pedicel 1.5–2 cm, sparsely glandular pubescent. Fl. Jul–Aug, fr. Sep.

- *Betula* forests, scrub; 2800–3700 m. Gansu, Shaanxi.

One of us (Robertson) has seen no specimens of this species.


俅江蔷薇 qiu jiang qiang wei

Shrubs 1–2.5 m tall. Branchlets terete, often glabrous; prickles paired at leaf bases, terete, straight, to 8 mm, abruptly flaring to a broad base; bristles dense, much shorter than prickles. Leaves including petiole 4–10 cm; stipules broad, mostly adnate to petiole, free parts ovate, glabrous, apex caudate; rachis and petiole glabrous, with numerous small prickles; leaflets 7–9–(13), oblong or oblong-ovate, 1–3 × 0.5–1.2 cm, glabrous or abaxially along midvein sparsely pubescent and with small prickles, base broadly cuneate or subrounded, margin acutely serrate at upper 1/3–1/2 part, entire at lower part, apex

ROSACEAE

Shrubs erect, 1–4 m tall. Branchlets slender; prickles absent or if present, paired below leaves, terete, straight, to 7 mm, abruptly flaring to a broad base, or prickles winglike, to 1.5 cm and 3 cm in diam.; bristles absent or if present, dense. Leaves including petiole 3–6 cm; stipules mostly adnate to petiole, free parts triangular-ovate, margin serrate or entire, sometimes glandular; rachis and petiole with a few small prickles; leaflets (5–)9–13(–17), oblong or elliptic-oblong, 8–30 × 4–10 mm, abaxially glabrous or pubescent, glandular or not, adaxially glabrous, with concave midvein, base rounded-obtuse or broadly truncate, margin acutely serrate, apex acute or rounded-obtuse. Styles free, shorter than stamens, villous. Hip red, pyriform or oblong, glabrous. Sepals 4, lanceolate, abaxially glabrous, sometimes sparsely glandular, adaxially densely pubescent, margin entire, apex long acuminate. Petals 4, white, slightly long obovate, base cuneate, apex rounded. Styles free, exerted, much shorter than stamens, stout, villous. Hip red, pyriform or oblong, 6–8(–15) mm in diam., with persistent, spreading sepals; pedicel ca. 1.5 cm, glabrous. Fl. Jun–Jul.

- Alpine regions; 3200–4200 m. Taiwan (Yushan).


纤毛蔷薇 juan mao qiang wei

Rosa tetrapetala Royle; R. wallchii Trattinick.

Shrubs erect, 1–2 m tall. Branchlets purple-red or purple-brown, glabrous, robust when old; prickles absent or in pairs below leaves and scattered, terete, to 1.2 cm, fine to robust, abruptly flaring to a broad base, or prickles winglike, to 1.2 cm and 3.5 cm in diam.; bristles sometimes dense. Leaves including petiole 3.5–8 cm; stipules mostly adnate to petiole, free parts auriculate, pubescent or glabrous, margin glandular; rachis and petiole with a few short prickles; leaflets (5–)7–11(–13), ovate or oblong, 8–15 mm in diam., abaxially pubescent or subglabrous, glandular or not, adaxially glabrous or pubescent, glandular or not, adaxially glabrous, rugose, base broadly cuneate, margin serrate in upper part, entire below, apex rounded-obtuse or acute. Flower solitary, axillary, 2.5–5 cm in diam.; pedicels 1–2 cm, glabrous; bracts absent. Hypanthium obovoid or globose, subglobose, rarely obovate-oblong, 8–20 × 5–8 mm, abaxially sericeous-villosus or subglabrous to glabrous, glandular or not, adaxially glabrous, rugose, base broadly cuneate, margin serrate in upper part, entire below, apex rounded-obtuse or acute. Flower solitary, axillary, 2.5–5 cm in diam.; pedicels 1–2 cm, glabrous; bracts absent. Hypanthium obovoid or globose, subglobose. Sepals 4, obovate-lanceolate, abaxially sparsely pubescent or subglabrous, adaxially villosus, margin entire, apex acuminate or acute. Styles free, shorter than stamens, slightly exserted, villosus. Hip red or purple-brown, obovate or globose, 8–15 mm in diam., glabrous, with persistent, erect sepals; pedicel 1–2 cm, glabrous, usually not fleshy. Fl. May–Jun, fr. Jul–Aug. 2n = 14.

Sparse woods, forest margins, scrub, valley slopes, dry valleys, cliffs, mountain summits, gravels, dry sunny places; 2000–4400 m. Guizhou, Xichuan, Yunnan [Bhutan, India, Myanmar, Sikkim].

Four forms can be recognized: f. sericea, which has leaflets abaxially pubescent, non-glandular; f. glandulosa T. T. Yu & T. C. Ku (Acta Phytotax. Sin. 18: 502. 1986), which has only 5–9 glabrous leaflets, slightly turgid fruiting pedicels, and is intermediate between R. omeiensis and R. sericea.

The root bark, which contains about 16% tannin, is used for tanning. The sweet, edible fruit are used medicinally and to ferment wine.


玉山蔷薇 yu shan qiang wei

Rosa sericea Lindley var. morrisonensis (Hayata) Masa-mune.

毛叶蔷薇 mao ye qiang wei

Shrubs small, 0.5–2 m tall. Branchlets red-purple or brown-purple, terete, robust; prickles in pairs below leaves, straight, to 1 cm, fine to stout or winglike on same plant, gradually tapering to thickened base, winged prickles to 2 cm in diam.; bristles scattered to dense on older stems. Leaves including petiole 2–7 cm; stipules mostly adnate to petiole, free parts ovate, pubescent, margin serrate or entire; rachis and petiole sericeous; leaflets 5–9(–11), oblong-ovate or obovate, 6–20 × 4–10 mm, both surfaces sericeous, base cuneate or subrounded, margin densely doubly serrate, apex rounded-obtuse or truncate. Flower solitary, axillary, 2–3 cm in diam.; pedicel 8–15 mm, pubescent; bracts absent. Hypanthium ovoid, glabrous. Sepals 4, ovate-lanceolate, abaxially sparsely pubescent and glandular, adaxially densely pubescent, margin entire, apex long acuminate. Petals 4, white, ovate-rounded, base broadly cuneate, apex emarginate. Styles free, much shorter than stamens, villous. Hip red, subglobose, ca. 1 cm in diam., abaxially glandular pubescent; pedicel 8–12 mm, slender, glandular pubescent. Fl. May–Jun, fr. Jul–Sep.

- Scrub, river sides, roadsides; 2900–4200 m. Sichuan, Xizang, Yunnan.

One of us (Robertson) has seen no specimens of this species.

Two forms may be recognized: f. sikangensis, which has leaflets adaxially glandular and f. pilosa T. C. Ku (Bull. Bot. Res., Harbin 10(1): 1. 1990), which has leaflets adaxially eglandular or glandular only along the veins.


川西蔷薇 chuan xi qiang wei

Shrubs small, 1–1.5 m tall. Branchlets terete, subglabrous; prickles in pairs below leaves, or sparse and intermixed with dense slender bristles; bristles glandular apically when young. Leaves including petiole 1.5–2.8 cm; stipules mostly adnate to petiole, free parts oblong, glandular pubescent or glabrous abaxially, margin glandular pubescent, apex rounded; rachis and petiole pubescent and glandular pubescent; leaflets (5–)7, obovate, 5–8 × 3–5 mm, abaxially pubescent, glandular often along veins, adaxially densely pubescent, base cuneate, margin densely doubly serrate, sparsely small prickly; leaflets 7–9(–13), oblong or obovate, 6–10 × 4–8 mm, abaxially pubescent and glandular, adaxially glabrous or pubescent, base subrounded or broadly cuneate, margin densely doubly serrate, apex rounded-obtuse or truncate. Flower solitary, axillary, 2–3 cm in diam.; pedicel 5–7 mm, pubescent; bracts absent. Hypanthium ovoid, glabrous. Sepals 4, lanceolate, 9–12 mm, both surfaces densely pubescent, margin entire, apex long acuminate, caudate. Petals 4, white. Styles free, shortly exserted, shorter than stamens, pilose. Hip dark red, globose, glabrous; pedicel glabrous. Fr. Jul–Sep.

- About 2600 m. NW Yunnan (Zhongdian Xian).


中甸蔷薇 zhong dian qiang wei

Shrubs small, ca. 2 m tall. Branchlets red-brown, terete, usually glabrous; prickles in pairs below leaves, rarely sparse, flat, broad at base. Leaves including petiole 1.5–2.8 cm; stipules mostly adnate to petiole, free parts obovate, glandular pubescent or glabrous abaxially, margin glandular pubescent, apex rounded; rachis and petiole pubescent and glandular pubescent; leaflets 5–7, obovate, 5–8 × 3–5 mm, abaxially glabrous, glandular often along veins, adaxially densely pubescent, base cuneate, margin densely doubly serrate, densely glandular apically, smooth. Flower solitary, axillary; pedicel 5–7 mm, glabrous; bracts absent. Hypanthium ovoid, glabrous. Sepals 4, lanceolate, 9–12 mm, both surfaces densely pubescent, margin entire, apex long acuminate, caudate. Petals 4, white. Styles free, shortly exserted, shorter than stamens, pilose. Hip dark red, globose, glabrous; pedicel glabrous. Fr. Jul–Sep.

- About 2600 m. NW Yunnan (Zhongdian Xian).


桂味组 gui wei zu

Shrubs erect, with prickles in pairs or scattered, often bristly. Stipules broad or narrow, adnate to petiole; leaflets 5–15. Flowers usually numerous, rarely solitary, with large, broad bracts. Sepals often entire, after anthesis erect, persistent, rarely deciduous; styles free, not or slightly exserted.

About 50 species: Asia, Europe, North America; 36 species (26 endemic) in China.


弯刺蔷薇 wan ci qiang wei

Shrubs 1.5–3 m tall. Branchlets purple-brown, terete, slightly curved, glabrous; prickles scattered and in pairs below leaves, yellowish, hooked, to 8 mm, slender to stout, gradually tapering to broad base. Leaves including petiole 3–9 cm; stipules mostly adnate to petiole, free parts ovate, margin glandular serrate, apex acuminate; rachis and petiole pubescent, sometimes with small prickles; leaflets 5–9, broadly elliptic or elliptic-ovate, 8–25 × 5–12 mm, both surfaces pubescent, densely so, or glabrous, midvein prominent abaxially, concave abaxially, base subrounded or broadly cuneate, margin acutely simply serrate, near base entire, apex acute or rounded-obtuse. Flowers several or numerous in corymb or panicle, rarely solitary, 2–3 cm in diam.; pedicel 1–2 cm, glabrous or pubescent, occasionally sparsely glandular pubescent; bracts 1–3( or 4), ovate, margin glandular serrate, apex acuminate. Hypanthium subglobose, pubescent, densely so, or glabrous. Sepals 5, deciduous, lanceolate, leaflike, abaxially glandular pubescent, adaxially densely puberulous, margin entire, apex caudate. Petals 5, white, rarely...

Slopes, valleys, river sides, roadsides; 500–2200 m. Gansu, Xinjiang [Afghanistan, Kazakhstan, Mongolia].

1a. Leaflets adaxially glabrous, abaxially pubescent or glabrous; pedicels and hypanthium glabrous, or pedicels occasionally sparsely glandular pubescent

1b. Leaflets densely pubescent on both surfaces; pedicels and hypanthium densely pubescent ................................. 20b. var. lioui

20a. Rosa beggeriana var. beggeriana

弯刺蔷薇(原变种) wan ci qiang wei (yuan bian zhong)

Leaflets abaxially pubescent or glabrous, adaxially glabrous. Pedicel and hypanthium glabrous, or pedicels occasionally sparsely glandular pubescent.

Slopes, valleys, river sides, roadsides; 900–2000 m. Gansu, Xinjiang [Afghanistan, Mongolia, Kazakhstan].


毛叶弯刺蔷薇 mao ye wan ci qiang wei


Leaflets densely pubescent on both surfaces. Pedicel and hypanthium densely pubescent.

- Valleys, river sides; 500–2200 m. Xinjiang.


腺齿蔷薇 xian chi qiang wei

Shrubs 1–2 m tall. Branchlets gray-brown or purple-brown, glabrous; prickles scattered, straight, slender, usually densely bristly; bristles with rounded disk basally. Leaves including petiole 3–8 cm; stipules mostly adnate to petiole, free parts ovate-lanceolate, margin glandular pubescent, apex acuminate; rachis and petiole puberulous, glandular pubescent, and sparsely prickly; leaflets 5–7, ovate, elliptic, obovate, or suborbicular, 8–30 × 5–18 mm, abaxially puberulous, adaxially glabrous, base subrounded or broadly cuneate, margin doubly or simply serrate, apex rounded-obtuse or acute. Flower solitary, or 2 or 3 and fasciculate, 3–4 cm in diam.; pedicel 1.5–3 cm, glandular pubescent or not; bracts ovate, glabrous or sometimes abaxially glandular pubescent, margin glandular pubescent, apex acuminate. Hypanthium oblong, glabrous. Sepals 5, ovate-lanceolate, sometimes leaflike, abaxially glabrous, sometimes glandular pubescent, adaxially densely pubescent, apex ciliate. Petals 5, white, broadly obovate, base broadly cuneate, apex emarginate. Styles free, much shorter than stamens, villous. Hip orange-red, pyriform or ellipsoid, 8–18 mm in diam., after ripening apical part of hypanthium and sepals deciduous together. Fl. Jun–Aug, fr. Aug–Oct.

Picea or Pinus forests, forest margins, slopes; 1200–2000 m. Gansu, Qinghai, Xinjiang [Kazakhstan, Mongolia, Russia (W Siberia)].


铁杆蔷薇 tie gan qiang wei

Shrubs 1–2.5 m tall. Branchlets purple-brown or red-brown, terete, slightly curved, slender; prickles scattered, yellow, straight, to 1 cm, sometimes intermixed with numerous bristles; bristles sometimes glandular. Leaves including petiole 5–10 cm; stipules mostly adnate to petiole, free parts ovate, margin glandular serrate, apex acuminate; rachis and petiole pubescent and glandular pubescent, occasionally with small prickles; leaflets 7–15, elliptic or oblong, 6–20 × 4–10 mm, abaxially pubescent along prominent midvein, adaxially glabrous, with concave midvein, base subrounded or broadly cuneate, margin serrulate, sometimes near base entire, slightly revolute, apex acute or obtuse. Flowers 2–7, in umbel-like corymb, rarely solitary, ca. 2 cm in diam.; pedicel 8–30 mm, glandular pubescent; bracts ovate, margin glandular serrate, apex acuminate or ciliate. Hypanthium fusiform, glabrous or glandular pubescent. Sepals 5, deciduous, ovate-lanceolate, abaxially sparsely pubescent and glandular pubescent, adaxially densely pubescent, margin entire, apex dilated and ciliate. Petals 5, pink, broadly obovate, base broadly cuneate, apex emarginate. Styles free, much shorter than stamens, densely villous. Hip deep red, ovoid or ellipsoid, 5–8 mm in diam., with a short neck, after ripening apical part of hypanthium and sepals deciduous together. Fl. May–Jul, fr. Aug–Oct.

- Broad-leaved and coniferous forests, scrub on open slopes; 1900–3000 m. Gansu, Sichuan, Yunnan.


小叶蔷薇 xiao ye qiang wei

Shrubs 1–3 m tall. Branchlets slender, glabrous; prickles in pairs below leaves, numerous, terete, straight, to 1.2 cm, slender, abruptly flaring at base, old branches rarely bristly. Leaves including petiole 2–4 cm; stipules mostly adnate to petiole, free parts ovate-lanceolate, margin glandular serrate or entire; apex acute; rachis and petiole glabrous or sparsely pubescent, glandular pubescent and shortly prickly; leaflets 7–9, rarely 11, elliptic, obovate, or suborbicular, 6–17 × 4–12 mm, abaxially glabrous or puberulous along midvein, glandular or not, adaxially glabrous, base subrounded, rarely broadly cuneate, margin simply serrate, doubly serrate above middle, apex rounded-obtuse. Flower solitary, ca. 3 cm in diam.; pedicel 1–1.5 cm, often glandular pubescent; bracts ovate-lanceolate, abaxially with distinct midvein, margin glandular serrate, apex ciliate. Hypanthium oblong to subglobose, glabrous. Sepals 5, triangular-lanceolate, abaxially glabrous, adaxially densely pubescent, margin entire, apex elongate. Petals 5, pink, obovate, base cuneate, apex emarginate. Styles free, much shorter than stamens, densely pubescent. Hip orange-red, oblong or subglobose, ca. 1

- Thickets, scrub, open slopes, stream sides, roadsides; 1300–3800 m. Gansu, Qinghai, Shaanxi, Sichuan.

1a. Leaflets doubly serrate at upper margin, simply serrate at lower margin, abaxially glabrous or puberulous along midvein, not glandular. ............................................. 23a. var. willmottiae

1b. Leaflets doubly serrate along whole margin, abaxially unevenly glandular, margin teeth glandular apically .......... 23b. var. glandulifera

23a. Rosa willmottiae var. willmottiae

小叶蔷薇 (原变种) xiao ye qiang wei (yu bian zhong)

Leaflets doubly serrate at upper margin, simply serrate at lower margin, abaxially glabrous or puberulous along midvein, not glandular.

- Scrub on open slopes, thickets; 2500–3800 m. Gansu, Sichuan, Xizang, Yunnan.


多腺小叶蔷薇 duo xian xiao ye qiang wei

Rosa willmottiae var. glandulosa T. T. Yu & T. C. Ku.

Leaflets doubly serrate along whole margin, abaxially unevenly glandular, margin teeth glandular apically.

- Scrub on open slopes, roadsides; 2500–3800 m. Gansu, Sichuan, Xizang, Yunnan.


刺梗蔷薇 ci geng qiang wei

Rosa hemsleyana Tackholm; R. macrophylla Lindley var. crasseaculeata Vilmorin.

Shrubs to 3 m tall. Branchlets terete, slightly curved, glabrous; prickles sparse to absent, straight or slightly curved, to 1 cm, stout, flat, evenly tapering to a broader base. Leaves including petiole 8–19 cm; stipules broad, mostly adnate to petiole, free parts auriculate, triangular-lanceolate, abaxially and at margin glandular, apex acuminate; rachis and petiole densely glandular pubescent and sparsely shortly prickly; leaflets 5–9, ovate, elliptic, or broadly elliptic, 2.5–5.2 × 1.2–3 cm, abaxially pubescent and glandular, with prominent midvein and lateral veins, adaxially glabrous, base subrounded or broadly cuneate, margin doubly serrate, teeth often glandular apically, apex acute or rounded-obtuse. Flowers in lax corymb, 3.5–5 cm in diam.; pedicel 1.3–2.4 cm, glandular; bracts 2 or 3, ovate, abaxially reticulate, pubescent and glandular, margin irregularly serrate and glandular, apex acuminate. Hypanthium oblong or ovoid, densely stipitate glandular, glands to 2 mm. Sepals 5, ovate, leaflike, abaxially glandular, margin pinnately lobed or serrate, adaxially tomentose, teeth glandular apically, apex long caudate. Petals 5, pink or rose-purple, broadly obovate, abaxially slightly pubescent, base cuneate, apex emarginate. Styles free, slightly exserted, much shorter than stamens, pubescent. Hip deep red, oblong-ovoid, 1–2 cm in diam., with a neck at apex, glandular pubescent or not, with persistent, erect sepals. Fl. May–Jul, fr. Jul–Oct.

- Scrub, slopes; 1800–2600 m. Hubei, Sichuan.


今房蔷薇 san fang qiang wei

Shrubs small, 1.3–2 m tall. Branchlets terete, straight or slightly curved, glabrous; prickles absent or sparse, straight, short, to 5 mm, stout, gradually tapering to base. Leaves including petiole 5–13 cm; stipules mostly adnate to petiole, flat, free parts ovate, margin glandular pubescent, apex acuminate; rachis and petiole sparsely puberulous, glandular pubescent, often with tiny prickles; leaflets 3–5, rarely 7, ovate-oblong or elliptic, 2.5–6 × 1.5–3.5 cm, abaxially pubescent and paler, adaxially glabrous, base cuneate or subrounded, margin doubly or simply serrate, apex acute or rounded-obtuse. Flowers numerous or several, in umbel-like corymb, rarely solitary, 2–2.5 cm in diam.; pedicel 2–4 cm, pubescent and glandular pubescent; bracts ovate or ovate-lanceolate, margin glandular pubescent, apex long acuminate. Hypanthium subglobose or ovoid, pubescent, glandular. Sepals 5, ovate-lanceolate, leaflike, both surfaces pubescent, margin entire or inconspicuously serrate, glandular pubescent, apex expanding. Petals 5, red, white at base, broadly obcordate, apex emarginate. Styles free, exserted, slightly shorter than or equaling stamens, densely yellowish white villous. Hip bright red, globose or ovoid, ca. 8 mm in diam., with persistent, erect sepals. Fl. Jun–Jul, fr. Aug–Oct.

- Forests, thickets, scrub, slopes, river sides; 1600–2000 m. Gansu, Hubei, Shaanxi, Sichuan.


尾萼蔷薇 wei e qiang wei

Shrubs to 4 m tall. Branchlets spreading, terete, glabrous; prickles scattered, triangular, straight, stout. Leaves including petiole 10–20 cm; stipules broad, mostly adnate to petiole, free parts ovate, glandular pubescent or not, margin entire, apex acuminate; rachis and petiole sparsely glandular pubescent, shortly prickly; leaflets 7–9, ovate, oblong-ovate, or elliptic-ovate, 3–10 × 1–6 cm, glabrous or sparsely puberulous abaxially along veins, with prominent midvein and lateral veins, base rounded or broadly cuneate, margin simply serrate, apex acute or shortly acuminate. Flowers numerous, in corymb, 3.5–6 cm in diam.; pedicel 1.5–4 cm, densely glandular pubescent or not; bracts several, ovate, margin glandular or not, apex caudate. Hypanthium oblong, densely glandular pubescent or glabrous. Sepals 5, triangular-ovate, to 3 cm, leaflike, abaxially glabrous, adaxially densely puberulous, margin entire, apex caudate. Hypanthium oblong, densely glandular pubescent or glabrous. Sepals 5, triangular-ovate, to 3 cm, leaflike, abaxially glabrous, adaxially densely puberulous, margin entire, apex caudate. Petals 5, red, broadly obovate, abaxially glabrous or sericeous, base broadly cuneate, apex emarginate. Styles free, much shorter than stamens, pubescent. Hip orange-red, oblong, 2–2.5 cm, with persistent, often erect sepals. Fl. Jun–Jul, fr. Jul–Nov.

- Valley forests, scrub, slopes; 1200–2500 m. Hubei, Shaanxi, Sichuan.
26a. *Rosa caudata* var. *caudata*

尾萼蔷薇 da hua wei e qiang wei (yuán biàn zhòng)

Leaflets 3–7 × 1–3 cm. Flowers numerous in corymb, 3.5–5 cm in diam. Petals abaxially glabrous.

- Scrub, slopes; 1600–2000 m. Hubei, Shaanxi, Sichuan.

26b. *Rosa caudata* var. *maxima*

尾萼蔷薇 xi bei qiang wei

Leaflets large, 8–10 × 4–6 cm. Flowers 8–10 in corymb, large, 4–6 cm in diam. Petals abaxially sericeous.

- Valley forests, open slopes; 1200–2500 m. Shaanxi (Gouchang Xian), C Sichuan (Tianquan Xian).


西北蔷薇 xi bei qiang wei

Shrubs 1.5–4 m tall. Branchlets spreading, terete, slender, glabrous; prickles sparse to scattered, triangular, straight or slightly curved, flat, gradually tapering to broad base. Leaves including petiole 7–14 cm; stipules mostly adnate to petiole, free parts ovate, margin glandular, apex acuminate; rachis and petiole puberulous, glandular pubescent, sparsely shortly prickly; leaflets 7–9, rarely 11 or 5, 2.5–7 × 1–2(–3) cm, abaxially densely puberulous or sparsely pubescent, rarely glabrous, adaxially usually glabrous, base subrounded or broadly cuneate, margin acutely simply serrate, apex acute. Flowers 3 to numerous in corymb, 2–3 cm in diam.; pedicel 1.5–2.5 cm, pubescent and stipitate glandular, glands to 3 mm; bracts large, ovate or lanceolate, both surfaces puberulous, margin entire, apex acuminate. Hypanthium elliptic or long ovoid, densely stipitate glandular. Sepals 5, ovate, leaflike, both surfaces puberulous, abaxially glandular pubescent, margin entire. Petals 5, deep pink, broadly obovate, base broadly cuneate, apex emarginate. Styles free, slightly exerted, shorter than or nearly equaling stamens, densely pubescent. Hip deep red or orange-red, long ellipsoid or long obovoid, 1–1.5 × 1.8–2.5 cm, with a long neck at apex, glandular pubescent or not, with persistent, erect sepals. Fl. Jun–Jul, fr. Sep.

- Forest margins, scrub; 1500–3000 m. Gansu, Ningxia, Shaanxi, Sichuan, Yunnan.


拟木香 ni mu xiang

Shrubs small, 1–3 m tall. Branchlets terete; prickles mostly absent, or if present, small. Leaves including petiole 5–13 cm; stipules mostly adnate to petiole, free parts ovate, glabrous, auriculate, margin glandular serrate or entire, apex acuminate; rachis and petiole glabrous, or sparsely shortly prickly and glandular pubescent; leaflets 7–9, ovate or oblong, abaxially glabrous or sparsely pubescent, with prominent midvein and lateral veins, adaxially glabrous, with concave midvein and lateral veins, base rounded or broadly cuneate, margin acutely simply serrate, apex acute or shortly acuminate. Flowers numerous in corymb, 2–3 cm in diam.; pedicel 1–2.5 cm, glabrous, sparsely puberulous or stipitate glandular; bracts ovate or lanceolate, sparsely puberulous, margin glandular serrate or entire, apex caudate-acuminate. Hypanthium ovoid. Sepals 5, ovate-lanceolate, leaflike, abaxially glabrous or sparsely pubescent, adaxially densely pubescent, stipitate glandular. Petals 5, pink or rose, obovate, apex emarginate. Styles free, slightly exerted, much shorter than stamens, densely villous. Hip orange-red, ovoid, ca. 8 mm in diam., glabrous or stipitate glandular, with persistent, erect sepals. Fl. Jun–Jul, fr. Jul–Sep.

- Forests, thickets; 1200–2100 m. Gansu, Hubei, Jiangxi, Shaanxi, Sichuan.


玫 玫 mei gui

*Rosa ferox* Lawrence; *R. pubescens* Baker.

Shrubs erect, to 2 m tall. Stems fasciculate, robust; branchlets tomentose; prickles dense, yellowish, terete, straight, greatly variable in size and intermixed, to 5 mm, fine, evenly tapering to base, lower parts tomentose, intermixed with glandular
bristles. Leaves including petiole 5–13 cm, thick; stipules mostly adnate to petiole, free parts ovate, abaxially tomentose, margin glandular pubescent, apex acute; rachis and petiole tomentose, sometimes with a few, short prickles; leaflets 5–7(–9), elliptic or elliptic-obovate, 1.5–4.5 × 1–2.5 cm, abaxially tomentose, reticulate, adaxially glabrous, shiny, rugose due to concave veins, base rounded or broadly cuneate, margin acutely serrate, apex acute or rounded-obtuse. Flower solitary, or several and fasciculate, axillary, 4–5.5 cm in diam.; pedicel 5–25 mm, tomentose and glandular pubescent; bracts ovate, abaxially tomentose, margin glandular pubescent, apex acuminate. Hypanthium subglobose, glabrous. Sepals 5, ovate-lanceolate, often leaflike, abaxially pubescent and stipitate glandular, adaxially sparsely pubescent, pinnately lobed, apex caudate-acuminate. Petals 5, semidouble, or double, purple-red, dark pink, or white, obovate, base cuneate, apex emarginate. Styles free, slightly exerted, much shorter than stamens. Hip dark red, depressed-globose, 2–2.5 cm in diam., smooth, with persistent, erect sepals. Fl. May–Jun, fr. Aug–Sep. 2n = 14*.

Coastal hillsides, sandy soils on sea shores, offshore islands; below 100 m. Native in E Jilin (Hunchun Xian), Liaoning, NE Shandong (Yantai Shi); widely cultivated elsewhere in China [Japan, Korea, Russia (Far East)].

This species has many horticultural forms widely cultivated in China. According to Fu (China Plant Red Data Book 1: 558–559. 1992), it is endangered as a wild plant by picking and uprooting.


山刺玫 (原变种) shan ci mei (yuan bian zhong)

30a. Rosa davurica var. davurica

Mountain rose, mountain rosebay. Shrub erect, ca. 1.5 m tall. Branchlets purple-brown or gray-brown, terete, glabrous; prickles paired below leaves, yellowish, terete, slightly curved, abruptly flaring to broad base. Leaves including petiole 4–10 cm; stipules mostly adnate to petiole, free parts ovate, abaxially pubescent, margin glandular serrate, apex acute; rachis and petiole pubescent, glandular pubescent, sparsely prickly; leaflets 7–9, oblanceolate, 1.5–3.5(–4) × 0.5–1.5 cm, abaxially glandular punctate or not, sparsely puberulous or glabrous with prominent midvein and lateral veins, adaxially glabrous, with concave midvein and lateral veins, base round or broadly cuneate, margin simple and doubly serrate, apex acute or rounded-obtuse. Flowers solitary, or 2 or 3 and fasciculate, axillary, 3–4 cm in diam.; pedicel 5–8 mm, glabrous or glandular pubescent; bracts ovate, abaxially pubescent and glandular punctate, margin glandular serrate, apex acuminate. Hypanthium subglobose, glabrous. Sepals 5, lanceolate, leaflike, abaxially sparsely pubescent and shortly glandular pubescent, adaxially pubescent, margin irregularly serrate or glandular pubescent. Petals 5, pink, obovate, base broadly cuneate, apex rounded. Styles free, much shorter than stamens, pubescent. Hip red, globose or ovoid, 1–1.5 cm in diam., with a distinct neck, glabrous, with persistent, erect sepals. Fl. Jun–Jul, fr. Aug–Sep.

Sunny places at forest margins, grassy places on hills, slopes; 400–2500 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi [Japan, Korea, S Mongolia, Russia (E Siberia)].

30b. Rosa davurica var. glabra

30c. Rosa davurica var. setacea

30a. var. davurica

30b. var. glabra

30c. var. setacea

1b. Branchlets sparsely prickly, prickles equal.

2a. Leaflets usually smaller, 1.5–3.4(–4) cm, abaxially glandular punctate, sparsely pubescent or glabrous.

2b. Leaflets to 4 cm, abaxially not glandular punctate, pubescent or pubescent only along veins

30a. Rosa davurica var. davurica

30b. Rosa davurica var. glabra

30c. Rosa davurica var. setacea


赫章蔷薇 he zhang qiang wei

3.4(–4) cm, abaxially glandular punctate, or not, usually glabrous or pubescent only along veins.

● Slopes; ca. 900 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol.

31. Rosa hezhangensis

Sunny places at forest margins, grassy places on hills, slopes; 400–2500 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi [Japan, Korea, S Mongolia, Russia (E Siberia)].

3.4(–4) cm, abaxially glandular punctate or not, usually glabrous or pubescent only along veins.

30a. Rosa davurica var. davurica

30b. Rosa davurica var. glabra

30c. Rosa davurica var. setacea

31. Rosa hezhangensis

Himalayan rose, Himalayan China rose. Shrub low, ca. 1 m tall. Branches terete, glabrous, densely prickly; prickles broad, turgid at base. Leaves 4–8 cm including petiole; stipules mostly adnate to petiole, free parts auriculate or ovate-lanceolate, glabrous, margin glandular serrate, apex acuminate; leaflets (5–)9, pale green abaxially, deep green adaxially, ovate or oblong, 0.8–2 × 0.4–1 cm, abaxially pubescent and glandular punctate, adaxially glabrous, midvein and other veins prominent, base subrounded or broadly cuneate, margin doubly serrate, apex obtuse or acute. Flowers 3–5 in a corymb, rarely solitary; pedicel 0.8–2 cm, stipitate glandular; bracts 3–5, broadly ovate, glabrous, margin glandular serrate, apex acuminate. Hypanthium ellipsoid or ovoid. Sepals ovate-lanceolate, abaxially glandular pilose, adaxially densely yellowish toment-
32. Rosa acicularis Lindley, Ros. Monogr. 44. 1820.

Rosa acicularis var. albiflora X. Lin & Y. L. Lin; R. acicularis var. glandulifolia Y. B. Chang; R. acicularis var. glandulosa Liou; R. acicularis var. gmelinii (Bunge) C. A. Meyer; R. acicularis var. pubescens Liou; R. acicularis var. setacea Liou; R. fauriei H. Léveillé; R. gmelinii Bunge; R. granulosa Keller; R. korsakoviensis H. Léveillé.

Shrubs 1–3 m tall. Branchlets red-brown or purple-brown, terete, slightly curved, glabrous; prickles sparse to dense, terete, straight, to 4 mm, fine, evenly tapering to small base. Leaves including petiole 7–14 cm; stipules mostly adnate to petiole, free parts ovate, glabrous, abaxially pubescent, margin glandular serrate, apex acuminate; rachis and petiole pubescent, glandular pubescent, and sparsely prickly; leaflets 3–7, broadly elliptic or oblong, 1.5–5 × 0.8–2.5 cm, abaxially pubescent, with prominent midvein and lateral veins, adaxially glabrous, with slightly concave midvein and lateral veins, base subrounded, rarely broadly cuneate, margin simply serrate or inconspicuously doubly serrate, apex acute or rounded-obtuse. Flowers solitary, or 2 or 3 and fasciculate, 3.5–5 cm in diam.; pedicel 2–3.5 cm, densely glandular pubescent; bracts ovate or ovate-lanceolate, margin glandular serrate or incised, apex acuminate or caudate. Hypanthium ellipsoid, usually glabrous, rarely glandular pubescent. Sepals 5, lanceolate, leaflike, abaxially pubescent, glandular, and sparsely bristly, adaxially densely pubescent, margin entire. Petals 5, pink, rarely white, fragrant, obovate, base broadly cuneate, apex emarginate. Styles free, shorter than stamens, pubescent. Hip red, pyriform, long ellipsoid, or obovoid, 1–1.5 cm in diam., with a distinct neck, shiny, glabrous or rarely slightly glabrous, with persistent, erect sepals. Fl. Jun–Jul, fr. Jul–Sep. 2n = 28, 56.

Betula forests, scrub, sunny slopes, roadsides; 400–1800 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Shanxi, Xinjiang [Japan, Kazakhstan, Korea, Mongolia, Russia; N Europe, North America].

This species is widely distributed in the N temperate zone and has a great morphological variation. The varieties described by various authors are difficult to distinguish, owing to the presence of intermediate forms, and are all reduced to synonymy for the time being in this account.


Shrubs deciduous. Branchlets purple-brown, terete, slender, glabrous; prickles scattered, straight, short. Leaves 7–10 cm including petiole; stipules mostly adnate to petiole, free parts ovate or lanceolate, ca. 3 mm, glabrous, abaxially and at margin glandular pubescent; rachis and petiole densely glandular pubescent; leaflets (5 or)7–11, pale green abaxially, deep green adaxially, elliptic or oblong-elliptic, 1.5–4 × 1–2.5 cm, abaxially brown hirsute, densely so along veins, adaxially subglabrous, base cuneate to broadly so, margin acutely doubly serrate; teeth glandular apically when young. Flowers 1–3, 1.5–2 cm in diam.; peduncle ca. 2 cm, slightly glandular pubescent or subglabrous; pedicel 3–4 cm, glandular hairy; bracts ovate-lanceolate, ca. 2 mm, abaxially and at margin glandular pubescent, apex acute or acuminate. Hypanthium campanulate, abaxially glandular pubescent. Sepals lanceolate, ca. 1 cm, margin glandular pubescent, sometimes pinnately lobed, apex long acuminate or caudate-acuminate. Petals white, broadly obovate, 1.2–1.5 × 1–1.3 cm, base broadly cuneate, apex emarginate or 2-lobed. Styles free, slightly exserted, shorter than stamens, pubescent. Hip unknown. Fl. Jun–Aug.

One of us (Robertson) has seen no specimens of this species.


Rosa oxyacantha var. subalpina Bunge ex Marshallsch von Bieberstein.

Shrubs small, 1–2 m tall. Branchlets red-brown, glabrous; prickles numerous, yellowish, straight, unequally long and thick, abruptly tapering to broadened base. Leaves including petiole 4–9 cm; stipules mostly adnate to petiole, free parts lanceolate, margin entire, glandular pubescent, apex acute; rachis and petiole sparsely short prickly, glandular pubescent; leaflets 7–9, oblong or elliptic, 1.5–2.5 × 0.8–1.7 cm, glabrous, abaxially with prominent veins, base subrounded or broadly cuneate, margin doubly serrate, apex acute or rounded-obtuse. Flowers solitary, rarely 2 or 3 and fasciculate, 2.5–3 cm in diam.; pedicel 1.5–2 cm, glabrous or glandular pubescent; bracts ovate, margin glandular pubescent, apex long caudate. Hypanthium ovoid or oblong, glabrous or sparsely stipitate glandular. Sepals 5, lanceolate, leaflike, abaxially densely glandular pubescent, adaxially densely pubescent, margin entire. Petals 5, pink, obovate, base broadly cuneate, apex emarginate. Styles free, shorter than stamens, pubescent. Hip bright red, obovate or ovoid, 1–1.5 cm in diam., glabrous or sparsely stipitate glandular, with persistent, erect sepals. Fl. Jun–Jul, fr. Jul–Sep.

Scrub; 1100–1400 m. Xinjiang [Mongolia, Russia (Siberia)].

One of us (Robertson) has seen no specimens of this species.


Rosa laxa var. subalpina Bunge ex Marshallsch von Bieberstein.

Shrubs 1–2 m tall. Branchlets terete, straight or slightly curved, glabrous; prickles in pairs below leaves or scattered, yellowish, strongly hooked, to 1.5 cm, flat, gradually tapering to broad base, often densely intermixed with small prickles and bristles. Leaves including petiole 4.5–10 cm; stipules mostly adnate to petiole, free parts ovate, glabrous, auriculate, margin
glandular serrate, apex acute; rachis and petiole sparsely prickly, glandular pubescent, puberulous; leaflets 7–9, elliptic, oblong, or ovate, rarely obovate, ca. 1.5 × 0.8–2 cm, glandular or pubescent, with prominent midvein and lateral veins, base subrounded or broadly cuneate, margin simply serrate, rarely doubly serrate, apex acute or rounded-obtuse. Flowers often 3–6 in corymbs, sometimes solitary, ca. 3 cm in diam.; pedicel 1–1.8(–3) cm, glandular; bracts ovate, pubescent, glandular hispid, apex acuminate. Hypanthium obovate or ovoid, glabrous, rarely glandular hispid. Sepals 5, ovate-lanceolate, leaflike, abaxially sparsely pubescent and glandular hispid, adaxially densely pubescent, margin entire. Petals 5, white or pink, obovate, apex erose. Styles free, much shorter than stamens, densely pubescent. Hip deep red, ovoid, 1.5–2 cm in diam., glabrous, with persistent, erect sepals. Fl. Jun–Aug, fr. Aug–Sep. 2n = 14*.

*Populus* forests, scrub, valleys, damp grassy places, river and stream sides; 500–1500 m. Xinjiang [Mongolia, Russia (C Siberia); C Asia].

1a. Leaflets glabrous on both surfaces or abaxially pubescent
1b. Leaflets densely pubescent on both surfaces

35a. *Rosa laxa* var. *laxa*

*Rosa geberiana* Schrenk; *R. soongarica* Bunge.

Leaflets glabrous on both surfaces or abaxially pubescent.

Scrub, valleys, stream sides; 500–1500 m. Xinjiang [Mongolia, Russia (C Siberia); C Asia].


*Populus* forests, damp grassy places, river sides; 600–1100 m. N Xinjiang.


大红蔷薇 da hong qiang wei

Shrubs 1–2 m tall. Branchlets erect or spreading, terete, glabrous, often densely bristly when old; prickles usually absent, or if present, straight, small. Leaves including petiole 7–16 cm; stipules broad, adnate to petiole to 2/3 part, free parts ovate, subglabrous, auriculate, margin entire, apex acute; rachis and petiole pubescent, sparsely small prickly; leaflets 7–9, ovate or ovate-lanceolate, 2.5–6.5 × 1.5–4 cm, abaxially pubescent along veins or subglabrous, glandular punctate or not, with prominent midvein and lateral veins, adaxially glabrous, base subrounded or broadly cuneate, margin simply serrate or partly doubly serrate, apex acute or shortly acuminate. Flowers solitary, or 2( or 3), 3.5–5 cm in diam.; pedicel 1.5–2.5(–3) cm, glandular or sparsely glandular pubescent; bracts 1 or 2, ovate-lanceolate, large, 1.5–3 cm, apex caudate. Hypanthium ovoid, glabrous. Sepals 5, ovate-lanceolate, leaflike, abaxially subglabrous, adaxially densely pubescent, margin entire or sometimes sparsely serrate apically. Petals 5, red, obovate, base broadly cuneate, apex rounded-obtuse. Styles free, much shorter than stamens, densely pubescent. Hip deep red, ovoid, 1.5–2 cm in diam., glabrous, with persistent, erect sepals. Fl. May–Jul, fr. Aug–Oct.

- Scrub, bases of mountains, stream sides; ca. 1700 m. Hebei, Heilongjiang, Jilin, Nei Mongol, Shanxi.

Essential oils are extracted from the flowers, and the fruit are used to make jam. Both the flowers and fruit are used medicinally.
1a. Flowers 4–5 cm in diam.; pedicel
and hypanthium glandular pubescent .......... 37a. var. bella

1b. Flowers smaller, 2–3 cm in diam.; pedicel
and hypanthium glabrous, not glandular
pubescent .................................................. 37b. var. nuda

37a. Rosa bella var. bella

美蔷薇（原变种）

Flowers 4–5 cm in diam.; pedicel and hypanthium glandular pubescent.

- Scrub, bases of mountains, stream sides; ca. 1700 m. Hebei, Henan, Jilin, Nei Mongol, Shanxi.


光叶美蔷薇

Flowers 2–3 cm in diam.; pedicel and hypanthium glabrous, not glandular pubescent.

- Scrub. NC Henan (Song Shan), SC Shaanxi (Zhongnan Shan).


城口蔷薇

Shrubs 1.5–2 m tall. Branchlets terete, slender; prickles scattered or in pairs below leaves, straight. Leaves including petiole 5–8 cm; stipules mostly adnate to petiole, free parts ovate or ovate-lanceolate, abaxially and margin densely glandular pubescent, apex acute; rachis and petiole pubescent, glandular pubescent, shortly prickly; leaflets usually 5, rarely 7 or 3, elliptic, oblong, or ovate, 1.5–3.5 × 1–1.8 cm, abaxially sparsely pubescent and glandular punctate, distinctly reticulate, adaxially glabrous, base broadly cuneate or subrounded, margin doubly serrate, teeth often glandular apically, apex acute or rounded-obtuse. Flowers solitary or several, 2.5–3 cm in diam.; pedicel 1.5–3 cm, glandular pubescent; bracts ovate-lanceolate, margin glandular pubescent, apex long acuminate. Sepals 5, oblong-lanceolate, leaflike, both surfaces densely pubescent, margin entire, glandular pubescent. Petals 5, pink, broadly obovate, base cuneate, apex rounded. Styles free, slightly exserted, much shorter than stamens, densely pubescent. Hip dark red, ovoid or obovoid, 7–8 mm in diam., sparsely glandular pubescent, with persistent, erect sepals. Fl. May–Jun, fr. Aug–Oct.

- Scrub, river sides; 1300–2100 m. Chongqing (Chengkou Xian, Wuxi Xian).

One of us (Robertson) has seen no specimens of this species.

39. Rosa sinobiflora T. C. Ku, nom. nov.

双花蔷薇

shuang hua qiang wei


Shrubs small, ca. 2 m tall. Branchlets red-brown, terete, slender, glabrous; prickles subulate. Leaves including petiole 8–14 cm; stipules hooked, large and broad, mostly adnate to peti-ole, free parts triangular or ovate, both surfaces glabrous, margin densely stipitate glandular, apex shortly acuminate; rachis and petiole glabrous, laxly glandular pubescent and with small prickles; leaflets 7–9, yellow-green abaxially, deep green adaxially, ovate-lanceolate or oblong-lanceolate, 1.5–5.5 cm × 7–21 mm, abaxially pubescent only along midvein, adaxially glabrous, base suborbicular or broadly cuneate, margin shallowly serrate, and often reflexed, apex acuminate or caudate-acuminate. Flowers 2, fasciculate; pedicel short, 5–10 mm, nearly glabrous; bracts caducous, ovate. Hypanthium obovoid, glabrous. Sepals 5, ovate-lanceolate, 7–13 mm, abaxially nearly glabrous, adaxially densely tomentose-pubescent. Petals unknown. Stamens numerous. Styles slightly exserted, much shorter than stamens, pubescent. Hip red-brown, obovoid or subglobose, 1–1.2 cm in diam., glabrous; with persistent sepals. Fr. Aug–Oct.

- Tsuga forests; ca. 2600 m. NW Yunnan (Gongshan Xian).

One of us (Robertson) has seen no specimens of this species.


扁刺蔷薇

bian ci qiang wei

Shrubs 3–5 m tall. Branchlets terete, glabrous or sparsely puberulous, prickly; prickles paired below leaves, sometimes scattered, straight or slightly curved, to 1.5 cm, stout, flat, gradually tapering to broad base, sometimes intermixed with smaller prickles and bristles, old branches sometimes intermixed with bristles. Leaves including petiole 6–11 cm; stipules mostly adnate to petiole, free parts ovate-lanceolate, margin glandular serrate, apex acuminate; rachis and petiole pubescent, glandular pubescent, sparsely shortly prickly; leaflets 7–11, elliptic or ovate-oblong, 2–5 × 0.8–2 cm, abaxially pubescent or glandular, with prominent midvein and lateral veins, adaxially glabrous, base subrounded or broadly cuneate, margin doubly serrate, apex acute, rarely rounded-obtuse. Flowers solitary, or 2 or 3 and fasciculate, 3–5 cm in diam.; pedicel 1.5–3 cm; bracts 1 or 2, ovate-lanceolate, abaxially with distinct midvein, margin glandular serrate, sometimes pinnately lobed, apex caudate. Hypanthium oblong or obovoid, often stipitate glandular. Sepals 5, ovate-lanceolate, leaflike, abaxially subglabrous, stipitate glandular or not, adaxially puberulous, margin entire or sometimes pinnately lobed. Petals 5, pink, broadly obovate or suborbicular, glabrous or abaxially tomentose, base broadly cuneate, apex emarginate. Styles free, much shorter than stamens, densely pubescent. Hip purple-red, oblong or obovoid-oblong, 1.5–2.5 × 1–1.7 cm, with a short neck at apex, often glandular hirsute, with persistent, erect sepals. Fl. Jun–Jul, fr. Aug–Nov.

- Pinus forests margins, scrub, roadsides; 2300–4600 m. Gansu, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan.

One of us (Robertson) has seen no specimens of this species.
2b. Leaflets abaxially with dense, stalked glands; pedicel longer, 2–3 cm, densely pubescent .......... 40b. var. glandulosa

40a. Rosa sweginzowii var. sweginzowii

扁叶蔷薇 (原变种) bian ci qiang wei (yuan bian zhong)

Leaflets abaxially pubescent or only along veins pubescent, not glandular. Pedicel 1.5–2 cm, glandular pubescent. Sepals usually pinnately lobed. Petals glabrous.

- Scrub, roadsides; 2300–3600 m. Gansu, Hubei, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan.


腺叶扁刺蔷薇 xian ye bian ci qiang wei


- Pinus forest margins, scrub; 2300–3800 m. Gansu, Sichuan, Xizang, Yunnan.

40c. Rosa sweginzowii var. stevensii (Rehder) T. C. Ku, comb. et stat. nov.

毛瓣扁刺蔷薇 mao ban bian ci qiang wei

Basionym: Rosa stevensii Rehder, J. Arnold Arbor. 11: 162. 1930.

Sepals entire. Petals tomentose abaxially.

- 2700–4600 m. Sichuan.


华西蔷薇 hua xi qiang wei

Shrubs 1–4 m tall. Branchlets terete, glabrous or sparsely puberulous; prickles absent or if present, paired below leaves, straight or slightly curved, to 5 mm, stout, flat, tapering below to broad base. Leaves including petiole 7–13 cm; stipules broad, mostly adnate to petiole, free parts long ovate, glabrous, margin glandular serrate, apex acute; rachis and petiole puberulous, glandular pubescent, sparsely small prickly, leaflets 7–13, ovate, elliptic, or oblong-ovate, 1–5 × 0.8–2.5 cm, abaxially densely pubescent or only along prominent veins pubescent, adaxially glabrous, base subrounded or broadly cuneate, margin acutely simply serrate, apex acute or rounded-obtuse. Flowers solitary, or 2 or 3 and fasciculate, 4–6 cm in diam.; pedicel 1–3 cm, usually densely stipitate glandular, rarely glabrous; bracts 1 or 2, oblong-ovate, to 2 cm, margin glandular pubescent, apex acute or acuminate. Hypanthium ovoid. Sepals 5, ovate, leaf-like, abaxially glabrous or with a few glandular bristles at base, adaxially pubescent, pinnately lobed. Petals 5, deep red, broadly obovate, base broadly cuneate, apex emarginate. Styles free, shorter than stamens, pubescent. Hip purple-red or orange-red, globose-ovoid, to 5 cm, 1–2 cm in diam., with a short neck at apex, stipitate glandular, with persistent, erect sepals. Fl. Jun–Jul; fr. Aug–Oct.

41a. Rosa moyesii var. moyesii

华西蔷薇(原变种) hua xi qiang wei (yuan bian zhong)

Leaflets abaxially only along veins pubescent, rachis puberulous.

- Scrub, slopes; 2700–3800 m. Shaanxi, Sichuan, Yunnan.


毛叶华西蔷薇 mao ye hua xi qiang wei

Leaflets abaxially and rachis densely pubescent.

- Sichuan.


全针蔷薇 quan zhen qiang wei

Rosa elegantula Rolfe.

Shrubs ca. 1.5 m tall. Branchlets waxy farinose; prickles sparse, straight or slightly curved, flat, densely bristly, or sparsely prickly; prickles straight or slightly curved, flat, sometimes turgid at base. Leaves including petiole 5–10 cm; stipules mostly adnate to petiole, free parts narrowly oblong, margin entire, apex rounded-obtuse; rachis and petiole sparsely puberulous, glandular pubescent, shortly prickly; leaflets 7–9, rarely 11, elliptic or ovate-elliptic, 1.2–3 × 0.6–1.7 cm, glabrous or abaxially sparsely pubescent, with prominent midvein and lateral veins, base subrounded or broadly cuneate, margin simply serrate or incoincipiously doubly serrate, apex rounded-obtuse or acute. Flowers several in corumb, rarely solitary, 2.5–3 cm in diam.; pedicel 1.2–3 cm, glabrous; bracts 3–5, ovate, margin entire or glandular serrate, apex acutate. Hypanthium ovoid, glabrous. Sepals 5, ovate-lanceolate, abaxially subglabrous, glandular or not, adaxially densely puberulous, margin entire, apex acutate. Petals 5, red, broadly obovate, base broadly cuneate, apex rounded-obtuse. Styles free, shorter than stamens, puberulous. Hip bright red, ovoid, 1–1.5 cm, glabrous, with persistent sepals. Fl. May–Jun, fr. Jul–Oct.

One of us (Robertson) has seen no specimens of this species.

43. Rosa macrophylla Lindley, Ros. Monogr. 35. 1820.

大叶蔷薇 da ye qiang wei

Shrubs 1.5–3 m tall. Branchlets purple-brown, robust; prickles absent or in pairs below leaves, straight. Leaves including petiole 7–15 cm; stipules broad, mostly adnate to petiole, free parts ovate, usually glabrous, margin glandular serrate, apex shortly acuminata; rachis and petiole villous, sparsely glandular pubescent, sometimes shortly prickly; leaflets (7 or) 9–11(–13), oblong or elliptic-ovate, 2.5–6 cm, abaxially villous,
glandular or not, with prominent veins, adaxially glabrous, with concave midvein, base rounded, rarely broadly cuneate, margin simple or doubly serrate, apex acute, rarely rounded-obtuse. Flowers solitary, or 2 or 3 and fasciculate, 3.5–5 cm in diam.; pedicel 1.5–2.5 cm, densely stipitate glandular or not; bracts 1 or 2, long ovate, 1.5–2.5 cm, abaxially puberulous along midvein or glabrous, with prominent midvein and lateral veins, margin glandular pubescent, apex acuminate. Hypanthium ovoid or long obvoid, densely stipitate glandular. Sepals 5, ovate-lanceolate, 2–3.5(–5) cm, abaxially stipitate glandular, sparsely pubescent or not, adaxially densely pubescent, margin entire, apex long caudate. Petals 5, deep red, oblong-ovate, base broadly cuneate, apex emarginate. Styles free, much shorter than stamens, pubescent. Hip purple-red, oblong-obovate, base broadly cuneate, apex emarginate. Styles free, much shorter than stamens, pubescent. Hip orange-red, ellipsoid or pyriform, ca. 1 cm in diam., glabrous, with a short neck at apex, with persistent, erect sepals. Fl. Jun–Jul, fr. Aug–Nov. 2n = 14.

Forest margins, scrub, slopes; 2400–3700 m. S Xizang, NE Yunnan [Bhutan, India, Kashmir, Sikkim].

In populations of Yunnan, the leaves often have 7–9 smaller leaflets and the flowers are smaller, 2.8–3.5 cm in diameter.

1a. Leaflets abaxially not glandular, margin simply serrate, rarely doubly serrate

43a. var. macrophylla

1b. Leaflets abaxially glandular, margin usually doubly serrate

43b. var. glandulifera

43a. Rosa macrophylla var. macrophylla

大叶蔷薇(原变种) da ye qiang wei (yuan bian zhong)

_Rosa alpina_ Linnaeus var. _macrophylla_ (Lindley) Boulenger.

Leaflets abaxially not glandular, margin simply serrate, rarely doubly serrate.

Scrub, slopes; 3000–3700 m. S Xizang, NE Yunnan [Bhutan, India, Kashmir, Sikkim].

43b. Rosa macrophylla var. glandulifera


腺果大叶蔷薇 xian guo da ye qiang wei

Leaflets abaxially glandular, margin usually doubly serrate.

* Forest margins, scrub, open slopes; 2400–3400 m. S Xizang.


西南蔷薇 xi nan qiang wei

Shrubs 1.5–3 m tall. Branchlets erect or spreading, terete, slender, glabrous; prickles sparse, straight, to 6 mm, fine, tapering to a broad base; bristles and small, slender prickles often dense. Leaves including petiole 9–14 cm; stipules mostly adnate to petiole, free parts ovate, auriculate, margin glandular serrate, apex acuminate; rachis and petiole sparsely pubescent and shortly prickly, sometimes glandular pubescent; leaflets 9–15, elliptic or oblong, rarely ovate or broadly elliptic, 1–4.5 × 0.8–2.5 cm, abaxially pubescent, with prominent midvein and lateral veins, adaxially glabrous, base subrounded or broadly cuneate, margin simple glandular serrate, apex acute or shortly acuminate. Flowers 2–5(–7), in corymb, sometimes solitary, 2–3 cm in diam.; pedicel 2–4 cm, subglabrous or sparsely pubescent and glandular pubescent; bracts and bracteoles ovate-lanceolate, abaxially puberulous or not, margin glandular serrate, apex caudate. Hypanthium ellipsoid, glabrous or villous toward apex. Sepals 5, longer than petals, triangular-ovate, abaxially subglabrous, adaxially puberulous, margin entire, apex long caudate. Petals 5, white, or pink and white at base, obovate, apex emarginate. Styles free, much shorter than stamens, densely pubescent. Hip orange-red, ellipsoid or pyriform, ca. 1 cm in diam., glabrous, with a short neck at apex, with persistent sepals. Fl. Jun–Jul, fr. Aug–Nov.

* Scrub; 2300–3800 m. Sichuan, Yunnan.


羽萼蔷薇 yu e qiang wei

Shrubs small, ca. 2 m tall. Branchlets red-brown, terete, slender, glabrous, prickly; prickles scattered or in pairs below leaves, erect, terete. Leaves including petiole 2.5–4 cm; stipules mostly adnate to petiole, free part ovate or lanceolate, abaxially sometimes glandular, margin stipitate glandular, apex shortly acuminate; rachis and petiole glandular pubescent; leaflets usually 5, rarely 7, obovate or oblong, 5–11 × 3–6 mm, abaxially glandular pubescent, adaxially glabrous, base cuneate or sub-rounded, margin doubly serrate, teeth glandular apically, apex truncate, rarely rounded. Flowers 2 or 3 and fasciculate, rarely solitary, ca. 2.5 cm in diam.; pedicel 1–1.4 cm, glabrous or glandular pubescent; bracts caducous, unknown. Hypanthium oblong, usually glabrous or glandular pubescent abaxially. Sepals 5, triangular-lanceolate, 6–8 mm, abaxially glabrous or stipitate glandular, adaxially pubescent, margin pinnately lobed; lobes stipitate glandular apically, apex caudate-acuminate. Petals 5, pink, broadly obovate, base broadly cuneate, apex rounded-obtuse. Styles free, slightly exserted, much shorter than stamens, hairy. Hip purple-brown, obovate or obovoid-oblong, 1–2 cm in diam., glabrous. Fl. Jun–Jul, fr. Aug–Nov.

* 1400–2300 m. C and SW Sichuan (Luding Xian, Muli Xian).

Two forms may be recognized: f. _pinnatisepala_, which has hypanthium and sepals usually glabrous, and f. _glandulosa_ _T. C._ Ku (Bull. Bot. Res., Harbin 10(1): 3. 1990), which has hypanthium and sepals densely glandular pubescent. One of us (Robertson) has seen no specimens of either form.


滇边蔷薇 dian bian qiang wei

Shrubs small, 1–2 m tall. Branchlets terete, slightly curved, slender; prickles scattered or in pairs below leaves, yellowish, straight, stout. Leaves including petiole 2.2–6 cm; stipules broad, mostly adnate to petiole, free parts ovate, rarely lanceolate, glabrous, margin glandular serrate, apex acuminate; rachis and petiole sparsely glandular pubescent and shortly prickly; leaflets 5–7, rarely 9, suborbicular, ovate, or obovate,

Two forms may be recognized: f. *forrestiana*, which has leaflets abaxially eglandular and f. *glandulosa* T. C. Ku (Bull. Bot. Res., Harbin 10(1): 3. 1990), which has leaflets abaxially glandular pubescent. One of us (Robertson) has seen no specimens of either form.


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**Rosa multibracteata**

Shrubs or open plants. Branchlets terete, slender, glandular; prickles scattered and in pairs below leaves, terete, straight, to 1 cm, abruptly tapering to turgid base. Leaves including petiole 5–9 cm; stipules large, mostly adnate to petiole, free parts ovate, glandular, margin glandular serrate, apex shortly acuminate; rachis and petiole glabrous or sparsely glandular pubescent and puberulent, sparsely shortly prickly; leaflets (5–)7–9, ovate, obovate, or suborbicular, 8–15 × 10 mm, glandular pubescent, abaxially sparsely pubescent along veins, sometimes glandular, with prominent midvein and lateral veins, base subrounded or broadly cuneate, margin simply serrate, entire near base, apex rounded-obtuse or acute. Flowers 2 or 3, or several in corymb or panicle, rarely solitary, (2–)3–5 cm in diam.; pedicel 0.5–3 cm, densely stipitate glabular; bracts 3–5 or 8–10 in two whorls at base of corymb, those of external whorl ovate, those of internal one lanceolate, glabrous, margin glandular serrulate. Hypanthium subglobose, stipitate glandular. Sepals 5, triangular-lanceolate, 1.1–1.5 cm, leaflike, abaxially glandular or sparsely to densely stipitate pubescent, adaxially densely pubescent, margin entire. Petals 5, reddish, obovate, base broadly cuneate, apex emarginate. Styles free, slightly exserted, nearly equaling stamens, villous. Hip red, subglobose, 6–10 mm in diam.; stipitate glandular, with persistent, erect sepals. Fl. May–Jun, fr. Jul–Oct.

**Rosa pseudobanksiae**

Shrubs climbing, small. Branchlets gray-brown or gray-green, slightly curved; prickles slightly curved, short, flat. Leaves including petiole 2–3 cm; stipules mostly adnate to petiole, free parts lanceolate, both surfaces sparsely pubescent, margin glandular pubescent, apex acuminate; rachis and petiole glandular pubescent; leaflets 3–5, rhomboid-ovate or oblong, 1–1.5 cm × 8–5 mm, abaxially sparsely pubescent, with prominent midvein and lateral veins, adaxially glabrous, base cuneate or broadly cuneate, margin crenate or obtusely serrate, apex acute or rounded-obtuse. Flowers 3–5 in corymb, ca. 2 cm in diam.; pedicel ca. 1 cm, subglabrous; bracts deciduous, ovate-lanceolate, both surfaces pubescent, margin glandular pubescent, apex broadly caudate. Hypanthium obovoid, subglobose. Sepals 5, lanceolate, abaxially sparsely glandular pubescent, adaxially densely pubescent, apex acuminate. Petals 5, white, before and at beginning of anthesis pink, obovate, base broadly cuneate, apex erose. Styles 5 or 6, free, exserted, slightly shorter than stamens, pubescent. Hip unknown.
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lets 5(−7), pale green abaxially, green adaxially, ovate or obovate-elliptic, 8−15−18 × 6−10−13 mm, abaxially densely glandular and pilose, adaxially slightly pubescent, base subrounded or broadly cuneate, margin doubly serrate, teeth glandular apically, apex acute. Flower solitary, rarely 2 or 3 and fasciculate, ca. 2.5 cm in diam.; pedicel 7−10 mm, glandular; bracts 1 or 2, ovate or ovate-lanceolate, margin glandular, apex acuminate. Hypanthium subellipsoid, abaxially slightly glandular or glabrous. Sepals 5, reflexed, ovate-lanceolate, 1−1.5 cm, adaxially pubescent, margin shallowly pinnately lobed and serrate, teeth glandular apically, apex ciliate-acuminated. Petals 5, pink, obovate, ca. 1.2 cm in diam., apex acuminate. Styles free, slightly exerted, shorter than stamens, white pubescent. Hip yellow-red, subellipsoid, ca. 1.4 cm, ca. 1 cm in diam., glabrous, with a short neck at apex, with persistent, erect sepals. Fl. Jun−Jul, fr. Aug−Oct.

One of us (Robertson) has seen no specimens of this species.


陕西蔷薇  shan xi qiang wei

Shrubs to 2 m tall. Branchlets erect or spreading, slender; prickles paired at base of leaves, sparse, terete, straight, to 8 mm, slender, abruptly narrowing to elliptic base. Leaves including petiole 4−8 cm; stipules mostly adnate to petiole, free parts ovate, margin glandular serrate, shortly acuminate; rachis and petiole sparsely pubescent, glandular pubescent, shortly prickly; leaflets 7−9, suborbicular, obovate, or elliptic, 1−2.5 × 0.6−1.5 cm, abaxially pubescent or rarely pubescent along midvein, adaxially glabrous or pubescent, base rounded or broadly cuneate, margin simple or doubly serrate, teeth glandular or not, apex rounded-obtuse or acute. Flowers solitary, or 2 or 3 and fasciculate, 2−3 cm in diam.; pedicel not exceeding 1 cm, glandular pubescent or not; bracts 1 or 2, ovate, glabrous, margin glandular serrate, apex acute or shortly ciliate. Hypanthium obovate, glandular pubescent. Sepals 5, ovate-lanceolate, abaxially glandular pubescent, adaxially puberulous, margin entire or 1- or 2-lobed, apex ciliate. Petals 5, pink, broadly obovate, base cuneate, apex emarginate. Styles free, shorter than stamens, densely yellowish pubescent. Hip dark red, ovoid, ca. 1 cm in diam., glandular pubescent or not, with a short neck at apex, often with persistent, erect sepals. Fl. May−Jul, fr. Jul−Oct.

One of us (Robertson) has seen no validating description, diagnosis, nor indication of type was included in FRPS. It is therefore validated here. One of us (Robertson) has seen no specimens of this species.

51a. Rosa giraldii var. giraldii

陕西蔷薇(原变种)  shan xi qiang wei (yu an bian zhong)

Leaflets abaxially puberulous or only along midvein puberulous, not reticulate, adaxially glabrous.

● Scrub; 700−2000 m. Gansu, Henan, Hubei, Shaanxi, Sichuan.


毛叶陕西蔷薇  mao ye shan xi qiang wei

Leaflets abaxially densely pubescent, distinctly reticulate, adaxially pubescent.

● Scrub; 1000−1600 m. W Hubei, S Shaanxi, Sichuan.

51c. Rosa giraldii var. bidentata T. T. Yu & T. C. Ku, var. nov.

重齿陕西蔷薇  chong chi shan xi qiang wei

Type: China. Shaanxi: Chang’an Xian, Zhongnan Shan, s.d., Anonymous s.n. (holotype, PE).

A var. giraldii foliolis margine irregulariter duplicato-serratis, serraturis apice glandulosis, foliolum rachidibus et foliolum subitus ad costam pubescentibus sparse glandulositis et breve aculeatis, difact.

Leaflets abaxially along midvein pubescent, sparsely glandular, and shortly prickly, leaflet margin irregularly doubly serrate, teeth glandular apically.

● Rocky slopes; ca. 1700 m. SC Shaanxi (Zhongnan Shan).

This variety was accepted in FRPS (p. 418), with the place of publication cited as “Bull. Bot. Res. [Harbin] 1(4): 1981,” i.e., without a page number. The name was published nowhere in that journal, and no validating description, diagnosis, nor indication of type was included in FRPS. It is therefore validated here. One of us (Robertson) has seen no specimens of this variety.


钝叶蔷薇  dun ye qiang wei

Shrubs 1−2 m tall. Branchlets terete, slender, glabrous; prickles paired below leaves, and sometimes sparsely scattered, terete, straight, to 8 mm, fine, abruptly tapering to a disc-like base. Leaves including petiole 5−8 cm; stipules mostly adnate to petiole, free parts ovate, glabrous, auriculate, margin glandular pubescent, apex acuminate; rachis and petiole sparsely pubescent, glandular pubescent, and shortly prickly; leaflets 7−15, broadly elliptic or ovate-elliptic, (0.6−)1−2.5 × 0.7−1.5 cm, glabrous or abaxially along midvein sparsely pubescent, with prominent midvein and lateral veins, base subrounded,
margin simply serrate to doubly serrate, entire near base, apex acute or rounded-obtuse. Flowers solitary, or 2 or 3 or more in a corymb, 2–3.5 cm in diam.; pedicel 1.5–3 cm, glabrous or sparsely glandular pubescent; bracteoles 1–3; bracts ovate, margin glandular pubescent, apex shortly acuminate. Hypanthium ovoid, glabrous or rarely sparsely stipitate glandular. Sepals 5, ovate-lanceolate, leaflike, abaxially glabrous, adaxially densely yellowish white pubescent, margin entire, apex elongate. Petals 5, pink or rose, broadly obovate, base broadly cuneate, apex emarginate. Styles free, shorter than stamens, pubescent. Hip nodding, bright red, subglobose or ovoid, 1.5–2 cm in diam., glabrous, with persistent, spreading sepals. Fl. Jun–Jul, fr. Jul–Sep.

- Sparse woods, slopes, stream sides, roadsides; 1400–2200 m. Anhui, Gansu, Henan, Hubei, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Yunan, Zhejiang.

1a. Leaflets 7–11, margin simply serrate, teeth not aristate ................................. 52a. var. sertata

1b. Leaflets 9–15, margin tending to doubly serrate, teeth irregularly aristate apically

................................. 52b. var. multijuga

52a. Rosa sertata var. sertata

钝叶蔷薇 (原变种) dun ye qiang wei (yuans bian zhong)

Rosa hwangshainensis P. S. Hsu; R. iochanensis H. Léveillé.

Leaflets 7–11, margin simply serrate, teeth not aristate.

- Sparse woods, slopes, stream sides, roadsides; 1400–2200 m. Anhui, Gansu, Henan, Hubei, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Yunan, Zhejiang.

52b. Rosa sertata var. multijuga

多对钝叶蔷薇 duo dui dun ye qiang wei

Leaflets 9–15, margin tending to doubly serrate, teeth irregularly aristate apically.

- Sichuan (Dawu Xian).


藏边蔷薇 zang bian qiang wei

Shrubs 1–2 m tall. Branchlets purple-brown, slender; prickles scattered or in pairs, yellowish, straight, often intermixed with bristles. Leaves including petiole ca. 4 cm; stipules mostly adnate to petiole, free parts ovate, margin glandular pubescent, apex acute; rachis and petiole glabrous but very sparsely small prickly; leaflets 5–9, suborbicular, obovate, or broadly elliptic, 6–20 × 4–12 mm, glabrous or abaxially sparsely puberulous along veins, base subrounded or cuneate, margin simply serrate at upper part, near base entire, apex rounded-obtuse, rarely acute. Flowers solitary, rarely 2 or 3 and fasciculate, 3.5–5 cm in diam.; pedicel 1–1.5 cm, glabrous or glandular pubescent; bracts ovate, margin glandular serrate, midvein and lateral veins abaxially conspicuous. Hypanthium subglobose or ovoid, glabrous or glandular puberulous. Sepals 5, triangular-lanceolate, abaxially glandular pubescent, adaxially densely puberulous, margin entire, apex elongate. Petals 5, reddish or rose, broadly obovate, base cuneate, apex emarginate. Styles free, shorter than stamens, pubescent. Hip nodding, bright red, subglobose or ovoid, 1.5–2 cm in diam., glabrous, with persistent, spreading sepals. Fl. Jun–Jul, fr. Jul–Sep.

- Forests, scrub, grassy places, valleys, slopes, farmland; 2000–4500 m. Xizang [Afghanistan, N India, Kashmir, Mongolia, W Nepal].

Rosa dawoensis Pax & Hoffmann (Repert. Spec. Nov. Regni Veg. Beih. 12: 414. 1922), described from Sichuan (Dawu Xian), is similar to R. webbiana and requires further study.


腺果蔷薇 xian guo qiang wei

Shrubs large, to 6 m tall. Branchlets purple-brown, terete, prickly; prickles yellowish, straight, to 7 mm, rigid, gradually tapering to broad base. Leaves including petiole 3.4–5 cm; stipules mostly adnate to petiole, free parts lanceolate or ovate, margin glandular pubescent, apex acute; rachis and petiole glabrous or sparsely glandular pubescent; leaflets usually 7, rarely 5 or 9, suborbicular or ovate, glabrous, leathery, abaxially with prominent veins, base subrounded or broadly cuneate, margin simply serrate, entire near base, apex rounded-obtuse. Flowers solitary, sometimes 2–4 and fasciculate, 3–4 cm in diam.; pedicel 1–2 cm, stipitate glandular pubescent; bracts ovate or ovate-lanceolate, margin glandular pubescent, apex caudate or acute. Hypanthium ovoid, stipitate glandular, rarely glabrous. Sepals 5, lanceolate, abaxially stipitate glandular, adaxially densely pubescent, apex acuminate. Petals 5, white, rarely pink, broadly obovate, base broadly cuneate, apex erose. Styles free, shorter than stamens, pubescent. Hip deep red, oblong or ovoid, 1.5–2 cm in diam., densely glandular pubescent, with persistent sepals. Fl. Jul–Aug, fr. Aug–Oct.

- Scrub, slopes, stream sides in valleys; 2400–2700 m. Xinjiang [Kazakhstan].


西藏蔷薇 xi zang qiang wei

Shrubs small. Branchlets slightly curved, glabrous; prickles scattered or in pairs, yellowish, straight, often intermixed with bristles. Leaves including petiole ca. 4 cm; stipules mostly adnate to petiole, free parts ovate, margin glandular pubescent, apex acute; rachis and petiole sparsely glandular pubescent and shortly prickly; leaflets 5–7, oblong, 1.1–1.3 × 0.5–0.8 cm, abaxially glandular pubescent, with prominent midvein and lateral veins, adaxially glabrous, base subrounded or broadly cuneate, margin doubly serrate, teeth often glandular apically, apex rounded-obtuse. Flower solitary, 3.5–4 cm in diam.; pedicel 2 cm, glabrous; bracts ovate, ca. 1.5 cm, abaxially and margin glandular pubescent, 3-lobed at apex. Hypanthium ovoid, glabrous. Sepals 5, ovate-lanceolate, abaxially subglandular, adaxially densely pubescent, margin entire or inconspicuously serrate near apex, apex caudate. Petals 5, white, slightly broadly...

月季花 yue ji hua

Shrubs erect or climbing, with curved prickles. Leaflets 3–5, rarely 7; stipules narrow, adnate to petiole. Flowers 1 to numerous. Sepals entire or with a few lobes, after anthesis reflexed and deciduous. Styles free, exserted, nearly equaling stamens.

Three species: China, Myanmar, N Thailand, N Vietnam, widely cultivated elsewhere; three species (two endemic) in China.


月季花 yue ji hua

Shrubs erect, 1–2 m tall. Branchlets purple-brown, terete, robust, subglabrous; prickles abundant to absent, curved, stout, flat. Leaves including petiole 5–11 cm; stipules mostly adnate to petiole, free parts auriculate, margin entire, often glandular pubescent, apex acuminate; rachis and petiole sparsely prickly and glandular pubescent; leaflets 3–5, rarely 7, greenish abaxially, dark green adaxially, broadly ovate or ovate-oblong, 2.5–6 × 1–3 cm, both surfaces subglabrous, adaxially often shiny, base subrounded or broadly cuneate, margin acutely serrate, apex long acuminate or acuminate. Flowers 4 or 5 and fasciculate; petals deep red or deep purple. Sepals often entire, rarely with a few lobes, occasionally parted, apex acuminate or caudate. Petals 5, semi-double, or double, red, pink, white, or purple, obovate, base cuneate, margin crenate. Styles free, exserted, nearly equaling stamens, pubescent. Hip red, ovoid or pyriform, 1–2 cm in diam., glabrous. Fl. Apr–Sep, fr. Jun–Nov. 2n = 21*, 28*.

Native in Guizhou, Hubei, Sichuan; also widely cultivated in China [widely cultivated elsewhere].

1a. Flowers single .................................. 56b. var. spontanea
1b. Flowers double or semidouble.

2a. Branches robust, often with hooked prickles; leaflets 3–5, rarely 7, abaxially dark green; flowers several, rarely solitary; petals red, pink, or white ................... 56a. var. chinensis

2b. Branches slender, with short prickles; leaflets 5–7, thinner, often tinged with purple-red; flowers often solitary, or 2 or 3 and fasciculate; petals deep red or deep purple ............ 56c. var. semperflorens

56a. Rosa chinensis var. chinensis

月季花(原变种) yue ji hua (yuan bian zhong)

Rosa nankinensis Loureiro; R. sinica Linnaeus.

Branches robust, often with hooked prickles. Flowers double or semidouble, several, rarely solitary. Leaflets 3–5, rarely 7, abaxially dark green. Petals red, pink, or white. Sepals often with a few lobes.

Cultivated in China [widely cultivated elsewhere, of cultivated origin].

A famous Chinese ornamental plant with many widely cultivated horticultural forms.


单瓣月季花 dan ban yue ji hua


Branches with broad prickles. Flowers single, often solitary. Leaflets 3–5. Petals red. Sepals often entire, rarely with a few lobes.

Native in Guizhou, Hubei, Sichuan.


紫月季花 zi yue ji hua

Rosa semperflorens Curtis, Bot. Mag. 8: t. 284. 1794.

Branchlets slender, with short prickles. Flowers double or semidouble, often solitary, or 2 or 3 and fasciculate. Leaflets 5–7, thinner, often tinged with purple-red. Petals deep red or deep purple. Sepals often with a few lobes. 2n = 14*.

Cultivated in China [widely cultivated elsewhere, of cultivated origin].


香水月季 xiang shui yue ji

Shrubs evergreen or semi-evergreen, climbing or scrambling, with long repent branches. Branches robust, glabrous; prickles scattered, curved, to 7 mm, stout, flat, gradually tapering to broad base. Leaves including petiole 5–10 cm; stipules mostly adnate to petiole, free parts auriculate, glabrous, glandular at margin or only at base, apex acuminate; rachis and petiole sparsely short prickly and glandular pubescent; leaflets 5–9, elliptic, ovate, or oblong-ovate, 2.7 × 1.5–3 cm, leathery, both surfaces glabrous, base cuneate or subrounded, margin appressed-serrate, apex acute or acuminate. Flowers solitary, or 2 or 3 and fasciculate, very fragrant, 3–10 cm in diam.; pedicel 2–3 cm, subglabrous or glandular pubescent; bracts late, rarely solitary, slightly fragrant or not, 4–5 cm in diam.; pedicel 2–3 cm, subglabrous or glandular pubescent; bracts 1–3, linear, glabrous, margin glandular or entire, apex acute. Hypanthium ovoid-globose or pyriform, glabrous. Sepals 5, deciduous, ovate, sometimes leaflike, abaxially glabrous, adaxially densely villous, margin entire or pinnately few lobed, occasionally parted, apex acuminate or caudate. Petals 5, semi-double, or double, red, pink, white, or purple, obovate, base cuneate, apex acute. Styles free, exserted, nearly equaling stamens, pubescent. Hip red, ovoid or pyriform, 1–2 cm in diam., glabrous. Fl. Apr–Sep, fr. Jun–Nov. 2n = 21*, 28*.

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cm, glabrous or glandular pubescent; bracts 1–3, linear, margin entire or sparsely glandular, apex attenuate. Hypanthium depressed-globose. Sepals 5, lanceolate, abaxially glabrous, axadically densely villous, margin entire, rarely few pinnately lobed, apex long acuminate, after anthesis reflexed, deciduous. Petals 5, semidouble, or double, white or tinged with pink, yellow, or orange, fragrant, obovate, base cuneate, apex emarginate. Styles free, exerted, nearly equaling stamens, pubescent. Hip red, depressed-globose, rarely pyriform, glabrous. Fl. Jun–Sep.

Mixed forests, thickets, scrub on hillsides, pastures, grassy slopes, roadsides; 1400–2700 m. Native in Yunnan; cultivated in Jiangsu, Sichuan, Yunnan, Zhejiang [Myanmar, N Thailand, N Vietnam].

According to Fu (China Plant Red Data Book 1: 556–557. 1992), this is a rare species threatened by habitat loss.

1a. Flowers single, 8–10 cm in diam.; petals white ........................................... 57b. var. gigantea
1b. Flowers double or semidouble, usually smaller, 3–8 cm in diam.; petals yellow, orange, or white, or white tinged pinkish.
2a. Petals yellow or orange; flowers ca. 8 cm in diam. .............................. 57c. var. pseudoindica
2b. Petals white or tinged pinkish; flowers 5–8 cm in diam.
3a. Petals white or tinged pinkish; flowers 5–8 cm in diam. ....... 57a. var. odorata
3b. Petals pale pink; flowers 3–6 cm in diam. ................................. 57d. var. erubescens

57a. Rosa odorata var. odorata

香水月季 (原变种) xiang shui yue ji (yuan bian zhong)

*Rosa indica* Linnaeus var. odorata Andrews, Roses 2: t. 77. 1810; *R. gechtianthensis* H. Léveillé; *R. indica* var. fragrans Thory; *R. odoratissima* Sweet ex Lindley; *R. oulengensis* H. Léveillé; *R. thea* Savi; *R. tongtchouanensis* H. Léveillé.

Flowers double or semidouble, 5–8 cm in diam. Petals white or pinkish.

Cultivated. Jiangsu, Sichuan, Yunnan, Zhejiang [widely cultivated elsewhere; of cultivated origin].


大花香水月季 da hua xiang shui yue ji


Flowers single, 8–10 cm in diam. Petals white. 2n = 21*.

Mixed forests, thickets, scrub on hillsides, pastures, grassy slopes, roadsides; 1400–2700 m. Yunnan [Myanmar, N Thailand, N Vietnam].


橘香香水月季 ju huang xiang shui yue ji

*Rosa pseudoindica* Lindley, Ros. Monogr. 132. 1820; *R. chinensis* Jacquin var. pseudoindica (Lindley) E. Willmott.

Flowers double, ca. 8 cm in diam. Petals yellow or orange.

- NW Yunnan.


粉红香水月季 fen hong xiang shui yue ji


Flowers double, 3–6 cm in diam. Petals pale pink.

- 2000–2500 m. NW Yunnan (Dali Xian, Lijiang Xian).


亮叶月季 liang ye yue ji

*Rosa anemonoides* Rehder; *R. boisii* Cardot; *R. lucidissima* f. setosa Cardot.

Shrubs evergreen or semi-evergreen, climbing. Branchlets robust, glabrous when old; prickles sparse, curved, flat, gradually tapering to base; bristles sometimes dense. Leaves including petiole 6–11 cm; stipules mostly adnate to petiole, free parts lanceolate, glabrous, margin glandular, apex acuminate; rachis and petiole shortly prickly, sparsely glandular pubescent; leaflets usually 3, rarely 5, pale green abaxially, deep green axadically, often purple-brown when old, oblong-ovate or long elliptic, 4–8 × 2–4 cm, glabrous, base subrounded or broadly cuneate, margin acutely depressed serrate, apex caudate-acuminated or acute. Flower solitary, 3–3.5 cm in diam.; pedicel 6–12 mm, glabrous or sparsely pubescent when young, rarely glandular pubescent; bracts absent. Hypanthium pyriform or obovoid. Sepals 5, oblong-lanceolate, abaxially glabrous, axadically densely pubescent, margin entire or slightly incised, apex caudate-acuminated, after anthesis reflexed, deciduous. Petals 5, purple-red, broadly obovate, base cuneate, apex emarginate. Styles free, excised, purple-red, equaling stamens, pubescent. Hip often black-purple, pyriform or obovoid, smooth. Fl. Apr–Jun, fr. May–Aug.

- Mixed forests, scrub; 400–1400 m. Guizhou, Hubei, Sichuan.


合柱组 he zhu zu

Shrubs climbing, rarely erect; prickles curved. Leaflets 5–9, rarely 3; stipules adnate to petiole, margin entire, serrate, or pectinately lobed. Flowers numerous in corymb. Sepals often pinnately lobed, rarely entire, after anthesis reflexed and deciduous. Styles connate into a column, excised.

About 35 species: N Africa, Asia, Europe, North America; 30 species (22 endemic) in China.

琉璃山蔷薇 lang ya shan qiang wei

Shrubs deciduous, ca. 2 m tall. Branchlets dark purple or grayish brown, terete, glabrous, sparsely prickly; prickles yellowish, curved or straight, flat, turgid at base. Leaves 7–10 cm including petiole; stipules mostly adnate to petiole, free parts pectinately parted to base, margin glandular pubescent or not; rachis and petiole glandular pubescent or subglabrous; leaflets (5 or) 7 or 9, sessile or subsessile, pale green abaxially, deep green adaxially, rhomboid-elliptic, 2.5–3 × 0.8–1.8 cm, midvein and lateral veins prominent abaxially, impressed adaxially, both surfaces glabrous, base cuneate or broadly so, margin sharply deeply serrate, apex acute or acuminate; teeth triangularto-ovate. Compound corymb 5–9-flowered; peduncle sparsely glandular pubescent. Flowers 2–3 cm in diam.; pedicel 2–2.5 cm; bracts unknown. Hypanthium obovoid, abaxially glabrous. Sepals lanceolate or ovate-lanceolate, ca. 2 × as long as hypanthium, abaxially subglabrous, adaxially densely pubescent, margin entire, usually glandular pubescent, apex caudate-acuminate. Petals pink, narrowly obovate, 6–7 × 4–5 mm, base cuneate, apex emarginate. Stamens numerous. Styles connate into a column, usually glandular pubescent or subglabrous. Hip ovoid-globose, 6–8 mm in diam., glabrous, shiny.

1a. Petals white; flowers 1.5–2 cm in diam.

1b. Petals pink; flowers to 4 cm in diam.

60a. *Rosa multiflora* var. *multiflora*

60b. *Rosa multiflora* var. *cathayensis*

60a. *Rosa multiflora* var. *multiflora*

野蔷薇(原变种) ye qiang wei (yuán biàn zhòng)

Flowers 1.5–2 cm in diam. Petals white.

Henan, Jiangsu, Shandong [Japan, Korea].


粉团蔷薇 fen tuan qiang wei


Flowers to 4 cm in diam. Petals pink. 2n = 14*, 28*.

- Thickets, scrub, slopes; 300–2000 m. Anhui, Fujian, S Gansu, Guangdong, Guangxi, Guizhou, S Hebei, Henan, Hunan, Jiangsu, Jiangxi, S Shaanxi, Shandong, Taiwan, ?Yunnan, Zhejiang [Japan, Korea].


岱山蔷薇 dai shan qiang wei

Shrubs climbing, small, to 1 m tall. Branchlets terete, slightly curved, slender, subglabrous; prickles short, slightly flat, inflated at base. Leaves including petiole 5.5–7 cm; stipules mostly adnate to petiole, margin pectinate and glandular; rachis and petioles densely stipitate glandular and sparsely pubescent; leaflets 5–7, pale green abaxially, deep green adaxially, usually obovate-oblong or elliptic, 1.3–2 × 0.9–1.5 cm, abaxially glabrous or sparsely glandular or pubescent along midvein, adaxially subglabrous, base broadly cuneate or rounded, margin doubly serrate, apex acuminate. Flowers 8–12-flow-
ered in panicle, 2–2.5 cm in diam.; pedicel 5–10 mm, glandu-
lar; bracts caducous. Hypanthium ovoid-globose, subgla-
brusely villous and glandular pubescent. Sepals 5, lanceo-
late, abaxially stipulate-glandular, adaxially densely vil-
lusely villous, margin pinnately lobed; lobules lanceolate to
axial, apex long acuminate. Petals 5, white, unknown. Styles connate in column, ex-
serted, slightly shorter than stamens, glabrous. Hip unknown.

- NE Zhejiang (Daishan Xian).

One of us (Robertson) has seen no specimens of this species.


单花合柱蔷薇 dan hua he zhu qiang wei


Shrubs small. Branchlets brown or purple-brown, terete,
curved, slender, striate, subglabrous; prickles scattered or in
pairs, short, flat. Leaves including petiole 2.5–3.5 cm; stipules
pectinate, mostly adnate to petiole, both surfaces and margin
sparsely pubescent, densely glandular pubescent; rachis and
petiole densely pubescent and glandular pubescent; leaflets 5–7,
obovate or broadly elliptic, 7–10 × 5–7 mm, abaxially pubes-
cent, with prominent midvein, adaxially sparsely pubes-
cent, base broadly cuneate or subrounded, margin simply serrate
or nearly doubly serrate, apex acute or obtuse. Flower solitary,
axillary, 2–2.5 cm in diam.; pedicel less than 1 cm, sparsely
pubescent and glandular pubescent; bracts 2 or 3, at base of
pedicel, ovate-lanceolate, abaxially and margin densely gland-
ular pubescent. Hypanthium oblong, abaxially densely glandu-
lar pubescent. Sepals 5, lanceolate, ca. 5 mm, abaxially densely
pubescent, with prominent midvein densely pubescent, adaxially
densely pubescent, margin entire or rarely lobed, apex acuminate. Petals 5, white, oblong-obo-
vate, base cuneate, apex emarginate. Styles connate into column,
slightly shorter than stamens, glabrous. Hip unknown.

- Sunny sea shores. NE Zhejiang (Daishan Xian).

One of us (Robertson) has seen no specimens of this species.


昆明蔷薇 kun ming qiang wei

Shrubs ca. 3 m tall. Branchlets red-brown, terete, robust,
glabrous, glandular; prickles sparse, straight or slightly curved,
to 9 mm, robust, flat, gradually tapering to broad base. Leaves
including petiole 6–8 cm; stipules usually partly adnate to peti-

bole, margin pectinate; rachis and petiole densely tomento-

se pubescent, laxy prickly; leaflets 7–9, pale green abaxially, deep

green adaxially, elliptic or obovate-oblong.

1.2–2.5 cm × 6–14 mm, abaxially densely tomentose-pubescent, adaxially subglu-

orous or sparsely pubescent, base cuneate or broadly cuneate,
margin sharply serrate, apex acute. Flowers 5–7–flowered, in
corymb, ca. 2.8 cm in diam.; pedicel 1.7–2.3 cm, densely glandu-
lar pubescent; bracts caducous. Hypanthium ovoid-globose,
glabrous. Sepals 5, oblong or lanceolate, 8–11 cm, abaxially
densely tomentose-pubescent, margin entire except for 1 pair of
lobes, adaxially pubescent and glandular pubescent, apex long
caudate. Petals double, white, long obovate, base cuneate, apex

rounded-obtuse. Styles connate in column, exserted, slightly
longer than stamens, densely pubescent. Hip unknown.

- Mountain slopes; ca. 2300 m. Yunnan (Kunming Shi).


广东蔷薇 guang dong qiang wei

Shrubs climbing, small, with long repent branches.
Branchlets dark gray or red-brown, terete, when young puberu-

lous, soon glabrescent; prickles scattered, curved, to 7 mm,

stout, flat, gradually tapering to broad base. Leaves including
petiole 3.5–6 cm; stipules mostly adnate to petiole, free parts
lanceolate, pubescent, margin irregularly serrate to fimbriate,
glandular, apex shortly acuminate; leaflets 5–7(–9), greenish
abaxially, dark green adaxially, elliptic, long elliptic, or elliptic-

ovate, 1.5–3 × 0.8–1.5 cm, abaxially pubescent, along promin-
ent midvein densely pubescent, sparsely slightly prickly and
glandular pubescent, adaxially along midvein pubescent, base
broadly cuneate or subrounded, margin serrulate, apex acute
or acuminate. Flowers 4–15, 1.5–3 cm in diam., in terminal
corymb 5–7 cm in diam.; pedicel 1–3 cm, densely pubescent
and glandular pubescent or subgla

brusely villous and glandular pubescent. Sepals 5, lanceo-
late, ca. 5 mm, abaxially densely glandular pubescent, adaxially

- Scrub, slopes, river sides, roadsides; 100–500 m. Fujian, Guang-
dong, Guangxi.

64a. var. kwangtungensis

- Scrub, slopes, river sides, roadsides; 100–500 m. Fujian, Guang-
dong, Guangxi.

64b. var. mollis

- Scrub, slopes, river sides, roadsides; 100–500 m. Fujian, Guang-
dong, Guangxi.

64b. var. mollis Metcalf, J. Arnold Arbor. 21: 111. 1940.

毛叶广东蔷薇 mao ye guang dong qiang wei


Flowers double, 1–1.5 cm in diam. Pedicels and sepals tomento-

se pubescent.
**Ravine slopes. S Fujian (Xiamen Shi), Guangdong, Guangxi.**


*Shrubs climbing, ca. 2 m tall. Branchlets terete, slender; prickles scattered, slightly curved, short, stout. Leaves including petiole 3–5 cm; stipules mostly adnate to petiole, free parts lanceolate, abaxially pubescent, margin entire, often sparsely glandular pubescent, apex long acuminate; rachis and petiole pubescent and sparsely shortly prickly; leaflets 5–7, elliptic or ovate-oblong, 1.5–3.6 × 0.8–1.5 cm, abaxially glabrous, adaxially densely pubescent; bracts unknown. Hypanthium obovate-oblong, abaxially glabrous or sparsely glandular pubescent. Sepals 5, ovate-lanceolate, abaxially glabrous or sparsely glandular pubescent, adaxially densely pubescent, margin glandular pubescent, often with 2–4 linear lobes, apex long acuminate. Petals 5, pink, obovate, base cuneate or broadly cuneate, margin entire or occasionally with small, linear lobes, apex acuminate. Styles connate in column, subglandular, nearly equaling stamens, densely pubescent. Hip unknown. Flowers 2–4 in umbel-like corymb, 2.5–3 cm in diam.; pedicel 1–1.5 cm, glabrous or sparsely glandular pubescent; bracts unknown. Hypanthium obovate-oblong, abaxially glabrous or sparsely glandular pubescent. Sepals 5, ovate-lanceolate, abaxially glabrous or sparsely glandular pubescent, adaxially densely pubescent, margin glandular pubescent, often with 2–4 linear lobes, apex long acuminate. Petals 5, pink, obovate, base broadly cuneate, margin entire or occasionally with small, linear lobes, apex acuminate. Styles connate in column, subequaling stamens, densely pubescent. Hip unknown.

- Scrub. NW Yunnan (Lijiang Xian).

One of us (Robertson) has seen no specimens of this species.


高山蔷薇 gao shan qiang wei

*Shrubs evergreen, dwarf. Branchlets glabrous; prickles sparse or in pairs below leaves, to 7 mm, flat. Stipules mostly adnate to petiole, free parts lanceolate, ca. 1 cm, both surfaces subglabrous or sparsely pubescent, margin filiform-dissected and glandular pubescent; rachis and petiole pubescent, glandular pubescent, sparsely prickly; leaflets 5–7, rarely 3, elliptic or oblong, 5–25 × 5–15 mm, abaxially puberulous along midvein, adaxially subglabrous, sometimes sparsely glandular pubescent, margin acutely simply serrate, apex rounded-obtuse, pubescent, apex acu acute, or truncate. Flowers solitary or 3–5 in cyme, 1.8–2.5 cm in diam.; pedicel ca. 1.5 cm, glandular pubescent or not; bracts absent. Hypanthium subglabose to urceolate, glabrous. Sepals 5, triangular-ovate, abaxially pubescent and glandular pubescent, adaxially tomentose, margin lacinate and glandular minutae. Petals 5, white, obovate, ca. 10 × 5 mm, apex emarginate. Styles connate into column, subequaling stamens, villous. Hip subglabose, ca. 6 mm in diam.

Alpine regions; ca. 2400 m. Taiwan [Philippines].


高山蔷薇 shan qiang wei

*Shrubs climbing. Branchlets purple-brown, slender, glabrous; prickles sparse to scattered, to 2 mm, flat, gradually tapering to a broad base 2–3 × height, often with shortly stipitate glands. Leaves including petiole 7–16 cm; stipules mostly adnate to petiole, free parts lanceolate, both surfaces glabrous, margin glandular pubescent, apex acuminate; rachis and petioles sparsely pubescent or glabrous, sparsely shortly prickly, shortly stipitate glandular; leaflets 5, sometimes 3, sublacerate, oblong or oblong-lanceolate, 4–8 × 1.3–3 cm, both surfaces glabrous, base truncate to rounded, margin serrate, apex acuminate. Flowers 4 to several, in terminal corymbs, 2.5–3.5 mm in diam.; pedicel 2–3 cm, slightly pubescent, shortly stipitate glandular; bracts lanceolate, small. Hypanthium ellipsoid, sparsely pubescent, shortly stipitate glandular. Sepals 5, deciduous, reflexed, lanceolate, shorter than petals, abaxially mostly glabrous, shortly stipitate glandular, adaxially densely pubescent, margin entire or with 2 small lobes, apex acuminate. Petals 5, white or pink, broadly ovate, base cuneate, apex emarginate. Styles connate into a column, slightly longer than stamens, villous or glabrous. Hip red or black, ellipsoid, ca. 1 cm in diam., glabrous, sometimes with a few shortly stipitate glands.

- Broad-leaved forests (climbing in the crowns of trees), roadside slopes, 1500–1700 m. Taiwan.

*Rosa sambucina* var. *sambucina* is endemic to Japan.


小金樱子 xiao jin ying zi

*Shrubs climbing. Branchlets slender; prickles scattered, hooked. Leaves including petiole 5–15 cm; stipules 1/2 or more adnate to petiole, free parts triangular to linear, margin ciliate-serrate, glandular pubescent, apex acuminate; rachis and petiole mostly glabrous but sparsely prickly and sparsely shortly stipitate glandular; leaflets 5–7, elliptic or ovate, 1.5–3.6 × 0.8–1.5 cm, terminal one larger than lateral ones, both surfaces glabrous or sparsely pubescent along midvein, base obtuse to acute, margin simply serrate, especially in upper 1/2, apex acute or acuminate to obtuse. Flowers many, in large terminal corymbs, ca. 2.5 cm in diam.; pedicel ca. 1 cm, pubescent, shortly stipitate glandular; bracts linear, margin ciliate. Hypanthium globose, glandular pubescent. Sepals 5, deciduous, reflexed, shorter than petals, ovate-oblong, abaxially pubescent, stipitate glandular, adaxially tomentose, margin entire or occasionally with small, linear lobes, apex acute. Petals 5, white, broadly ovate, apex emarginate. Styles connate in column, exserted, longer than stamens, villous. Hip red, globose, 6–8 mm in diam.

- Mountain ranges; below 2500 m. Taiwan.


太鲁阁蔷薇 tai lu ge qiang wei

*Shrubs, erect. Branchlets yellow-brown when young, subglabrous; prickles scattered, curved, to 3 mm, gradually tapering to broad base; bristles sometimes present, glandular. Leaves
including petiole 5–8 cm; stipules mostly adnate to petiole, free parts triangular, both surfaces glabrous, margin glandular pubescent, apex acuminate; rachis and petioles glabrous, sparsely shortly prickly; leaflets 5–7, ovate to elliptic, 1–2 × 0.6–0.8 cm, slightly leathery, both surfaces glabrous, base rounded, margin simply serrulate, especially in upper 1/2, apex acuminate. Flowers few in cymes, 1.5–2 cm in diam.; pedicel 0.8–1.5 mm, pubescent and glandular pubescent; bracts ca. 5 mm. Hypanthium ovoid-globose, ca. 2.5 mm, often glandular bristly. Sepals 5, reflexed, nearly equaling petals, lanceolate, abaxially glabrous and sometimes glandular bristly, adaxially puberulous, margin entire, apex attenuate. Petals 5, white, obovate, base broadly cuneate, apex emarginate. Styles connate into column, slightly longer than stamens, villous. Hips unknown.

- 1500–2000 m. Taiwan.


光叶蔷薇 guang ye qiang wei

Shrubs prostrate, sprawling, or procumbent, 3–5 m. Branches often prostrate, sometimes rooting at nodes; branchlets red-brown, terete, pubescent when young, soon glabrate; prickles scattered, sometimes paired, often tinged with purple-red, curved or nearly straight, to 5 mm, flat, gradually tapering to broad base. Leaves including petiole 5–10 cm; stipules mostly adnate to petiole, free parts lanceolate, margin glandular serrate or dentate, apex shortly acuminate; rachis and petiole shortly prickly, sparsely glandular pubescent; leaflets 5–7, rarely 9, greenish abaxially, dark green adaxially, elliptic, ovate, or obovate, 1–3 × 0.7–1.5 cm, glabrous, abaxially with prominent midvein, base rounded or broadly cuneate, margin remotely serrate, apex rounded-obtuse or acute. Flowers numerous in corymb or solitary, 1.5–3 cm in diam.; pedicel 6–10 mm, with peduncle sparsely pubescent when young, soon glabrescent, rarely sparsely glandular pubescent; bracts caducous, ovate. Hypanthium subglobose, sparsely glandular pubescent. Sepals 5, tardily deciduous, lanceolate or ovate-lanceolate, abaxially subglabrous, adaxially densely pubescent, margin entire, apex acuminate. Petals 5, white or pink, fragrant, obovate, base cuneate, apex rounded-obtuse. Styles connate into column, exserted, slightly longer than stamens, pubescent. Hip purple-black-brown, globose or subglobose, 6–18 mm in diam., shiny, sparsely glandular pubescent. Fl. Apr–Jul, fr. Oct–Nov.

Thickets, sea cliffs, coasts, on limestone; sea level to 500 m. Fujian, Guangdong, Guangxi, Taiwan, Zhejiang [Japan (Ryukyu Islands), Korea, Philippines].

1a. Petals white; flowers 2–3 cm in diam. ....... 70a. var. *luciae* 
1b. Petals pink; flowers ca. 1.5 cm in diam. ....... 70b. var. *rosea*

70a. *Rosa luciae* var. *luciae* 光叶蔷薇(原变种) guang ye qiang wei (yuan bian zhong)

*Rosa acicularis* Lindley var. *taquetii* (H. Léveillé) Nakai; *R. luciae* var. *wichurana* (Crépin) Koidzumi; *R. taquetii* H. Léveillé; *R. wichurana* Crépin (as "wichuriana").

Flowers 2–3 cm in diam. Petals white.

Thickets, sea cliffs; sea level to 500 m. Fujian, Guangdong, Guangxi, Taiwan, Zhejiang [Japan (Ryukyu Islands), Korea, Philippines].


粉花光叶蔷薇 fen hua guang ye qiang wei

Flowers ca. 1.5 cm in diam. Petals pink.

- Coasts, on limestone; near sea level. Taiwan.

This variety is evidently known only from the type.


米易蔷薇 mi yi qiang wei

Shrubs small, 1–2 m tall. Branchlets red-brown, slightly recurved, glabrous but glandular pubescent; prickles usually sparse, robust, inflated at base. Leaves including petiole 5.5–9 cm; stipules mostly adnate to petiole, margin unequally serrate and glandular pubescent, abaxially glandular, free parts lanceolate, apex long acuminate, rachis and petioles glabrous but glandular pubescent and sparsely shortly prickly; leaflets 5–7; yellow-green abaxially, deep green adaxially, elliptic, rarely oblong, 2–3.5 × 1.2–2.2 cm, both surfaces glabrous, base rounded or subrounded, margin serrate or nearly doubly serrate, apex acute or shortly acuminate. Flowers 10–15 in panicle, 2.7–3.5 cm in diam.; pedicel 2–3 cm, densely glandular pubescent; bracts caducous, unknown. Hypanthium obovoid, subglabrous or very sparsely glandular. Sepals 5, ovate-lanceolate, ca. 1 cm, abaxially glandular, adaxially densely tomentose-pubescent, margin glandular, apex acuminate. Petals double, white, obovate, base cuneate, apex rounded-obtuse. Styles connate in column, exserted, longer than stamens, pubescent. Hip unknown.

- About 1700 m. S Sichuan (Miyi Xian).

One of us (Robertson) has seen no specimens of this species.


伞花蔷薇 san hua qiang wei

Shrubs small, with long repent branches. Branchlets terete; prickles scattered, curved, to 6 mm, flat, gradually tapering to broad base; bristles and smaller prickles sometimes present. Leaves including petiole 4–11 cm; stipules mostly adnate to petiole, free parts lanceolate, margin irregularly serrate and glandular pubescent; leaflets 7–9, rarely 5, deep green adaxially, ovate, elliptic, or oblong, 1.5–3(–6) × 1–2 cm, abaxially glabrous or along midvein sparsely pubescent, or shortly prickly and glandular pubescent, abaxially glabrous, base broadly cuneate or subrounded, margin acutely serrate, apex acute or acuminate. Flowers several in corymb, 3.5–3.5 cm in diam.; pedicel 1–2.5 cm, glandular pubescent; bracts long ovate, margin glandular pubescent. Hypanthium ovoid, abaxially glandular pubescent. Sepals 5, deciduous, triangular-ovate, both surfaces pubescent, abaxially glandular pubescent, margin entire, sometimes 1- or 2-lobed, apex long acuminate. Petals 5, white or tinged with pink, obovate, base cuneate, apex rounded-obtuse. Styles connate into column, exserted, nearly equaling stamens,

Shrubs, open slopes, stream sides, roadsides. Liaoning, Shandong [Korea, Russia (Far East)].


Phlox, *yin fen qiang wei*

*Rosa sempervirens* Linnaeus var. *anemoniflora* (Fortune ex Lindley) Regel; *R. triphylla* Roxburgh ex Hemsley.

Shrubs climbing, small. Branchlets purple-brown, terete, slender, glabrous; prickles sparse, curved, to 2 mm, flat, gradually tapering to base, sometimes intermixed with smaller prickles, bristles, and glandular trichomes. Leaves including petiole 4–11 cm; stipules narrowly adnate to petiole, apical free parts lanceolate, margin glandular serrate, apex acuminate; rachis and petiole sparsely shortly prickly and glandular pubescent; leaflets 3, rarely 5, ovate-lanceolate or oblong-lanceolate, 2–6 × 0.8–2 cm, glabrous, midvein prominent abaxially, concave adaxially, base rounded or broadly cuneate, margin depressed-serrulate, apex acuminate. Flowers solitary or several in corymb, rarely in corymb-panicle, 2–2.5 cm in diam.; pedicel 1–3.5 cm, sparsely glandular pubescent; bracts ovate-oblong, margin glandular pubescent, apex acuminate. Hypanthium ovoid, glabrous. Sepals 5, lanceolate, abaxially glabrous, axially puberulous, margin sparsely glandular pubescent, entire, apex acuminate. Petals 5, pink or white, ovate-oblong, abaxially densely gray-white pubescent, with prominent veins, adaxially glabrous, rugose, base rounded, rarely subcordate, slightly oblique, margin serrulate or nearly entire, apex acuminate or shortly acuminate. Flowers numerous, 1.5–2 cm in diam., in corymb 4–10 cm in diam.; peduncle 2–4 cm; pedicel 1–1.5 cm, densely gray pubescent and sparsely glandular pubescent; bracts unknown. Hypanthium subglobose, gray pubescent, sparsely glandular pubescent. Sepals 5, deciduous, ovate-lanceolate, abaxially pubescent and sparsely glandular pubescent, axially densely pubescent, margin entire, apex acuminate. Petals 5, white or pink, fragrant, broadly obovate, axially sericeous, base cuneate, apex emarginate. Styles connate into column, exerted, slightly longer than stamens, pubescent. Hip purple-brown or dark red, ovoid, ca. 1 cm in diam., glabrous, shiny. Fl. Jun, fr. Jul–Nov.

Forests, thickets, scrub at forest margins, valleys; 1900–2800 m. Sichuan, Xizang, Yunnan [Butan, N India, Kashmir, Myanmar, Nepal, Pakistan].


绣球蔷薇 *xiu qiu qiang wei*

Shrubs diffuse, scendent, or vines to 9 m. Branchlets repented, terete, long, glabrous; branchlets sometimes pubescent; prickles scattered, curved, to 4 mm, flat, gradually tapering to broad base. Leaves including petiole 10–15 cm; stipules mostly adnate to petiole, free parts auriculate, margin entire, glandular pubescent, apex acuminate; rachis and petiole with small, curved prickles, densely pubescent; leaflets 5–7, rarely 3 or 9, oblong or oblong-ovablong, 4–10 × 1.8–4.5 cm, leathery, axially densely gray-white pubescent, with prominent veins, adaxially glabrous, rugose, base rounded, rarely subcordate, slightly oblique, margin serrulate or nearly entire, apex acuminate or shortly acuminate. Flowers numerous, 1.5–2 cm in diam., in corymb 4–10 cm in diam.; peduncle 2–4 cm; pedicel 1–1.5 cm, densely gray pubescent and sparsely glandular pubescent; bracts unknown. Hypanthium subglobose, gray pubescent, sparsely glandular pubescent. Sepals 5, deciduous, ovate-lanceolate, abaxially pubescent and sparsely glandular pubescent, axially densely pubescent, margin entire, apex acuminate. Petals 5, white or pink, fragrant, broadly obovate, axially sericeous, base cuneate, apex emarginate. Styles connate into column, exerted, slightly longer than stamens, densely pubescent. Hip orange-red, subglobose or ovoid, 8–10 mm in diam., sparsely pubescent and glandular pubescent when young, glabrate, shiny. Fl. Jul, fr. Aug–Oct.

Shrubs diffuse, scendent, or vines to 9 m. Branchlets repented, terete, long, glabrous; branchlets sometimes pubescent; prickles scattered, curved, to 4 mm, flat, gradually tapering to broad base. Leaves including petiole 10–15 cm; stipules mostly adnate to petiole, free parts auriculate, margin entire, glandular pubescent, apex acuminate; rachis and petiole with small, curved prickles, densely pubescent; leaflets 5–7, rarely 3 or 9, oblong or oblong-ovablong, 4–10 × 1.8–4.5 cm, leathery, axially densely gray-white pubescent, with prominent veins, adaxially glabrous, rugose, base rounded, rarely subcordate, slightly oblique, margin serrulate or nearly entire, apex acuminate or shortly acuminate. Flowers numerous, 1.5–2 cm in diam., in corymb 4–10 cm in diam.; peduncle 2–4 cm; pedicel 1–1.5 cm, densely gray pubescent and sparsely glandular pubescent; bracts unknown. Hypanthium subglobose, gray pubescent, sparsely glandular pubescent. Sepals 5, deciduous, ovate-lanceolate, abaxially pubescent and sparsely glandular pubescent, axially densely pubescent, margin entire, apex acuminate. Petals 5, white or pink, fragrant, broadly obovate, axially sericeous, base cuneate, apex emarginate. Styles connate into column, exerted, slightly longer than stamens, densely pubescent. Hip orange-red, subglobose or ovoid, 8–10 mm in diam., sparsely pubescent and glandular pubescent when young, glabrate, shiny. Fl. Jul, fr. Aug–Oct.

74. **Rosa brunonii** Lindley, Ros. Monogr. 120. 1820.

复伞房蔷薇 *fu san fang qiang wei*

*Rosa clavigera* H. Léveillé; *R. moschata* Herrmann var. *nepalensis* Lindley; *R. pubescens* Roxburgh.

Shrubs climbing or scendent, 4–6 m. Branchlets red-brown or purple-brown, terete, pubescent when young, glabrate; prickles scattered, curved, to 5 mm, flat, gradually tapering to broad base. Leaves including petiole 6–9 cm; stipules narrowly adnate to petiole, free parts lanceolate, both surfaces pubescent, margin glandular, apex acuminate; rachis and petiole densely pubescent, with scattered small, curved prickles; leaflets 7, often 5 or 3 on leaves near corymb, oblong or oblong-lanceolate, 3–5 × 1–1.5 cm, abaxially glabrous, adaxially sparsely pubescent or rarely glabrous, base subrounded or broadly cuneate, margin serrate, apex acuminate or acute. Flowers numerous in compound corymb, 3–5 cm in diam.; pedicel 2.8–3.5 cm, pubescent and sparsely glandular pubescent; bracts sometimes a unifoliate leaf at base of inflorescence; bracteoles tiny or absent. Hypanthium obovoid, abaxially pubescent. Sepals 5, deciduous, lanceolate, both surfaces pubescent, often with 1 or 2 pairs of lobes, apex acuminate. Petals 5, white, fragrant, broadly obovate, base broadly cuneate, apex emarginate. Styles connate into column, exerted, slightly longer than stamens, pubescent. Hip purple-brown or dark red, ovoid, ca. 1 cm in diam., glabrous, shiny. Fl. Jun, fr. Jul–Nov.

Shrubs, thickets, scrub at forest margins, valleys; 1300–3000 m. Guizhou, Hubei, Sichuan, Yunnan.

悬钩子蔷薇 *xuan gou zi qiang wei*


Shrubs creeping or scendent, or vines to 5–6 m. Branchlets terete, pubescent when young, glabrate when old; prickles scattered, curved, to 2 mm, stout, flat, gradually tapering to broader base. Leaves including petiole 8–15 cm; stipules mostly adnate to petiole, free parts lanceolate, pubescent, margin entire, often glandular, apex acuminate; rachis and petiole pubescent, with sparse small hooked prickles; leaflets 5 or 3, ovate-elliptic, obovate, or elliptic, 3–6(–9) × 2–4.5 cm, abaxially densely or sparsely pubescent or glandular, axially usually glabrous, rarely pubescent, base subrounded or broadly cuneate, margin acutely serrate, apex caudate, acute, or acuminate. Flowers 10–25 in a paniculate corymb, 2.5–3 cm in diam.;
peduncle with pedicels 1.5–2 cm, pubescent and glandular pubescent; bracts narrowly ovate, small, margin glandular, apex acuminate. Hypanthium globose or ovoid, pubescent and sparsely glandular pubescent. Sepals 5, deciduous, lanceolate, both surfaces densely pubescent, abaxially glandular pubescent, margin entire or with a few small lobes, apex long acuminate. Petals 5, white, fragrant, obovate, base broadly cuneate, apex marginate. Styles connate into column, exserted, slightly longer than stamens, pubescent. Hip bright red, purple-brown, or orange-brown, subglobose, 8–10 mm in diam., shiny, mostly glabrous. Fl. Apr–Jun, fr. Jul–Sep.

- Scrub, grassy places, slopes, montane regions, cliffs, river banks, roadsides; 500–1300 m. Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.


卵果蔷薇 luan guo qiang wei

*Rosa floribunda* Baker.

Shrubs diffuse or scandent, with long repent branches to 9 m. Branchlets purple-brown, robust; branchlets of present year red-brown, glabrous; prickles scattered, yellowish, curved, to 4 mm, stout, flat, tapering gradually to broad base. Leaves including petiole 8–17 cm; stipules 1.5–2.5 cm, mostly adnate to petiole, apical free parts auriculate, margin glandular pubescent, apex acuminate; rachis and petiole pubescent, with scattered small prickles; leaflets (5–)7–9, oblance-ovate or ovate-lanceolate, 2.5–3.5(–4.5) × 1–2.5 cm, abaxially pubescent, with prominent veins, adaxially glabrous, base rounded or broadly cuneate, margin appressed-serrate, apex acute or shortly acuminate. Flowers 2.5–3.1 cm in diam., in terminal corymbs 6–15 cm in diam., partly umbel-like; pedicel 1.5–2 cm, densely pubescent and glandular pubescent; bracts caducous, lanceolate. Hypanthium ovoid, ellipsoid, or obovoid, pubescent and glandular pubescent. Sepals 5, deciduous, lanceolate, 0.8–1.2 cm, both surfaces pubescent, abaxially intermixed with glandular hairs, margin entire or few pinnately lobed, apex long acuminate. Petals 5, fragrant, white or creamy-white, broadly obovate, abaxially sericeous, base broadly cuneate, apex erose. Stamina connate into column, exserted, slightly longer than stamens, pubescent. Hip dark red, obovoid, 1–1.2 cm in diam., glabrous; sepals reflexed, deciduous at hip ripening. Fl. May–Jul, fr. Jul–Nov.

Mixed evergreen forests, thickets, scrub, dry open areas; 400–2700 m. Guizhou, Sichuan, Yunnan [N India].

One of us (Robertson) would prefer not to recognize varieties in this species, and notes that the distinguishing characters given below are not those used by Rehder (Man. Cnkt. Trees, ed. 2, 447, 1940, as species).

1a. Leaflets 7–9, leaves near corymb often with 5 leaflets, adaxially not rugose .......... 78a. *longicuspis*

1b. Leaflets 5(or 7), adaxially slightly rugose ........................................ 78b. *sinowilsonii*

78a. *Rosa longicuspis* var. *longicuspis*

长尖叶蔷薇 chang jian ye qiang wei

*Rosa charbonneaeui* H. Léveillé; *R. lucens* Rolfe; *R. moschata* Herrmann var. *yunnanensis* Crépin; *R. willmotiana* H. Léveillé; *R. yunnanensis* (Crépin) Boulenger

Leaflets 7–9, leaves near corymb often with 5 leaflets, adaxially not rugose. Flowers in corymbs.

Mixed evergreen forests, thickets, scrub, dry open areas; 400–2700 m. Guizhou, Sichuan, Yunnan [N India].


多花长尖叶蔷薇 duo hua chang jian ye qiang wei


Leaflets 5(or 7), abaxially glabrous or slightly pubescent, adaxially slightly rugose. Compound corymb 30-flowered.

- Guizhou, Sichuan, Yunnan.

Shrubs climbing, ca. 10 m tall. Branchlets purple-brown, curved, robust, angular, glabrous; prickles scattered, hooked, short, stout, flat. Leaves including petiole 17–25 cm; stipules mostly adnate to petiole, free parts ovate-lanceolate, margin pubescent and glandular pubescent, glabrate; rachis and petiole glabrous; leaflets usually 5, rarely 7, often 3 on leaves near corymb, elliptic, rarely ovate-oblong, 7–12 × 3–6 cm, leathery, glabrous, abaxially midvein and lateral veins prominent, adaxially midvein concave, base rounded, margin acutely serrate, apex acuminate or shortly cuneate. Flowers numerous, in compound corymbs, 3–4 cm in diam.; pedicel 2.5–4 cm; densely puberulous; bracts unknown. Hypanthium subglobose, abaxially densely pubescent. Sepals 5, reflexed, deciduous, lanceolate, 1.5–2 cm, both surfaces densely whitish tomentose, margin entire, apex acuminate. Petals 5, white, obovate, abaxially sparsely pubescent, base cuneate, apex erose. Styles connate into column, exerted, slightly longer than stamens, densely white pubescent. Hip purple-brown, subglobose or ovoid, 1.8–2.3 cm in diam., sparsely pubescent; sepals deciduous at hip ripening. Fl. May–Jul, fr. Jul–Nov.

- Valleys in forests, stream sides, roadsides; 900–1800 m. Guangxi.


德钦蔷薇 de qin qiang wei

Shrubs small, ca. 1 m tall. Glabrous. Branchlets gray-green, red-brown when old, terete, glabrous; prickles sparse, subulate, straight or slightly curved. Leaves including petiole 2–2.5 cm; stipules mostly adnate to petiole; rachis and petioles glabrous, sparsely glandular pubescent, with small, straight or curved prickles; leaflets usually 7, ovate, 7–10 × 5–8 mm, both surfaces glabrous, abaxially sparsely glandular pubescent, base cuneate, margin doubly serrate, apex rounded. Flowers 2 or 3 and fasciculate; bracts caducous, unknown. Hypanthium compressed-globose, sparsely glandular. Sepals 5, deciduous, ovate-lanceolate, 8–10 mm, abaxially sparsely pubescent and glandular pubescent, adaxially densely tomentose-pubescent, margin glandular, with 1–3 pairs of lobules, apex acuminmate or caudate. Petals unknown. Styles connate into column, exerted, equaling stamens, sparsely pubescent. Hip red-brown, subglobose, 8–10 mm in diam., sparsely glandular pubescent or densely so; sepals reflexed, very late deciduous. Fl. Jul.

- Stream sides; 2000–2100 m. NW Yunnan (Deqin Xian).

One of us (Robertson) has seen no specimens of this species.


腺萼蔷薇 xian geng qiang wei

Shrubs climbing, 3–5 m tall, with long repent branches. Branchlets purple-brown, terete, glabrous; prickles scattered, curved, to 5 mm, stout, flat, gradually tapering to a broad base. Leaves including petiole 8–14 cm; stipules narrow, mostly adnate to petiole, free parts lanceolate, margin entire, sparsely glandular pubescent, apex acuminate; rachis and petiole sparsely pubescent, glandular pubescent, with scattered, small hooked prickles; leaflets 5–7, rarely 3 or 9, oblong or lanceolate, rarely obovate, 4–7 × 1.5–3 cm, abaxially subglabrous or puberulous along prominent veins, glandular punctate, adaxially glabrous, base subrounded or broadly cuneate, sometimes slightly oblique, margin simply serrate, rarely inconspicuously doubly serrate, apex acuminate. Flowers 25–35, 2–2.5 cm in diam., in compound corymb or panicle ca. 15 cm in diam.; pedicel sparsely glandular pubescent, 2–3 cm; bracts ovate-lanceolate or lanceolate, margin glandular pubescent, apex acuminate. Hypanthium ovoid, glandular pubescent. Sepals 5, deciduous, ovate-lanceolate, abaxially sparsely pubescent and glandular pubescent, adaxially densely pubescent, margin entire, apex acuminate. Petals 5, fragrant, white, obovate. Styles connate into column, exerted, nearly equaling stamens, pubescent. Hip deep red, subglobose, ca. 8 mm in diam.; sepals reflexed, eventually deciduous. Fl. Jun–Jul, fr. Jul–Nov.

- Thickets, roadsides; 1300–2300 m. Gansu, Shaanxi, Sichuan, Xizang, Yunnan.

One of us (Gu) wonders if Rosa tatsienlouensis Cardot (Notul. Syst. (Paris) 3: 264. 1916), described from Sichuan (Kangding Xian), is identical with R. filipes. Further study is required.


泸定蔷薇 lu ding qiang wei

Shrubs small. Branches red-brown, robust, glabrous. Branchlets terete, slightly curved, usually glabrous; prickles curved, flat, inflated at base. Leaves including petiole 9–17 cm; stipules mostly adnate to petiole, abaxially and margin glandular pubescent, free parts triangular, margin glandular pubescent, apex acuminate; rachis and petioles subglabrous or sparsely pubescent, densely glandular pubescent; leaflets usually 7, pale green abaxially, deep green adaxially, elliptic or ovate, 3–6 × 1.5–3 cm, abaxially subglabrous, glandular pubescent, adaxially subglabrous, base rounded, margin doubly serrate, apex acute or shortly caudate. Flowers numerous, 1.8–3.2 cm in diam., in corymb-panicle; pedicel 1.5–1.8 cm, densely glandular pubescent, base subrounded or broadly cuneate, pubescent. Hip red-brown, subglobose, 8–10 mm in diam., sparsely glandular pubescent or densely so; sepals reflexed, very late deciduous. Fl. May–Jul, fr. Jul–Oct.

- About 1500 m. C Sichuan (Luding Xian).

One of us (Robertson) has seen no specimens of this species.


得荣蔷薇 de rong qiang wei

Shrubs small. Branchlets purple-brown or red-brown, terete, curved, glabrous; prickles often yellowish or gray-brown, straight or slightly curved, robust, inflated at base. Leaves including petiole 2.5–3.2 cm; stipules mostly adnate to petiole, free parts shortly triangular or ovate, glabrous, margin glandular...
serrate, rachis and petioles glabrous, sparsely glandular pubescent and with small, curved prickles; leaflets 5, rarely 7, yellow-green abaxially, deep green adaxially, obovate, 9–15 × 6–10 mm, both surfaces glabrous, base cuneate or subrounded, margin sharply serrate, apex rounded. Flowers 2 or 3 and fasciculate, rarely solitary; bracts caducous, unknown. Hypanthium ovoid. Sepals 5, lanceolate or ovate-lanceolate, 7–9 mm, abaxially pubescent and glandular pubescent, adaxially tomentose-pubescent, margin with 1 or 2 pairs of lobes, apex acuminate, after anthesis reflexed. Petals unknown. Style connate in column, exerted, slightly longer than stamens, pubescent. Hip orange-red initially, becoming black-purple, subglobose or ovoid, ca. 1 cm in diam., shiny. Fl. May–Jul, fr. Aug–Sep.

- About 2100 m. W Sichuan (Dérong Xian).

One of us (Robertson) has seen no specimens of this species.


川滇蔷薇 shang cheng qiang wei

Shrubs. Branchlets red-brown, terete, often curved, glabrous; prickles subulate, straight. Leaves including petiole 4–5.5 cm; stipules mostly adnate to petiole, free parts lanceolate, margin entire, sometimes glandular serrate, apex acuminate; rachis and petiole glabrous, with sparse, short, curved prickles; leaflets usually 7, obovate or oblong, 1–2 × 0.5–1.5 cm, both surfaces glabrous, base cuneate or broadly cuneate, margin serrate, apex acute or truncate. Flowers 2 or 3 and fasciculate, ca. 2.8 cm in diam.; pedicel 2–2.5 cm, densely stipitate glandular, bracts caducous. Hypanthium obovoid-oblong, abaxially densely stipitate glandular. Sepals 5, obovate-lanceolate, 1–1.3 cm, abaxially densely stipitate glandular, adaxially densely yellow-white pubescent, margin entire, apex acuminate or ciliate-acuminate. Petals 5, white, long obovate, base cuneate, apex rounding. Styles connate in column, exerted, nearly equaling or slightly shorter than stamens, pubescent. Hip unknown.

- SE Henan (Shangcheng Xian).

One of us (Robertson) has seen no specimens of this species.


毛叶川滇蔷薇 xiao ye chuan dian qiang wei

Shrubs erect, 2–4 m tall. Branchlets spreading, usually green, terete, often curved, glabrous; prickles scattered, straight or slightly curved, flat, gradually tapering to turgid base. Leaves including petiole 3–8 cm; stipules mostly adnate to petiole, free parts very short, triangular, sometimes glandular, margin entire, apex acute; rachis and petiole sparsely shortly prickly, glabrous or sparsely pubescent; leaflets (5–)7–9, elliptic or obovate, 1–3 × 0.7–2 cm, abaxially glabrous or puberulous with prominent midvein, adaxially glabrous, with concave midvein, base subrounded or broadly cuneate, margin appressed-serrate, near base often entire, apex rounded-acute, or truncate. Flowers numerous, 3–5 cm in diam., in corymb 3–4 cm in diam., or solitary and terminal; pedicel less than 1 cm, glabrous, sometimes shortly glandular pubescent; bracteoles less than 1 cm. Hypanthium subglobose or ovoid, glabrous, sometimes shortly glandular pubescent. Sepals 5, deciduous, ovate, abaxially sparsely puberulous, sometimes shortly glandular pubescent, adaxially densely puberulous, margin 1- or 2-lobed near base, apex acuminate. Petals 5, white-yellow, pubescent, base cuneate, apex emarginate. Fl. May–Jul, fr. Aug–Sep.

- Scrub, slopes, stream sides, farmland; 2500–3700 m. S Anhui, Chongqing, Sichuan, Xizang, Yunnan.

85a. Rosa soulieana var. soulieana

川滇蔷薇(原变种) chuan dian qiang wei (yuan bian zhong)

Rachis and leaflet abaxially glabrous or subglabrous, occasionally glandular. Flowers numerous, in corymbs, rarely solitary.

- SCRUB, slopes, stream sides; 2500–3000 m. S Anhui (Jiuhua Shan), Sichuan, Xizang, Yunnan.


毛叶川滇蔷薇 mao ye chuan dian qiang wei

Rachis and leaflet abaxially pubescent. Flowers numerous, in corymbs, rarely solitary; pedicel pubescent and glandular.

- Chongqing (Nanchuan Xian), Sichuan, Xizang, Yunnan.


大叶川滇蔷薇 da ye chuan dian qiang wei

Leaflets large, ca. 3.5 cm. Flowers in corymbose panicle; pedicel glabrous, not glandular.

- N Sichuan (Songpan Xian).


小叶川滇蔷薇 xiao ye chuan dian qiang wei
Leaflets small, not exceeding 8 mm. Flower solitary. Styles glabrous, or subglabrous.

- Scrub on slopes, farmland; 3200–3700 m. Xizang, Yunnan.


软条七蔷薇 nuan tiao qi qiang wei


Shrubs climbing, 3–8 m, with long repent branches. Branchlets purple-brown, terete, glabrous; prickles scattered, curved, to 3 mm, flat, gradually tapering to a broad base, or prickles absent. Leaves including petiole 9–14 cm; stipules mostly adnate to petiole, free parts lanceolate, glabrous or sparsely glandular pubescent, margin entire, apex acuminate; rachis and petiole glabrous, sparsely shortly prickly; leaflets mostly 5, leaves near corymb often with 3 leaflets, oblong, ovate, elliptic, or elliptic-ovate, 3.5–9 × 1.5–5 cm, papery, both surfaces glabrous, abaxially with prominent midvein, base subrounded or broadly cuneate, margin acutely simply serrate, apex long acuminate or cuneate. Flowers 5–15, 3–4 cm in diam., in umbel-like corymb 3–4 cm in diam.; pedicel 1.5–2 cm, glabrous, but shortly glandular pubescent; bracts caducous, unknown. Hypanthium globose, glabrous, but shortly glandular pubescent; bracts caducous, unknown. Hip unknown. Styles connate into column, exserted, densely pubescent. Sepals 5, deciduous, ovate-lanceolate, abaxially sparsely pubescent and glandular pubescence, adaxially densely puberulous, margin entire, apex shortly cuneate. Petals 5, yellowish or white, ovate, base broadly cuneate, apex rounded-obtuse. Styles connate into column, exserted, slightly longer than stamens, sparsely pubescent or subglabrous. Hip purple-red, subglobose, ca. 5 mm in diam., sparsely glandular; sepals very late deciduous. Fl. May–Jul, fr. Aug–Sep.

- Farmland, roadsides; 2400–2600 m. Xizang.

One of us (Robertson) has seen no specimens of this species.


维西蔷薇 wei xi qiang wei

Shrub climbing, small. Branchlets purple-brown, terete, glabrous, those of present year glandular pubescent and sparsely pubescent; prickles scattered, short, flat. Leaves including petiole 4–4.5 cm; stipules membranous, mostly adnate to petiole, free parts lanceolate, abaxially and margin glandular, apex acuminate; rachis and petiole sparsely glandular pubescent and pubescent; leaflets 3–5, pale green abaxially, deep green adaxially, ovate or elliptic, rarely oblong, 1.2–2.5 × 0.4–1.4 cm, abaxially glandular pubescent and sparsely pubescent, adaxially glabrous, base subrounded, margin doubly serrate, teeth often glandular apically when young, apex acute or shortly acuminate. Flowers 5–10 in corymb, ca. 1.5 cm in diam.; pedicel 8–12 mm, densely glandular pubescent, sparsely pubescent; bracts caducous, unknown. Hypanthium oblong or ovate-oblong, abaxially glandular pubescent and sparsely pubescent. Sepals 5, lanceolate, abaxially glandular pubescent and sparsely pubescent, adaxially densely puberulous, margin entire, apex long acuminate. Petals 5, fragrant, white, broadly obovate, base cuneate, apex emarginate. Styles connate into column, nearly equaling stamens, exserted, densely pubescent. Hip unknown. Fl. May–Jul, fr. Aug–Oct.

- Scrub; 1800–2300 m. NW Yunnan (Wei Xi Xian).

One of us (Robertson) has seen no specimens of this species.


木香组 mu xiang zu

Shrubs evergreen, climbing, prickly or not. Leaflets 3–7; stipules caducous, free, subulate. Flowers numerous in umbels or in compound corymbs. Sepals deciduous, reflexed, margin entire or lobed. Styles free, slightly exserted.

Two species: China, Laos, Vietnam; two species (one endemic) in China.


木香花 mu xiang hua

*Rosa banksiae* var. *alboplena* Rehder.

Shrubs evergreen, climbing, to 6 m tall. Old branches with large, rigid prickles; branchlets red-brown, terete, glabrous;
prickles scattered, curved, short, to 5 mm, flat, gradually tapering to a broad base; branches of cultivated plants sometimes not prickly. Leaves including petiole 4–6 cm; stipules caducous, free, linear-lanceolate, membranous, margin entire, apex acuminate; rachis and petiole sparsely pubescent, usually lacking small prickles; leaflets 3–5, rarely 7, elliptic-ovate or oblong-lanceolate, 2–5 × 0.8–1.8 cm, leathery, abaxially pubescent along veins, with prominent midvein, adaxially glabrous, shiny, base subrounded or broadly cuneate, margin depressed-serrulate, apex acute or slightly acute. Flowers 4–15, in simple umbels or corymbs, 1.5–2.5 cm in diam.; pedicel 2–3 cm, glabrous; bracts caducous, linear, small. Hypanthium globose or ovoid, glabrous. Sepals 5, deciduous, ovate, abaxially subglabrous, rarely setose, adaxially sparsely white tomentose, margin often pinnately lobed, apex acuminate. Petals 5, fragrant, white or yellow, obovate, base cuneate, apex rounded. Hypanthium globose or ovoid, glabrous. Sepals 5, deciduous, ovate, abaxially subglabrous, rarely setose, adaxially sparsely white tomentose, margin often pinnately lobed, apex acuminate. Petals 5, fragrant, white or yellow, obovate, base cuneate, apex emarginate. Styles free, slightly exserted, nearly equaling stamens, densely white pubescent. Hip red, black, purple, or black-brown, globose, 4–7 mm in diam. Fl. May–Jun, fr. Jul–Nov.

Hills, open slopes, stream sides, roadsides; 200–1800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Laos, Vietnam].

90b. Rosa banksiae var. puberula

Hills, open slopes, stream sides, roadsides; 200–1800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, S Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Laos, Vietnam].

金樱子组 jin ying zi zu

Shrubs evergreen, climbing, with scattered, curved prickles. Leaflets 3; stipules free or with base adnate to petiole, caducous, serrate. Flower solitary, large; pedicel and hypanthium densely glandular bristly; bracts absent. Sepals persistent, erect, margin entire. Styles free, not exserted.

One species: China, Vietnam, cultivated elsewhere.

金樱子 jin ying zi


Shrubs evergreen, climbing, to 5 m. Branchlets purple-brown, terete, robust; prickles scattered, curved, to 4 mm, flat, gradually tapering to a broad base; bristles glandular, dense on young stems, to 4 mm. Leaves including petiole 5–10 cm; stipules caducous, free or with base adnate to petiole, lanceolate, glandular serratate, apex acuminate; rachis and petiole shortly prickly and glandular bristly; leaflets 3, rarely 4, elliptic-ovate, obovate, or lanceolate-ovate, 2–6 × 1.2–3.5 cm, leathery, sometimes abaxially minutely prickly and glandular bristly along midvein when young, glabrous, adaxially shortly prickly and glandular bristly, base broadly cuneate, margin acutely serrate, apex acute or rounded-obtuse. Flower solitary, axillary, 5–10 cm in diam.; pedicel 1.8–2.5(–3) cm, densely glandular bristly; bracts absent.


7a. Rosa bracteata

7b. Branchlets densely tawny pubescent, intermixed with scattered bristles and glandular bristles .......................... 92a. var. bracteata


碩苞蔷薇 shuo bao qiang wei

_Rosa macarnea_ Duport de Coursset; _R. sinica_ Linnaeus var. _bramiana_ Regel.

Shrubs evergreen, diffuse, 0.5–3 m tall, with long repent branches. Branchlets purple-brown, terete, robust, tomentose; prickles often in pairs below stipules, straight to slightly curved, to 9 mm, flat, smaller prickles and glandular bristles often present and dense to scattered. Leaves including petiole 4–9 cm; stipules mostly free, or with base adnate to petiole, densely pubescent, margin pectinate, densely glandular pubescent; rachis and petiole sparsely pubescent, glandular pubescent and slightly prickly; leaflets 5–9, elliptic or obovate, 1–2.5 × 0.5–1.5 cm, leathery, abaxially glabrous or pubescent along veins, adaxially glabrous, shiny, base broadly cuneate or subrounded, margin crenate, apex truncate, rounded-obtuse, or slightly acute. Flowers solitary or 2 or 3 and fasciculate, 4.5–9 cm in diam.; pedicel less than 1 cm, densely villous, sparsely glandular pubescent; bracts several, large, broadly ovate, abaxially densely tomentose, adaxially subglabrous, margin irregularly incised serrate, laciniate, or pectinate. Hypanthium depressed-globose, abaxially densely tawny pubescent and glandular pubescent. Sepals 5, broadly ovate, abaxially densely tawny pubescent, adaxially sparsely pubescent, apex caudate-acuminate. Petals 5, white or yellowish white, obovate, base broadly cuneate, apex emarginate. Styles free, slightly exserted, slightly shorter than petals, densely pubescent. Hip globose, 1.3–2.7 cm in diam., densely tawny pubescent, with persistent, reflexed sepals. Fl. May–Jul, fr. Aug–Nov.

Mixed forests, scrub, sandy hills, stream sides, seashores, roadsides; sea level to 300 m. Fujian, Guizhou, Hunan, Jiangsu, Jiangxi, Taiwan, Yunnan, Zhejiang [S Japan].

1a. Branchlets densely tawny pubescent, intermixed with scattered bristles and glandular pubescent ........................................... 92a. var. bracteata

1b. Branchlets densely tawny pubescent, intermixed with bristles and glandular bristles .......................... 92b. var. scabriacaulis

92a. Rosa bracteata var. bracteata

碩苞蔷薇(原变种) shuo bao qiang wei (yuan bian zhong)

Branchlets densely tawny pubescent, intermixed with bristles and glandular bristles.

Scrub, sandy hills, stream sides, seashores, roadsides; sea level to 300 m. Fujian, Guizhou, Hunan, Jiangsu, Jiangxi, Taiwan, Yunnan,
In warm regions this variety is easily propagated and is often cultivated as a hedge; it also has ornamental use owing to its abundant, beautiful flowers.


Shrubs diffuse, with paired prickles below leaves. Leaflets 5–9; stipules adnate to petiole, narrow, with subulate auricles. Flowers 1 or 2 or in compound corymb, with small deciduous bracts, or bracts absent. Hypanthium cupular, densely prickly. Sepals persistent, erect, pinnately lobed or entire. Carpels on projected torus at base of hypanthium; styles free, not exserted.

Three species: E Asia; three species (two endemic) in China.


Shrubs diffuse, 1–2.5 m tall. Bark gray-brown; branchlets ascending-spreading, purple-brown, terete; prickles paired at nodes, mostly straight, to 5 mm, somewhat flat, abruptly narrowing to broad base. Leaves including petiole 5–11 cm; stipules mostly adnate to petiole, free parts subulate, margin glandular pubescent; rachis and petioles with scattered small prickles; leaflets 9–15, elliptic or oblong, rarely obovate, 1–2 × 0.6–1.2 cm, glabrous, abaxially with prominent veins, conspicuously reticulate, base broadly cuneate, margin acutely simply serrulate, apex acute or rounded-obtuse. Flowers solitary, or 2 or 3 and fasciculate apically on branches, 4–6 cm in diam.; pedicel short; bracts 2 or 3, small, margin glandular pubescent. Hypanthium depressed-globose, densely bristly. Sepals 5, usually broadly ovate, abaxially densely prickly, adaxially tomentose, pinnately lobed, apex acuminate. Petals 5, semidouble, or double, slightly fragrant, pink to rose-purple or reddish, obovate. Carpels on projected torus at base of hypanthium; styles free, not exserted, shorter than stamens, pubescent. Hip green-red, depressed-globose, 1.5–2 cm in diam., densely prickly, with persistent, erect sepals. Fl. Mar–Jul, fr. Aug–Oct.

Mountain forests, thickets, slopes, stream sides, also cultivated; 500–1400 m, Anhui, Fujian, S Gansu, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, S Shaaaxi, Sichuan, Xizang, Yunnan, Zhejiang [Japan].

Two forms may be recognized: f. *roxburghii*, which has double or semidouble, reddish or pink flowers 5–6 cm in diam., and f. *normalis* Rehder & E. H. Wilson (in Sargent, Pl. Wilson. 2: 318. 1915; *Rosa forrestii* Focke), which has simple, pink flowers 4–6 cm in diam. The specific epithet was spelled “*roxtargti*” in the protologue.

The edible fruit are very rich in vitamins and have a sweet, sour taste; they are used medicinally and to ferment wine. The roots are also used medicinally. The species is also cultivated for ornament, for its showy flowers, or as a hedge because of its abundant prickles.


Shrubs evergreen or semi-evergreen, climbing, small. Branchlets purple-brown, terete, curved, glabrous; prickles short, flat. Leaves including petiole 5–10 cm; stipules with 1/3 part adnate to petiole, free parts lanceolate, margin glandular
serrate, apex acuminate, and petiole with scattered, small prickles, leaflets 7–9, elliptic, obovate, or ovate, 1.5–3.5 × 0.8–2 cm, glabrous, abaxially with prominent midvein and lateral veins, base broadly cuneate or subrounded, margin acutely simply serrate, apex acuminate or acute. Flowers 7–17 in compound corymb, 2.5–3 cm in diam.; peduncle and pedicels pubescent, pedicel 7–10 mm; bracts unknown. Hypanthium depressed-globose, abaxially subglabrous, densely prickly. Sepals 5, usually broadly ovate, abaxially densely prickly, adaxially tomentose, margin irregularly pinnately lobed, apex acuminate. Petals 5, white, slightly longer than sepals, obovate, base cuneate, apex erose. Carpels on projected torus at base of hypanthium; styles free, slightly exserted, pubescent. Hip unknown. Fl. May–Jul.

● Shady places. C Guizhou (Qingzhen Xian).
One of us (Robertson) has seen no specimens of this species.

95. Rosa praelucens

Byhouwer, J. Arnold Arbor. 10: 97. 1929.

中甸刺玫 zhong dian ci mei

Shrubs 2–3 m tall. Branchlets purple-brown, terete, robust; prickles few, scattered, straight or curved at tip, to 1.5 cm, robust, flat, gradually tapering to base to 2 cm across. Leaves including petiole 5–13(–20) cm; stipules mostly adnate to petiole, free parts triangular or lanceolate, both surfaces pubescent, margin glandular pubescent, apex acuminate; rachis and petioles tomentose, sparsely shortly prickly; leaflets 7–13, obovate or elliptic, 1–3.5(–6) × 0.7–1.2(–2.3) cm, both surfaces densely puberulous, abaxially villous along veins, base rounded or broadly cuneate, margin simply serrate in upper 1/2, or inconspicuously doubly serrate, apex rounded-obtuse or acute. Flowers solitary, (5–)8–9 cm in diam.; pedicel 3–6 cm, tomentose-villous, sometimes abaxially glandular pubescent; bracts at base, leaflike. Hypanthium depressed-globose, pubescent, glandular distinctly. Sepals 5, slightly shorter than petals, ovate-lanceolate, leaflike, both surfaces tomentose-villous, sometimes abaxially glandular distinctly at base, margin entire. Petals 5, red, broadly obovate, base broadly cuneate, apex rounded or emarginate. Carpels on projected torus at base of hypanthium; styles free, not exserted, shorter than stamens, densely villous. Hip green-brown, depressed-globose, 1–1.5 cm in diam., sparsely glandular prickly, with persistent, erect sepals. Fl. Jun–Jul.

● Woods on open slopes; 2700–3000 m. NW Yunnan (Zhongdian Xian).


绵刺属 mian ci shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Shrublets with thick, subterranean stock. Stems much branched; branchlets spinelike. Stipules adnate to petiole, ovate, hyaline; petiole hard, persistent, spinelike; leaf blade (1 or)3- or palmately 5-foliolate; leaflets minute. Flowers solitary, axillary, bracteate, bisexual, minute. Hypanthium funnelform. Sepals 3, deltoid, persistent. Petals 3, ovate, scarcely larger than sepals, deciduous. Stamens 3, opposite petals; filaments adaxially densely sericeous. Carpel 1, central, ovoid; ovule inserted laterally next to style, ascending; style basal, persistent; stigma capitate. Achene cylindric. Seed cylindric, thickened proximally.

One species: China, Mongolia.

1. Potaninia mongolica


绵刺 mian ci

Shrublets 30–40 cm tall, long sericeous throughout. Stems gray-brown. Stipules 1.5–2 mm; petiole 1–1.5 mm; leaflets ca. 2 × 0.5 mm, base narrowed, margin entire, apex acute. Flowers ca. 3 mm in diam.; pedicel 3–5 mm; bracts ovate, ca. 1 mm. Hypanthium densely sericeous adaxially. Sepals ca. 1.5 mm, apex acute. Petals white or tinged pink, ca. 1.5 mm. Filaments adaxially densely sericeous. Achene tinged yellow, ca. 2 mm, hairy, enclosed by persistent sepals. Fl. Jun–Sep, fr. Aug–Oct.

Gravelly deserts. Nei Mongol [Mongolia].

This species is used for forage.


龙芽草属 long ya cao shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial, tall, with creeping rhizome. Leaves stipulate, imparipinnate. Flowers usually in terminal, spikelike racemes, bisexual, rather small. Hypanthium turbinate, sulcate, with hooked prickles or 5 teeth below limb abaxially, constricted at throat. Sepals 5, imbricate, persistent. Petals 5, larger than sepals. Disk lining hypanthium, margin thickened, annular, glandular. Stamens 5–15 or more, inserted at mouth of hypanthium, 1-seriate. Carpels usually 2, included in hypanthium, sessile; ovule pendulous; style terminal, exserted, filiform; stigma dilated. Achenes 1 or 2, included in closed hypanthium, distally with hooked prickles. Seed pendulous; testa membranous. x = 7.

About ten species: N temperate zone, alpine regions of tropics; four species in China.
1. Agrimonia pilosa

Ledebour, Index Seminum Hort. Dorpat., Suppl. 1. 1823.

龙芽草 long ya cao

Herbs 30–120 cm tall. Rhizome short, usually tuberous, with many lateral roots and 1 to several underground buds. Stems sparsely pilose and pubescent, or densely rigidly hairy (rarely sparsely hirsute) in lower part. Stipules green, falcate, rarely ovate or ovate-lanceolate, herbaceous, margin sharply serrate or lobed, rarely entire, apex acute or acuminate; petiole sparsely pilose or pubescent; leaf blade interrupted imparipinnate with (2 or) 3 or 4 pairs of leaflets, reduced to 3 leaflets on upper leaves; leaflets sessile or shortly petiolulate, ovate, obovate-lanceolate, or obovate-lanceolate, 1.5–5 × 1–2.5 cm, abaxially yellow hirsute in lower part, densely pubescent or tomentose-pubescent between veins, rarely glabrescent, markedly glandular punctate, adaxially pilose, rarely glabrescent. Fl. and fr. May–Dec. 2n = 56.

Thinned forests, forest margins, thickets, meadows, stream banks, roadslides; 100–3800 m. Throughout China [Japan, Korea, Mongolia, Russia, N Vietnam; E Europe].

1a. Agrimonia pilosa var. pilosa


黄龙尾 huang long wei


Stems densely rigidly hairy in lower part. Leaflets abaxially densely pubescent or tomentose-pubescent between veins, sparsely glandular punctate, adaxially hirsute or hirtellous on veins.

Thinned forests, meadows on mountain slopes, stream banks; 100–3500 m. Anhui, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Yunnan, Zhejiang [Bhutan, N India, N Laos, Nepal, Russia, Sikkim, N Thailand, N Vietnam].

This species is used medicinally.

2. Agrimonia nipponica


小花龙芽草 xiao hua long ya cao

Herbs 30–90 cm tall. Rhizome long, with many slender lateral roots and usually 1 to several underground buds. Stems densely yellow hirsute in lower part, densely pubescent in upper part. Stipules falcate or semiobovate, rarely oblong, margin acutely serrate, on stipules of lower part of stem usually entire; petiole sparsely pilose and pubescent; leaf blade inter-
rupted imparipinnate, on lower leaves usually with 3 pairs of leaflets, rarely 2 pairs with basal pair very small, on middle leaves with 2 pairs, on uppermost leaves with 1 or 2 pairs; leaflets sessile or shortly petiolulate, elliptic or rhombic-elliptic, 1.5–4 × 1–2 cm, widest at or near middle, abaxially sparsely spreading hisurate on veins, sparsely glandular punctate or inconspicuously so, adaxially appressed pilose, base broadly cuneate, margin crenate, apex usually obtuse or acute. Inflorescence usually branched, with slender branches. Flowers 4–5 mm in diam.; pedicel 1–3 mm; bract small, 3-parted; bracteoles in 1 pair, ovate, margin entire or shallowly lobed, apex shortly acuminate. Stamens 5(–10). Carpels 2, usually 1 well developed; stigma capitate. Fruiting hypanthium campanulate, 4–5 × 2–2.5 mm including prickles, abaxially 10-ribbed, sparsely pilose, with a multiseriate crown of prickles; prickles spreading. Fl. and fr. Aug–Nov.

Thinned forests, forest margins, thickets, grassy mountain slopes, stream banks; 200–1500 m. Anhui, Guangdong, Guangxi, SE Guizhou Jiangxi, Zhejiang [Laos, Vietnam].

*Agrimonia nipponica* var. *nipponica* occurs in Japan and Korea.


*托叶龙芽草 tuo ye long ya cao*

*Agrimonia pilosa* Ledebour var. *coreana* (Nakai) Liou & Cheng; *A. velutina* Juzepczuk.

Herbs 70–100 cm tall. Rhizome horizontal, woody, with many lateral roots, often with 1 to several underground buds. Stems pilose and pubescent. Stipules broadly flabellate or broadly ovate, margin coarsely crenate or lobed; petiole sparsely pilose and pubescent; leaf blade interrupted imparipinnate with 3 or 4 pairs of leaflets, on upper leaves with 1 or 2 pairs; leaflets sessile, rhombic-elliptic or obovate-elliptic, 2–6 × 1.5–3 cm, abaxially densely pubescent between veins, spreading pilose on veins, adaxially appressed pilose or glabrescent, base cuneate or broadly so, margin coarsely crenate, apex obtuse to acute. Inflorescence rather lax, with 1.5–4 cm intervals between flowers; rachis slender, pubescent and pilose. Flowers 7–9 mm in diam.; pedicel 1–3 mm; bract 3-parted with segments fasciuated; bracteoles in 1 pair, ovate, margin serrate or entire. Sepals triangular-ovate. Petals yellow, obovate-oblong. Stamens 17–24. Stigma capitate. Fruiting hypanthium conic-hemispheric, ca. 5 × 4 mm including prickles, abaxially 10-ribbed, pilose, with a multiseriate crown of prickles; prickles spreading. Fl. and fr. Jul–Aug. 2n = 28.

Forest margins, thickets on mountain slopes; 500–800 m. Jilin, Liaoning, Shandong, Zhejiang [Japan, Korea, E Russia].


*大花龙芽草 da hua long ya cao*


Herbs 35–120 cm tall. Rhizome ± short, rather thick. Stems densely hisurate. Stipules semiobtuse, herbaceous, margin coarsely acutely serrate or lobed; petiole pilose and pubescent; leaf blade interrupted imparipinnate with 3–5 pairs of leaflets, on uppermost leaves with 1 or 2 pairs; leaflets sessile or occasionally shortly petioluate, elliptic, oblong, or obovate-elliptic, 2–7 × 1.5–4 cm, abaxially pubescent and pilose, adaxially appressed pilose, base rounded or broadly cuneate, margin coarsely crenate, apex obtuse or acute. Inflorescence usually simple; rachis thick, pubescent and villous. Flowers 12–13 mm in diam.; pedicel ca. 1 mm; bract 3- or 4-parted with segments fasciuated; bracteoles in 1 pair, ovate, margin 3-serrate. Sepals 5, triangular-ovate. Petals yellow, obovate-elliptic. Stamens 11–

Mountains, river banks; 500–1300 m. Xinjiang [C and SW Asia].

*Agrimonia eupatoria* subsp. *eupatoria* occurs in N and W Africa (including Macaronesia) and Europe.

**44. SPENCERIA** Trimen, J. Bot. 17: 97. 1879.

马蹄黄属 ma ti huang shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial, white villous throughout. Rhizome woody, densely covered with remains of old petioles. Stems erect, terete, simple. Radical leaves: stipules ovate, herbaceous, adnate to petiole; petiole sheathing at base; leaf blade imparipinnate; leaflets opposite, rarely alternate, broadly elliptic or obovate-oblong; cauline leaves few, with few leaflets, or simple and then margin 3-lobed or 2- or 3-serrate. Inflorescences terminal, laxly racemose; bract entire or 3-lobed; involucre close to petals, cupular, 7- or 8-lobed, lobes narrowly ovate to lanceolate. Hypanthium obconic. Sepals 5, valvate, broadly linear to lanceolate, persistent; epicalyx segments 5, semiorbicular or triangular. Petals 5, golden or cream, oblanceolate to obovate. Stamens 30–40, in 2 or 3 series; filaments dilated and connate at base, persistent. Carpels (1 or) 2, at base of hypanthium, apically villous; ovary ovoid-cylindric; ovule 1, pedunculate. Fruit composed of flower parts excluding deciduous petals, dry and somewhat hardened. Achene 1, subglobose, with thin coat, enclosed in hypanthium. Seed lacking endosperm; cotyledons subquadrangular, large.

One species: Bhutan, China.


马蹄黄 ma ti huang

Herbs 18–32 cm tall. Stems red-brownish, sparsely white villous or sericeous. Radical leaves 4.5–13 cm including petiole; stipules ca. 1 cm; petiole 1–6 cm; leaf blade with 13–21 leaflets; leaflets 1–2.5 × 0.5–1 cm, papery, lateral veins obscure, base rounded, margin entire, apex 2- or 3-lobed. Inflorescences 5–20 cm, 12–15-flowered; bract 8–20 mm; involucre abaxially with long, simple hairs and short, glandular hairs, adaxially glabrous, lobes acute at apex, 2 opposite ones longer than others, 2–3 × 0.8–1 mm. Flowers 1–2 cm in diam.; pedicel erect, 1.5–4 cm. Hypanthium ca. 2 mm. Sepals 3–6 × 1–1.8 mm, apex acute; epicalyx segments 1.2–3.5 × 1–3 mm. Petals 6–10 × 4–6 mm; style subterminal, filiform, long exserted from hypanthium; stigma minute. Fruit composed of flower parts excluding deciduous petals, dry and somewhat hardened. Achene 1, subglobose, with thin coat, enclosed in hypanthium. Seed lacking endosperm; cotyledons subquadrangular, large.

One species: Bhutan, China.

1a. *Spenceria ramalana* var. *ramalana*

马蹄黄(原变种) ma ti huang (yuan bian zhong)

Flowers 1.5–2 cm in diam.; sepals 4–6 × 1.2–1.8 mm, epicalyx segments 2–3.5 × 1.5–3 mm; petals 6–10 × 4–6 mm. Alpine meadows, limestone mountain slopes; 3000–5000 m. Sichuan, Xizang, Yunnan.


小花马蹄黄 xiao hua ma ti huang

*Spenceria parviflora* Stapf, Bot. Mag. 149: t. 9007. 1923.

Flowers ca. 1 cm in diam.; sepals 3–4 × ca. 1 mm, epicalyx segments 1.2–1.8 × 1–1.5 mm; petals 4–4.5 × 2.5–3 mm. Alpine meadows; 3000–5000 m. Xizang [Bhutan].


地榆属 di yu shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

*Poterium* Linnaeus.

Herbs perennial. Rootstock robust, bearing many fusiform, cylindric roots in lower part. Stipules sheathing, adnate to petiole, petiole sheathing and imbricate at base; leaf blade imparipinnate; leaflets serrate at margin. Inflorescences terminal on elongate scapes, densely capitulate or spicate, bracteate and bracteolate. Flowers bisexual, rarely unisexual (when plants monoeccous). Hypanthium with a constricted throat. Sepals 4–7, imbricate, petaloid, purple, red, pink, or white, rarely greenish. Petals absent. Disk lining hypanthium. Stamens usually 4, rarely more, inserted in throat of hypanthium; filaments free, rarely partly connate; anthers...

**地榆** di yu

Herbs perennial, 30–120 cm tall. Rootstock brown or purple-brown, robust, usually fusiform, rarely terete, cross section yellow-white or purple. Stems erect, angular, glabrous, or base pilose or sparsely glandular hairy. Radical leaves: stipules brown, membranous, glabrous or abaxially sparsely glandular hairy; petiole long, glabrous or sparsely glandular, base sheathing and imbricate, sometimes sparsely glandular hairy; leaf blade with 4–6 pairs of leaflets; leaflets petiolulate, green on both surfaces, ovate, oblong-ovate, fasciated oblong, or fasciated lanceolate, 1–7 × 0.5–3 cm, base cordate to broadly cuneate, margin coarsely obtusely serrate; both surfaces glabrous or abaxially sparsely pilose; cauline leaves: stipules large, semiobvate, herbaceous, margin acutely serrate; leaflets shortly petiolulate or sessile, oblong to oblong-lanceolate, base subcordate to rounded, apex acute. Inflorescences erect, spike, ellipsoid, or ovoid, usually 1–6 × 0.5–1 cm, flowering from apex to base; rachis glabrous or occasionally sparsely glandular hairy; bracts lanceolate, shorter than or nearly equaling sepal, membranous, abaxially pilose, apex acuminate to caudate. Sepals 4, purple, red, pink or white, elliptic to broadly ovate, abaxially pilose, with faint longitudinal mid-vein, usually with slightly acute apex. Stamens 4; filaments filiform, 0.5–1 × as long as sepal, exserted beyond them or not. Ovary glabrous or puberulous; stigma dilated, discoid, margin fimbriate-papillate. Fruiting hypanthium longitudinally 4-ribbed. Fl. and fr. Jul–Nov.

Thinned forests, forest margins, thickets, meadows, grasslands, grassy mountain slopes, damp places in ravines, stream banks; near sea level to 3000 m. Anhui, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [Asia, Europe].

About 30 species: Asia, Europe, North America; seven species (one endemic) in China.

1a. Inflorescences flowering from base upward.

2a. Leaflets of radical leaves usually truncate to subcordate at base; inflorescences usually nodding, thick; sepal white or pinkish; bracts longer than hypanthium in bud, densely hairy; filaments gradually dilated from base, broader near middle, then gradually attenuate toward apex, narrower than anther, or sometimes little dilated ....... 6. *S. alpina*

2b. Leaflets of radical leaves cordate or deeply so at base; inflorescences usually erect, long, slender; sepal white; bracts nearly equalling hypanthium in bud, abaxially sparsely hairy or subglabrous, margin ciliate; filaments compressed-dilated from middle to apex, broadest at apex, nearly as broad as anther.......................... 7. *S. stipulata*

1b. Inflorescences flowering from apex downward.

3a. Inflorescences capitulate; sepal white.

4a. Plants less than 35 cm tall; leaflets of radical leaves broadly ovate to suborbicular; flowers unisexual (females in center, males surrounding); style 0.5–1 × as long as sepal; fruiting hypanthium with 4 ribs ....... 4. *S. filiformis*

4b. Plants to 85 cm tall; leaflets of radical leaves ovate, elliptic, or long elliptic; flowers bisexual; style equaling sepal; fruiting hypanthium with 4 winged ribs ........................................ 5. *S. diandra*

3b. Inflorescences ellipsoid, cylindric, or elongate; sepal purple, red, pink, or white.

5a. Filaments filiform, subequaling sepal .......................... 1. *S. officinalis*

5b. Filaments compressed-dilated, 0.5–2 × as long as sepal.

6a. Leaflets of radical leaves linear-lanceolate, base subcordate or rounded to obliquely broadly cuneate, margin acutely incised serrate ............................................ 2. *S. tenuifolia*

6b. Leaflets of radical leaves ovate, elliptic, or oblong, base cordate, margin coarsely obtusely serrate ........................................................ 3. *S. applanata*

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**1a. Sanguisorba officinalis** var. *officinalis*

地榆(原变种) di yu (yuán biàn zhòng)

*Poterium officinale* (Linnaeus) A. Gray; *Sanguisorba montana* Jordan; *S. officinalis* var. longa Kitagawa; *S. officinalis* var. montana (Jordan) Focke; *S. officinalis* var. microcephala Kitagawa; *S. officinalis* var. polygama (Nylander) Sergievskaja; *S. polygama* Nylander.

Base of petiole or stem sometimes sparsely glandular hairy; leaflets of radical leaves ovate or oblong-ovate, glabrous on both surfaces, base cordate to subcordate. Sepals purple, red, or tinged purple. Filaments nearly equaling sepal. Fl. and fr.
Herbs perennial, to 1.5 m tall. Rootstock branched, robust, with many long, slender roots. Stems angular, glabrous. Radical leaves: stipules brown, membranous, abaxially glabrous; petiole glabrous; leaf blade with 7–9 pairs of leaflets; leaflets petiolulate, green on both surfaces, fasciated or fasciated lanceolate, 5–7 × 1.5–1.7 cm, both surfaces glabrous, base subcordate to obliquely truncate or rounded, margin acutely incised serrate, apex rounded to acute; cauline leaves: stipules green, falcate, herbaceous, margin incised serrate; leaf blade resembling that of radical leaves but leaflets fewer and narrower higher up stem. Inflorescences usually nodding, spicate, long cylindric, 2–7 × 0.5–0.8 cm; peduncle subglabrous; bracts lanceolate, shorter than sepals, abaxially and at margin densely hairy. Sepals red, whitish red, or white, long elliptic, abaxially glabrous. Stamens 4; filaments compressed-dilated, 0.5–2 × as long as sepals, apex narrower than or nearly as broad as anther. Ovary glabrous or pubescent near base; stigma dilated, discoidal. Fruiting hypanthium longitudinally 4-ribbed, glabrous. Fl. and fr. Jul–Sep.

1. Sanguisorba officinalis

Herbs perennial, to 1.5 m tall. Rootstock branched, robust, with many long, slender roots. Stems angular, glabrous. Radical leaves: stipules brown, membranous, abaxially glabrous; petiole glabrous; leaf blade with 7–9 pairs of leaflets; leaflets petiolulate, green on both surfaces, fasciated or fasciated lanceolate, 5–7 × 1.5–1.7 cm, both surfaces glabrous, base subcordate to obliquely truncate or rounded, margin acutely incised serrate, apex rounded to acute; cauline leaves: stipules green, falcate, herbaceous, margin incised serrate; leaf blade resembling that of radical leaves but leaflets fewer and narrower higher up stem. Inflorescences usually nodding, spicate, long cylindric, 2–7 × 0.5–0.8 cm; peduncle subglabrous; bracts lanceolate, shorter than sepals, abaxially and at margin densely hairy. Sepals red, whitish red, or white, long elliptic, abaxially glabrous. Stamens 4; filaments compressed-dilated, 0.5–2 × as long as sepals, apex narrower than or nearly as broad as anther. Ovary glabrous or pubescent near base; stigma dilated, discoidal. Fruiting hypanthium longitudinally 4-ribbed, glabrous. Fl. and fr. Jul–Sep.

1a. Sanguisorba officinalis var. longifila

Herbs perennial, to 1.5 m tall. Rootstock branched, robust, with many long, slender roots. Stems angular, glabrous. Radical leaves: stipules brown, membranous, abaxially glabrous; petiole glabrous; leaf blade with 7–9 pairs of leaflets; leaflets petiolulate, green on both surfaces, fasciated or fasciated lanceolate, 5–7 × 1.5–1.7 cm, both surfaces glabrous, base subcordate to obliquely truncate or rounded, margin acutely incised serrate, apex rounded to acute; cauline leaves: stipules green, falcate, herbaceous, margin incised serrate; leaf blade resembling that of radical leaves but leaflets fewer and narrower higher up stem. Inflorescences usually nodding, spicate, long cylindric, 2–7 × 0.5–0.8 cm; peduncle subglabrous; bracts lanceolate, shorter than sepals, abaxially and at margin densely hairy. Sepals red, whitish red, or white, long elliptic, abaxially glabrous. Stamens 4; filaments compressed-dilated, 0.5–2 × as long as sepals, apex narrower than or nearly as broad as anther. Ovary glabrous or pubescent near base; stigma dilated, discoidal. Fruiting hypanthium longitudinally 4-ribbed, glabrous. Fl. and fr. Jul–Sep.

1b. Sanguisorba officinalis var. parviflora

Herbs perennial, to 1.5 m tall. Rootstock branched, robust, with many long, slender roots. Stems angular, glabrous. Radical leaves: stipules brown, membranous, abaxially glabrous; petiole glabrous; leaf blade with 7–9 pairs of leaflets; leaflets petiolulate, green on both surfaces, fasciated or fasciated lanceolate, 5–7 × 1.5–1.7 cm, both surfaces glabrous, base subcordate to obliquely truncate or rounded, margin acutely incised serrate, apex rounded to acute; cauline leaves: stipules green, falcate, herbaceous, margin incised serrate; leaf blade resembling that of radical leaves but leaflets fewer and narrower higher up stem. Inflorescences usually nodding, spicate, long cylindric, 2–7 × 0.5–0.8 cm; peduncle subglabrous; bracts lanceolate, shorter than sepals, abaxially and at margin densely hairy. Sepals red, whitish red, or white, long elliptic, abaxially glabrous. Stamens 4; filaments compressed-dilated, 0.5–2 × as long as sepals, apex narrower than or nearly as broad as anther. Ovary glabrous or pubescent near base; stigma dilated, discoidal. Fruiting hypanthium longitudinally 4-ribbed, glabrous. Fl. and fr. Jul–Sep.

2. Sanguisorba tenuifolia

Herbs perennial, to 1.5 m tall. Rootstock branched, robust, with many long, slender roots. Stems angular, glabrous. Radical leaves: stipules brown, membranous, abaxially glabrous; petiole glabrous; leaf blade with 7–9 pairs of leaflets; leaflets petiolulate, green on both surfaces, fasciated or fasciated lanceolate, 5–7 × 1.5–1.7 cm, both surfaces glabrous, base subcordate to obliquely truncate or rounded, margin acutely incised serrate, apex rounded to acute; cauline leaves: stipules green, falcate, herbaceous, margin incised serrate; leaf blade resembling that of radical leaves but leaflets fewer and narrower higher up stem. Inflorescences usually nodding, spicate, long cylindric, 2–7 × 0.5–0.8 cm; peduncle subglabrous; bracts lanceolate, shorter than sepals, abaxially and at margin densely hairy. Sepals red, whitish red, or white, long elliptic, abaxially glabrous. Stamens 4; filaments compressed-dilated, 0.5–2 × as long as sepals, apex narrower than or nearly as broad as anther. Ovary glabrous or pubescent near base; stigma dilated, discoidal. Fruiting hypanthium longitudinally 4-ribbed, glabrous. Fl. and fr. Jul–Sep.

2a. Sanguisorba tenuifolia var. parviflora

Herbs perennial, to 1.5 m tall. Rootstock branched, robust, with many long, slender roots. Stems angular, glabrous. Radical leaves: stipules brown, membranous, abaxially glabrous; petiole glabrous; leaf blade with 7–9 pairs of leaflets; leaflets petiolulate, green on both surfaces, fasciated or fasciated lanceolate, 5–7 × 1.5–1.7 cm, both surfaces glabrous, base subcordate to obliquely truncate or rounded, margin acutely incised serrate, apex rounded to acute; cauline leaves: stipules green, falcate, herbaceous, margin incised serrate; leaf blade resembling that of radical leaves but leaflets fewer and narrower higher up stem. Inflorescences usually nodding, spicate, long cylindric, 2–7 × 0.5–0.8 cm; peduncle subglabrous; bracts lanceolate, shorter than sepals, abaxially and at margin densely hairy. Sepals red, whitish red, or white, long elliptic, abaxially glabrous. Stamens 4; filaments compressed-dilated, 0.5–2 × as long as sepals, apex narrower than or nearly as broad as anther. Ovary glabrous or pubescent near base; stigma dilated, discoidal. Fruiting hypanthium longitudinally 4-ribbed, glabrous. Fl. and fr. Jul–Sep.

Herbs perennial, 75–120 cm tall. Rootstock robust, terete. Stems subglabrous. Lower cauline leaves: stipules semiob mutual, margin incised serrate; petiole sparsely pubescent; leaf blade with 3–5 pairs of leaflets; petiolules 0.5–2 cm; leaflets green on both surfaces, ovate, elliptic, or oblong, 1.5–6 × 1–4 cm, both surfaces glabrous or abaxially densely villous, base ciliate, margin coarsely dentate, apex rounded; upper cauline leaves: leaflets narrowly oblong, base truncate to broadly cuneate. Inflorescences spicate, long cylindric, 4–7.5 × 0.6–1 cm; bracts elliptic-ovate, abaxially pubescent. Sepals pale pink or white, elliptic. Stamens 4; filaments gradually compressed-dilated distally, ca. 2 × as long as sepals, as broad as anther. Style filiform; stigma dilated, discoidal, papillate. Fl. and fr. Jul–Oct.

- Thinned forests, marshy banks of ravines and streams; 100–500 m. Hebei, Jiangsu, Shandong.

1a. Stipules and leaflets abaxially densely pubescent on both surfaces; sepals pale pink or white ........ 3a. var. plananatata

1b. Stipules and leaflets abaxially densely villous; sepals pale pink ........................................ 3b. var. villosa

3a. Sanguisorba plananatata var. plananatata

Herbs perennial, 30–80 cm tall. Rootstock robust, terete. Stems glandular pubescent or glabrescent. Radical leaves: petiole glandular pubescent or glabrescent; leaf blade with 5–8 pairs of leaflets; petiolules 0.5–2 cm; leaflets alternate or subopposite, abaxially tinged green, adaxially green, ovate, elliptic, or long elliptic, 1–3 × 0.8–2.5 cm, abaxially sparsely pilose, adaxially glabrous, base ciliate to truncate, margin obtusely or acutely incised serrate, apex rounded; middle cauline leaves: stipules falcate, margin incised serrate. Inflorescences capitulate, lax after anthesis; bracts lanceolate, margin ciliate; flowers long pedicellate at base of inflorescence, gradually becoming subsessile toward apex. Hypanthium abaxially pilose. Sepals 4, tinged green. Stamens 2; filaments filiform, nearly equaling sepals. Style slender; stigma dilated; papillate, much branched. Fruit hypanthium hardened, with 4 longitudinal, winged ribs; seeds persistent; style deciduous. Fl. and fr. Jun–Aug.

- Forest margins, thickets, meadows on mountain slopes; 3200–3900 m. Xizang [Bhutan, ?N India (Uttar Pradesh), Nepal, Sikkim].


Herbs perennial, 8–35 cm tall. Rootstock brown, terete. Stems slender, glabrous. Radical leaves: stipules brown, membranous, abaxially glabrous; petiole glabrous; leaf blade with 3–5 pairs of leaflets; leaflets shortly petiolate, rarely subsessile, broadly ovate or suborbicular, 0.4–1.5 cm, both surfaces glabrous, base subcordate to rounded; margin obtusely serrate, apex rounded, rarely truncate; cauline leaves: stipules brown, herbaceous, margin entire or serrate; leaf blade resembling that of radical leaves but leaflets fewer higher up stem. Inflorescences capitulate, subglobose, 3–7 mm in diam., with male flowers surrounding females; bracts ovate, minute, membranous, glabrous, margin entire or sparsely ciliate. Sepals 4, white, narrowly elliptic to long obovate, abaxially glabrous. Stamens 7 or 8; filaments filiform, nearly 2 × as long as sepals. Style filiform, 0.5–1.5 × as long as sepals; stigma dilated, papillate. Fruiting hypanthium longitudinally 4-ribbed; sepals deciduous when mature. Fl. and fr. Jun–Sep.

- Meadows on mountain slopes, marshes; 1200–4500 m. Sichuan, Xizang, Yunnan [Bhutan, Sikkim].

This species is used medicinally.


Herbs perennial, 40–85 cm tall. Rootstock stout, terete. Stems glandular pubescent or glabrescent. Radical leaves: petiole glandular pubescent or glabrescent; leaf blade with 5–8 pairs of leaflets; petiolules 0.5–2 cm; leaflets alternate or subopposite, abaxially tinged green, adaxially green, ovate, elliptic, or long elliptic, 1–3 × 0.8–2.5 cm, abaxially sparsely pilose, adaxially glabrous, base ciliate to truncate, margin obtusely or acutely incised serrate, apex rounded; middle cauline leaves: stipules falcate, margin incised serrate. Inflorescences capitulate, lax after anthesis; bracts lanceolate, margin ciliate; flowers long pedicellate at base of inflorescence, gradually becoming subsessile toward apex. Hypanthium abaxially pilose. Sepals 4, tinged green. Stamens 2; filaments filiform, nearly equaling sepals. Style slender; stigma dilated; papillate, much branched. Fruit hypanthium hardened, with 4 longitudinal, winged ribs; seeds persistent; style deciduous. Fl. and fr. Jun–Aug.

- Forest margins, thickets, meadows on mountain slopes; 3200–3900 m. Xizang [Bhutan, ?N India (Uttar Pradesh), Nepal, Sikkim].


Herbs perennial, 8–35 cm tall. Rootstock robust, terete. Stems slender, glabrous. Radical leaves: stipules yellow-brown, membranous, glabrous; petiole glabrous; leaf blade with 3–5 pairs of leaflets; leaflets shortly petiolate, rarely subsessile, broadly ovate or suborbicular, 0.4–1.5 cm, both surfaces glabrous, base subcordate to rounded; margin obtusely serrate, apex rounded, rarely truncate; cauline leaves: stipules green, ovate or falcate-semiorbicular, leathery, margin sharply incised serrate; leaf blade resembling that of radical leaves but leaflets fewer higher up stem. Inflorescences capitulate, subglobose, 3–7 mm in diam., with male flowers surrounding females; bracts ovate, minute, membranous, glabrous, margin entire or sparsely ciliate. Sepals 4, white, narrowly elliptic to long obovate, abaxially glabrous. Stamens 7 or 8; filaments filiform, nearly 2 × as long as sepals. Style filiform, 0.5–1.5 × as long as sepals; stigma dilated, papillate. Fruiting hypanthium longitudinally 4-ribbed; sepals deciduous when mature. Fl. and fr. Jun–Sep.

- Meadows on mountain slopes, marshes; 1200–4500 m. Sichuan, Xizang, Yunnan [Bhutan, Sikkim].

This species is used medicinally.
margin densely pubescent. Sepals white or slightly pinkish, ovate. Stamens 4; filaments gradually dilated from base, broadest near middle, then gradually attenuate toward apex, 2–3 × as long as sepals, narrower than anther, or sometimes little dilated. Fruiting hypanthium pilose; sepals persistent. Fl. and fr. Jul–Aug.

Forest margins, mountain slopes, ravines, marshes; 1200–2700 m. Gansu, N Ningxia (Helan Shan), Xinjiang [Korea, Mongolia, Russia].


大白花地榆 da bai hua di yu

*Poterium sitchense* (C. A. Meyer) S. Watson; *Sanguisorba canadensis* Torrey & A. Gray subsp. *latifolia* (Hooker) Calder; *S. canadensis* var. *latifolia* Hooker; *S. canadensis* var. *sitchense* (C. A. Meyer) Koidzumi; *S. latifolia* (Hooker) Coville; *S. stipulata* var. *latifolia* (Hooker) H. Hara.

Herbs perennial (rarely annual), with woody rhizome. Stems decumbent to erect. Leaves stipulate, long petiolate; stipules adnate to sheathing petiole; leaf blade simple, ± orbicular, margin lobed, digitate, or palmately parted. Inflorescences usually dense corymbs, rarely lax cymes or a solitary flower, ebracteate. Flowers very small, bisexual. Hypanthium urceolate, persistent, with constricted throat. Sepals 4(or 5), valvate; epicalyx segments 4(or 5), alternating with sepals. Petals absent. Disk lining hypanthium, margin thickened. Stamens (1–)4; filaments free, short. Carpel 1(–4), sessile or subtipitate, free; ovule ascending from base of locule; style basal or adaxial, filiform, slightly longer than stamens. Achene included in membranous hypanthium. Seed basal; testa membranous; cotyledons cylindric-obovoid. x = 8.

Between 100 and 300 species: frigid and temperate regions of Africa, Asia, Europe, and America, extending to alpine areas in the tropics; three species in China.

1a. Stems and petioles glabrous, or stem only declinate hairy in lower part

1b. Stems and petioles covered with ascending, spreading, or declinate hairs.

2a. Pedicel glabrous or subglabrous; hypanthium abaxially densely or sparsely villous; basal sinus of leaf blade deep and narrow, sometimes with 2 lobes meeting

2b. Pedicel and hypanthium glabrous; basal sinus of leaf blade broad, sometimes base subtipitate


羽衣草属 yu yi cao shu

Li Chaoluan (李朝銮 Li Chao-luang); Hiroshi Ikeda, Hideaki Ohba

Herbs perennial (rarely annual), with woody rhizome. Stems decumbent to erect. Leaves stipulate, long petiolate; stipules adnate to sheathing petiole; leaf blade simple, ± orbicular, margin lobed, digitate, or palmately parted. Inflorescences usually dense corymbs, rarely lax cymes or a solitary flower, ebracteate. Flowers very small, bisexual. Hypanthium urceolate, persistent, with constricted throat. Sepals 4(or 5), valvate; epicalyx segments 4(or 5), alternating with sepals. Petals absent. Disk lining hypanthium, margin thickened. Stamens (1–)4; filaments free, short. Carpel 1(–4), sessile or subtipitate, free; ovule ascending from base of locule; style basal or adaxial, filiform, glabrous; stigma capitellate. Achene 1(–4), enclosed in membranous hypanthium. Seed basal; testa membranous; cotyledons cylindric-obovoid. x = 8.

Between 100 and 300 species: frigid and temperate regions of Africa, Asia, Europe, and America, extending to alpine areas in the tropics; three species in China.


羽衣草 yu yi cao

Herbs perennial, 35–80 cm tall. Rootstock robust, deep, long. Stems glabrous. Radical leaves: stipules yellow-brown, membranous, glabrous; petiole angular, glabrous; leaf blade with 4–6 pairs of leaflets; leaflets petiolulate, green on both surfaces, abaxially more deeply so, elliptic or ovate-elliptic, both surfaces glabrous, base cordate to deeply so, rarely slightly so, margin coarsely acutely incised serrate, apex rounded; cauline leaves 2–4; stipules green, ovate, herbaceous, margin incised serrate; leaf blade resembling that of radical leaves but leaflets fewer higher up stem. Inflorescences erect, spicate; peduncle glabrous; bracts narrowly fasciately, nearly equaling sepals, glabrous or abaxially pilose. Sepals 4, elliptic-ovate, glabrous. Stamens 4; filaments compressed-dilated from middle to apex, broadest at apex, 2–3 × as long as sepal, nearly as broad as anther. Fruiting hypanthium pilose; sepals persistent. Fl. and fr. Jul–Sep.

Thinned forests, forest margins, mountains, ravines, marshy places; 1400–2300 m. Jilin, Liaoning [Japan, Korea, Russia; North America].

This species is used medicinally.
on veins, base subcordate with broad sinus or subtruncate, margin 7–9-lobed and serrulate; cauline leaves 2–5, shortly petio- 
late or sub sessile; stipules con nate at base, margin serrate; leaf 
blade gradually smaller higher up stem. Inflorescences laxly corymbiform-cymose. Pedicel 3–4 mm, glabrous. Hypanthium 
glabrous, base slightly decurrent. Epicalyx segments ca. 1/2 as 
long as sepals. Achene ovoid, 1–2 mm, glabrous, apex subob-
tuse.

Thinned forests, alpine grasslands; 1700–3500 m. Gansu, Shaan-
xi, Shanxi, Sichuan, Xinjiang [Mongolia, Russia (W Siberia); Europe].


Herbs perennial, 30–60 cm tall. Rhizome robust. Stems

tufted, erect, taller than the leaves, glabrous or only declinate 
hairy in lower part. Radical leaves many; stipules membranous, 
brown, glabrous; petiole 10–18 cm, glabrous; leaf blade cor-
date-ovibar, 3–5 × 6–8 cm, both surfaces glabrous, rarely 
slightly appressed hairy and margin ciliate, base cordinate, mar-
gin 7–9-lobed and serrulate; cauline leaves 2–5, shortly petio-
late or sub sessile; stipules con nate at base, glabrous, margin 
serrate; leaf blade small, margin 3–5-lobed. Inflorescences laxly corymbiform-cymose. Flowers ca. 3 mm in diam.; pedicel 1–2 
mm, glabrous. Hypanthium glabrous, base slightly decurrent. 
Sepals yellow-green, triangular-ovate, subglabrous; epicalyx 
segments oblong-lanceolate, nearly 1/2 as long as sepals, sub-
glareous.

Alpine grasslands; ca. 4000 m. NW Sichuan [Russia (W Siberia); 
Europe].

4. Subfam. PRUNOIDEAE

Trees or shrubs. Stipules present. Leaves simple; leaf blade margin serrate or rarely entire. Ovary superior; carpels 1(–5), with 2 
pendulous anatropous ovules per carpel. Fruit a drupe; mesocarp succulent, fleshy, or dry, not splitting or more rarely splitting when 
ripe.

Ten genera and ca. 400 species: Africa, America, Asia, NE Australia, Europe, Pacific Islands; nine genera and 117 species (70 endemic, nine 
introduced) in China.

The genera Amygdalus, Armeniaca, Cerasus, Laurocerasus, Padus, and Prunus are often treated at the subgeneric or sectional level within the 
genus Prunus. Pygeum is usually treated as a distinct genus but has sometimes also been included within Prunus. The three cherry genera (Cerasus, 
Laurocerasus, and Padus) are probably more closely related to each other than they are to the other genera in the Prunoideae. Recent phylogenetic 
studies based on molecular data show that none of these three cherry genera are monophyletic, and their separation is probably not justified (Bortiri et 

1a. Style lateral; branches with regularly produced axillary spines with a few or no leaves; petals white, cream, or 
yellow ............................................................................................................................................................................... 47. Prinsepia

1b. Style terminal; branches unarmed or with leafy spine-tipped branchlets; petals white, pink, light red, or purple 
(yellowish white in Laurocerasus undulata).

2a. Sepals and petals minute and ± indistinguishable.

3a. Plants evergreen; leaf blade margin entire or minutely serrulate ......................................................... 54. Pygeum

3b. Plants deciduous; leaf blade margin with simple, double, or incised gland-tipped teeth ............................ 55. Maddenia

2b. Sepals and petals large and clearly differentiated.

4a. Drupe grooved, hairy or glabrous but if glabrous usually glaucous; endocarp distinctly compressed.

5a. Axillary winter buds 3 with 2 lateral flower buds and 1 central leaf bud; terminal winter bud present; leaves conduplicate when young; endocarp often pitted, rarely smooth .............................................. 48. Amygdalus

5b. Axillary winter buds single; terminal winter buds absent; leaves convolute [or conduplicate] when 
young; endocarp usually smooth or inconspicuously pitted.

6a. Flowers sessile or shortly pedicellate; ovary and fruit usually pubescent ............................................. 49. Armeniaca

6b. Flowers distinctly pedicellate; ovary and fruit glabrous, often glaucous ................................................. 50. Prunus

4b. Drupe not grooved, glabrous but not glaucous; endocarp not or hardly compressed.

7a. Inflorescences usually with conspicuous bracts; flowers solitary to several in short racemes or 
corymbs ................................................................................................................................................................. 51. Cerasus

7b. Inflorescences with small bracts; flowers 10 or more in racemes.

8a. Plants deciduous; rachis base usually with leaves, rarely leafless ......................................................... 52. Padus

8b. Plants evergreen; rachis base leafless ......................................................................................................... 53. Laurocerasus


Prinsepia 

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Bruce Bartholomew

Plagiospermum Oliver (1886), not Cleve (1868), nor Pierre (1892); Sinoplagiospermum Rauschert.

Shrubs, erect or scandent, deciduous. Branches with leafless or few-leaved axillary spines, pith lamellate. Winter buds small,
with a few hairy scales. Stipules small, soon caducous. Leaves alternate, sometimes fascicled on short shoots, simple; petiole short, often ill-defined, with or without slender and inconspicuous nectaries; leaf blade glabrous, margin entire or serrulate. Inflorescences solitary or fascicled on short branchlets in leaf axils of previous year’s branches, racemose, or 1-flowered. Flowers bisexual. Pedicel absent or essentially so. Hypanthium mouth with an annular disk. Sepals 5, unequal, persistent in fruit. Petals 5, white, cream, or yellow, suborbicular, base clawed. Stamens 10 or more, in 2 or more whorls, inserted on hypanthium rim; filaments short. Ovary superior, glabrous, 1-located; ovules 2, parallel, pendulous. Style lateral; stigma capitate. Fruit a drupe; mesocarp fleshy; endocarp leathery, smooth or slightly furrowed.

About five species: Bhutan, China, N India, Nepal, Pakistan, Sikkim; four species (three endemic) in China.

1a. Spines leafy, rarely leafless; flowers in racemes, rarely solitary or fascicled; stamens more than 10, in several whorls.
2a. Racemes with many flowers ......................................................... 1. P. utilis
2b. Racemes with few flowers or flowers solitary ........................................ 2. P. scandens

1b. Spines leafless; flowers in a fascicle or solitary; stamens 10, in 2 whorls.
3a. Hypanthium campanulate; petals yellow ............................................. 3. P. sinensis
3b. Hypanthium turbinate; petals white .................................................. 4. P. uniflora


扁核木  氣核木
Shrubs 1–5 m tall. Branches grayish green, robust; branchlets greenish to grayish green, angled, brown pubescent to subglabrous; spines to 3.5 cm, subglabrous, usually leafy. Winter buds purplish red, ovoid to oblong, subglabrous. Stipules not seen. Petiole ca. 5 mm, glabrous; leaf blade oblong to ovate-lanceolate, 3.5–9 × 1.5–3 cm, base broadly cuneate to subrounded, margin serrulate, apex acute to acuminate. Racemes axillary or on short branchlets, 3–6 cm, many flowered; peduncle brown pubescent, soon glabrescent; bracts and bracteoles lanceolate, brown pubescent, glabrescent. Flowers ca. 1 cm in diam. Pedicel 4–8 mm, to 1 cm in fruit, brown pubescent, soon glabrescent. Hypanthium cup-shaped, outside brown pubescent. Sepals semi-ovariculular to broadly ovate, outside brown pubescent when young and densely so on margin. Petals white, broadly ovate, base shortly clawed, margin apically erose. Stamens in 2 or 3 whorls. Ovary glabrous. Style short. Drupe purplish brown to blackish purple, oblong to obovoid-oblong, ca. 8 mm in diam. Fl. Apr.–May, fr. Aug.–Sep.

Slopes, wastelands, valleys, along trails; 1000–2600 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, N India, Nepal, Pakistan, Sikkim].


台灣扁核木  塔湾扁核木
Shrubs 2–8 m tall, scandent. Branchlets greenish, angled; spines 1–1.5 cm, glabrous, sometimes leafy. Winter buds ovoid, glabrous. Stipules not seen. Petiole 5–10 mm, glabrous; leaf blade ovate-lanceolate, 3.5–5.5 × 1.2–2 cm, thinly leathery, glabrous, abaxially slightly lighter green than adaxial surface, base narrowly cuneate to cuneate, margin crenate-serrate, apex acuminate; midvein abaxially raised, adaxially slightly impressed. Inflorescences terminal or axillary, solitary, fascicled, or racemose; bracts glandular. Flowers ca. 1 cm in diam. Pedicel 5–7 mm. Hypanthium cup-shaped, outside glabrous. Sepals suborbicular, 3–5 mm in diam., outside glabrous, apex rounded. Petals white, suborbicular, ca. 5 mm in diam. Stamens ca. 30. Stigma inflated. Drupe oblong. Fl. Apr.–Jun.

• Thickets in mountains; 1500–3000 m. Taiwan.


东北扁核  东幽核
Plagiospermum sinense Oliver, Hooker’s Icon. Pl. 16: t. 1526. 1886; Sinopлагiосpermum sinense (Oliver) Rauschert.

Shrubs to 2 m tall. Branches grayish green to purplish brown, robust, glabrous; branchlets reddish brown, longitudinally angled, glabrous; spines erect to recurved, 6–10 mm, usually leafless. Winter buds purplish red, ovoid, pubescent. Petiole 5–10 mm, glabrous; leaf blade ovate-lanceolate, lanceolate, or very rarely lorate, 3–6.5 × 0.6–2 cm, abaxially pale green, adaxially dark green, base subrounded to broadly cuneate, margin remotely serrate, apex acute, acuminate, or caudate; secondary veins abaxially prominent, adaxially impressed. Inflorescences in leaf axils, 1-flowered or to a 4-flowered fascicle; bracts small, membranous, lanceolate, adaxially pubescent, glabrescent. Flowers ca. 1.5 cm in diam. Pedicel 1–1.8 cm, to 2 cm in fruit, glabrous. Hypanthium campanulate, outside glabrous. Sepals trianular-ovate, short, outside glabrous, margin ciliate. Petals yellow, obovate, base shortly clawed, apex obtuse. Stamens ca. 10, in 2 whorls. Ovary glabrous. Style short. Drupe purplish red to purplish brown, subglobose to oblong, 1–1.5 cm in diam., glabrous. Fl. Apr.–May, fr. May–Sep.

• Mixed forests, forests of shady slopes, open places on slopes, stream sides. Heilongjiang, Jilin, Liaoning, Nei Mongol.


蓉核  娄核
Sinopлагiосpermum uniflorum (Batalin) Rauschert.

Shrubs 1–2 m tall. Branches purplish brown, robust, glabrous; branchlets grayish green to grayish brown, longitudinally angled, glabrous or pubescent; spines usually erect, 6–10 mm, usually leafless. Winter buds purplish red, ovoid, glabrous. Petiole short to leaf subsessile, subglabrous; leaf blade oblong-lanceolate, narrowly oblong, oblong, ovate-oblong, ovate-lanceolate, narrowly lanceolate, or narrowly elliptic, 2–5.5 × 0.6–0.8 cm, abaxially pale green, adaxially dark green, base cuneate to broadly cuneate, margin repand to conspicuously serrulate, apex obtuse to acute. Inflorescences 1-flowered or to 3-flowered fascicle; bracts not seen. Flowers 8–10 mm in diam. Pedicel 3–15 mm, glabrous. Hypanthium turbinate, outside glabrous. Sepals triangular-ovate to semi-ovariculate, reflexed in...

- Slopes, ravines in valleys, bases of hills; 800–2200 m. Gansu, W Henan, S Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shanxi, W Sichuan.

1a. Leaf oblong-lanceolate to narrowly lanceolate, margin repand or inconspicuously serrulate; pedicel 3–5 mm .......................... 4a. var. uniflora
1b. Leaf ovate-lanceolate to ovate-oblong on sterile shoot, oblong to narrowly elliptic on flowering shoots, margin conspicuously serrulate; pedicel 5–15 mm .......................... 4b. var. serrata

4a. Prunus uniflora var. uniflora

葉核(原變種) rui he (yuan bian zhong)

Leaf blade oblong-lanceolate to narrowly lanceolate, margin repand or inconspicuously serrulate. Pedicel 3–5 mm.

- Sunny slopes, bases of hills; 900–1100 m. Gansu, W Henan, S Nei Mongol, Shaanxi, Shanxi, W Sichuan.


齿葉葉核 chi ye rui he

Leaf blade ovate-lanceolate to ovate-oblong on sterile shoots, oblong to narrowly elliptic on flowering shoots, margin conspicuously serrate. Pedicel 5–15 mm.

- Slopes, ravines in valleys; 800–2200 m. Gansu, Ningxia, E Qinghai, S Shaanxi, S Shanxi, W Sichuan.


桃属 tao shu

Lu Lingdi (陆玲娣 Lu Ling-ti); Bruce Bartholomew

Persica Miller.

Trees or shrubs, deciduous. Branches unarmed or spiny. Axillary winter buds (2 or)3, lateral ones flower buds, central one a leaf bud; terminal winter buds present. Stipules present. Leaves simple, alternate, sometimes fascicled on short branchlets, conduplicate when young; petiole usually with 2 nectaries or sometimes nectaries at base of leaf blade margin; leaf blade margin often serrate. Inflorescences borne on axillary short branches, 1(or 2)-flowered. Flowers bisexual, regular, opening before or rarely with leaves. Pedicel nearly absent or short, rarely long. Hypanthium caducous in fruit. Sepals 5, imbricate. Petals 5, pink or white, inserted on rim of hypanthium, imbricate. Stamens 15 to many, inserted with petals; filaments filiform, free. Ovary superior, hairy, 1-loculed; ovules 2, collateral, pendulous. Style terminal, elongated. Fruit a drupe, hairy, glabrous in some cultivated Amygdalus persica, with a conspicuous longitudinal groove; mesocarp fleshy and not splitting or dry and splitting when ripe; endocarp hard, 2-valved, globose or ellipsoid, usually compressed, surface furrowed, pitted, rugose, or smooth.

About 40 species; C, E, and SW Asia, S Europe; 11 species (four endemic, one introduced) in China.

Many species and cultivars are grown for their edible fruit or as garden ornamentals, and a few species are also grown for their edible seeds.

1a. Mesocarp fleshy or rarely dry, not splitting when ripe.
2a. Endocarp smooth, only with shallow furrows, without pits.

3a. Sepals outside pubescent or rarely subglabrous; endocarp subglobose, longitudinally and transversely shallowly furrowed, apex obtuse .......................................................... 10. A. kansuensis
3b. Sepals outside glabrous; endocarp compressed ovoid-globose, inconspicuously and longitudinally sparsely shallowly furrowed only on dorsal and ventral sides, apex acute .......................................................... 11. A. mira

2b. Endocarp deeply furrowed and pitted.

4a. Leaf blade abaxially glabrous; calyx outside glabrous; mesocarp thin and dry; endocarp usually not laterally compressed, apex obtuse .......................................................... 9. A. davidiana
4b. Leaf blade abaxially sparsely pubescent in vein axils, rarely glabrous; calyx outside pubescent; mesocarp thick and succulent; endocarp laterally compressed, apex acuminate.
5a. Endocarp irregularly longitudinally and transversely furrowed and pitted; leaf blade secondary veins anastomosing at margin .......................................................... 7. A. persica
5b. Endocarp longitudinally furrowed and very sparsely pitted; leaf blade secondary veins continuing to margin .......................................................... 8. A. ferganensis

1b. Mesocarp dry, splitting when ripe.
6a. Branchlets spiny.

7a. Branchlets glabrous; leaf blade long elliptic, oblong, or obovate-oblongate, 1.5–4 cm, secondary veins 5–8 on either side of midvein; drupe subglobose to ovoid-globose, 1.5–2 cm in diam. .......................... 5. A. tangutica
7b. Branchlets pubescent; leaf blade broadly elliptic, suborbicular, or obovate, 0.8–1.5 cm, secondary veins ca. 4 on either side of midvein; drupe broadly ovoid-globose, 1–1.2 cm in diam. .......................... 6. A. mongolica
6b. Branchlets unarmed.

扁 桃  bian tao

Amygdalus amara Duhamel; A. communis var. amara (Duhamel) Candolle; A. communis var. dulcis (Miller) Candolle; A. communis var. fragilis (Borkhausen) Seringe; A. dulcis Miller; A. fragilis Borkhausen; A. sativa Miller; Prunus amygdalus (Linnaeus) Batsch; P. amygdalus var. amara (Duhamel) Focke; P. amygdalus var. dulcis (Miller) Koehne; P. amygdalus var. fragilis (Borkhausen) Focke; P. amygdalus var. sativa (Miller) Focke; P. communis (Linnaeus) Arcangeli (1882), not Hudson (1762); P. communis var. dulcis (Miller) Borkhausen; P. communis var. fragilis (Borkhausen) Focke; P. communis var. sativa (Miller) Focke; P. dulcis var. amara (Duhamel) H. L. Moore.

Trees or shrubs, (2–)3–6(–8) m tall. Branches erect or horizontally spreading, unarmed, with many short branchlets, glabrous; previous year’s branchlets brownish, grayish brown to grayish black with age. Winter buds brownish, ovoid, 3–5 mm, glabrous. Leaves variable, those on long branchlets usually alternate, those on short branchlets approximate and often fascicled; petiole 1–2(–3) cm, glabrous; drupe obliquely ovoid to oblong-ovoid; endocarp pitted and with or without shallow furrows ...................................................... 1. A. communis

9a. Trees or shrubs, (2–)3–6(–8) m tall; petiole 1–2(–3) cm; leaf blade lanceolate to elliptic-lanceolate, slightly plicate when young, glabrescent; drupe obliquely ovoid to oblong-ovoid; endocarp pitted and with or without shallow furrows ................................................................. 1. A. communis

9b. Shrub, 1–1.5 m tall; petiole 0.4–0.7 cm; leaf blade narrowly oblong, oblong-lanceolate, or lanceolate, glabrous; drupe ovoid to ovoid-globose; endocarp not pitted but only with irregular shallow reticulate furrows ................................................................. 2. A. nana

8b. Leaf blade suborbicular, broadly elliptic, or ovobovate, pubescent; pedicel 4–8 mm; hypanthium broadly campanulate.

10a. Shrub, rarely trees, 2–3 m tall; leaf blade apically 3-lobed, margin coarsely serrate or biserate; endocarp subglobose, surface reticulate, apex obtuse ................................................................. 3. A. triloba

10b. Shrub, 1–2 m tall; leaf blade apically not lobed, margin irregularly coarsely serrate; endocarp broadly ovoid, surface smooth to slightly rugose, apex mucronulate .................................................. 4. A. pedunculata

Cultivated in Gansu, Shaanxi, Shandong, and Xinjiang [probably native to SW Asia].

Cultivated varieties of almonds have been named for whether the seeds are sweet or bitter and whether the endocarp is hard or fragile.


矮扁桃  ai bian tao

Amygdalus ledebouriana Schlechtendal; Prunus nana (Linnaeus) Stokes (1812), not Du Roi (1772); P. tenella Batsch.

Shrubs 1–1.5 m tall. Branches erect-divaricate, with many short branchlets; first year’s branchlets grayish white to reddish brown; older branchlets reddish gray or gray, glabrous. Winter buds brown, ovoid, 2–4 mm, glabrous, apex obtuse to acute. Sepals linear to linear-lanceolate, 5–10 × 1.5–3 mm, margin entire or slightly dentate. Leaves on short branchlets sessile and in clusters, those on long branchlets often solitary and alternate; petiole 4–7 mm, glabrous; leaf blade narrowly oblong, oblong-lanceolate, or lanceolate, 2.5–6 × 0.8–3 cm, both surfaces glabrous, base narrowly cuneate to attenuate, margin minutely and shallowly obtusely serrate, apex acute to ± obtuse. Flowers solitary, opening at same time as leaves, ca. 2 cm in diam. Pedicel 3–6 mm, 5–7 mm in fruit, yellowish pubescent, surrounded by brown bud scales. Hypanthium purplish brown, cylindrical, 5–8 × 2–4 mm, outside glabrous. Sepals ovate to obovate-lanceolate, 3–4 mm, outside glabrous, margin slightly serrate and with ± remote glands. Petals pink, irregularly obovate to oblong, 10–17 × 4–8 mm, base cuneate, apex obtuse to shallowly emarginate. Stamens many, shorter than petals. Ovary densely villous. Style nearly as long as stamens. Drupe ovoid to ovoid-globose, 1–2(–2.5) × 1.2–1.8 cm, densely straw yellow villous; mesocarp dry, splitting when ripe; endocarp ovoid-globose to elongate ovoid-globose, compressed, 0.8–1.8–2.2 × 1–1.5(–1.7) cm, with thick curved ventral and ± keeled dorsal sutures, surface with irregular shallow reticulate furrows, base somewhat oblique, apex obtuse. Fl. Apr–May, fr. Jun–Jul.

Grasslands, valleys, hollows, dry slopes; below 1200 m. Xinjiang [Russia; SW Asia, Europe].


榆叶梅  yu ye mei

Prunus triloba Lindley, Gard. Chron. 1857: 268. 1857;
Amygdalus triloba var. plena (Dippel) S. Q. Nie; A. triloba var. truncata (Komarov) S. Q. Nie; Cerasus triloba A. I. Baranow & Liou; C. triloba var. plena (Dippel) A. I. Baranow & Liou; C. triloba var. truncata (Komarov) A. I. Baranov & Liou; Prunus triloba var. plena Dippel; P. triloba var. truncata Komarov.

Shrubs, rarely trees, 2–3 m tall. Branches spreading, much branched; current year’s branchlets gray to grayish black; previous year’s branchlets grayish brown, glabrous or slightly pubescent when young, glabrescent. Winter buds brown, 2–3 mm, apex acute; scale margins pubescent. Leaves on short branchlets often fascicled, those on long branches alternate; petiole 5–10 mm, pubescent; leaf blade broadly elliptic to obovate, 2–6 × 1.5–3(–4) cm, abaxially pubescent, adaxially pilose or glabrous, base broadly cuneate, margin coarsely serrate or biserrate, apex shortly acuminate and usually 3-lobed. Flowers 1 or 2, opening before leaves, 2–3 cm in diam. Pedicel 4–8 mm, 5–10 mm in fruit, glabrous or initially puberulous. Hypanthium broadly campanulate, 3–5 mm, outside glabrous or puberulous. Sepals ovate to ovate-lanceolate, nearly as long as hypanthium, outside puberulous or glabrous, margin sparsely minutely serrate near apex. Petals pink, suborbicular to broadly obovate, 6–10 mm, apex obtuse to emarginate. Stamens 25–30, shorter than petals. Ovary densely pubescent. Style somewhat longer than stamens. Drupe subglobose, 1–1.8 cm in diam., pubescent, apex mucronulate; mesocarp thin, splitting when ripe; endocarp subglobose, ± un compressed on both sides, 1–1.6 cm in diam., surface irregularly reticulate, apex obtuse. Fl. Apr.–May, fr. May–Jul.

Forests, thickets; 600–2500 m. Anhui, Gansu, Hebei, Henan, Heilongjiang, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Zhejiang [Korea, Russia].

Single- and double-flowered cultivars are cultivated as garden ornaments.


长梗扁桃 chang geng bian tao

Amygdalus pilosa Turczaninow; Prunus pedunculata (Pallas) Maximowicz; P. pilosa (Turczaninow) Maximowicz.

Shrubs 1–2 m tall. Branches spreading, with many short branchlets; branchlets brownish to dark grayish brown, pubescent initially, glabrescent. Winter buds often 3, collateral in leaf axil on short branchlets, lateral ones flower buds, central one a leaf bud. Stipules linear, narrow, 2–4 mm. Leaves on short branchlets densely fascicled, those on long branches alternate; petiole 2–5(–10) mm, pubescent; leaf blade elliptic, suborbicular, or obovate, 1–4 × 0.7–2 cm, both surfaces pilose, abaxially greenish, adaxially dark green, base broadly cuneate, margin irregularly coarsely serrate, apex acute to ± obtuse; secondary veins 4–6 on either side of midvein. Flowers solitary, opening slightly before leaves, 1–1.5 cm in diam. Pedicel 4–8 mm, not much elongated in fruit, pubescent. Hypanthium broadly campanulate, 4–6 mm, outside glabrous or puberulous. Sepals triangular-ovate, 2–3 mm, outside glabrous or puberulous, margin sometimes shallowly serrate, apex obtuse. Petals pink, suborbicular, 7–10 mm in diam., apex occasionally emarginate. Stamens many, unequal in length. Ovary densely pubescent. Style nearly as long as shorter stamens. Drupe dark purplish red, subglobose to ovoid-globose, 1–1.5 cm in diam., densely pubescent, apex mucronulate, mesocarp thin and dry, separating from endocarp and splitting at maturity; endocarp brownish, broadly ovoid, slightly compressed laterally, 0.8–1.2 cm in diam., surface smooth, scabrous, or slightly rugose, base orbicular, apex mucronulate. Seed brownish yellow, broadly ovoid. Fl. May–Jun., fr. Jul.–Aug.

Sunny pebbly slopes, steppes. Nei Mongol, Ningxia, Shaanxi [Mongolia, Russia].


西康扁桃 xi kang bian tao


Shrubs 1–2(–4) m tall, dense. Branches spreading, spiny; branchlets grayish brown, glabrous, with many inconspicuous lenticels. Leaves on short branchlets mostly in clusters, those on long branches usually alternate; petiole 5–10 mm, puberulous; leaf blade elliptic, obovate, or obovate-oblan ceolate, 1.5–4 × 0.5–1.5 cm, both surfaces glabrous, abaxially greenish, adaxially dark green, base cuneate, margin minutely obtusely dentate, apex obtuse to acute and mucronate; secondary veins 5–8 on either side of midvein. Flowers solitary, 2–2.5 cm in diam., sessile or subsessile. Hypanthium outside glabrous. Sepals long elliptic, 3–4 mm, outside glabrous, margin indistinctly minutely serrate. Petals pink, fading almost to white, obovate, 7–10 mm. Stamens 25–30, in 2 whorls. Ovary ovoid, ca. 1 mm, pubescent. Style over 5 mm, hairy. Drupe purplish red, subglobose to ovoid-globose, 1.5–2 cm in diam., densely pubescent; mesocarp thin and dry, splitting at maturity; endocarp subglobose, 1.3–1.8 cm in diam., surface inconspicuously shallowly furrowed but not pitted, ventral suture compressed and broad, base subtruncate, apex obtuse to ± acute. Fl. Apr.–May, fr. Jun–Jul.

● Sunny slopes, stream sides; 1500–2600 m. S Gansu, NW Sichuan.


蒙古扁桃 meng gu bian tao


Shrubs 1–2 m tall. Branches spreading, much branched; branchlets reddish brown when young, grayish brown with age, pubescent, often spine-tipped. Leaves on short branchlets mostly fascicled, those on long branches usually alternate; petiole 2–5 mm, glabrous; leaf blade broadly elliptic, suborbicular, or obovate, 8–15 × 6–10 mm, both surfaces glabrous, base cuneate, margin shallowly obtusely serrate, apex obtuse and sometimes mucronate; secondary veins ca. 4 on either side of midvein. Flowers solitary, rarely several fascicled on short branchlets. Pedicel very short, not much elongated in fruit,

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Trees 3–8 m tall, with a broad and ± horizontally spreading crown. Bark dark reddish brown, scabrous and squamose with age. Branchlets green but reddish on exposed side, slender, glabrous, lustrous, with many small lenticels. Winter buds often 2 or 3 in a fascicle, conical, pubescent, apex obtuse. Petiole robust, 1–2 cm, with or without 1 to several nectaries; leaf blade oblong-lanceolate, elliptic-lanceolate, or obovate-oblanceolate, 7–15 × 2–3.5 cm, abaxially with or without a few hairs in vein axils, adaxially glabrous, base broadly cuneate, margin finely to coarsely serrate, apex acuminate. Flowers solitary, opening before leaves, 2–3.5 cm in diam. Pedicel very short to flower sessile. Hypanthium green with a red tinge, shortly campanulate, 3–5 mm, outside pubescent or rarely subglabrous. Sepals ovate to oblong, ± as long as hypanthium, outside pubescent to rarely subglabrous, apex obtuse. Petals pink or white, oblong-elliptic to broadly obovate, 1–1.7 × 0.9–1.2 cm. Stamens 20–30; anthers purplish red. Ovary subsessile. Hypanthium shortly campanulate, outside green with a reddish tinge. Sepals ovate to ovate-oblong, ± as long as hypanthium, outside pubescent to rarely subglabrous, apex obtuse. Petiole robust, 0.5–2 cm, with 2–8 nectaries; leaf blade lanceolate, 7–15 × 2–3 cm, abaxially pilose in vein axils, adaxially glabrous, base broadly cuneate to rounded, margin crenate with gland-tipped teeth, apex acuminate; secondary veins 12–14 on either side of midvein. Flowers solitary, opening before leaves, 3–4 cm in diam. Pedicel very short. Hypanthium shortly campanulate, outside green with a reddish tinge. Sepals ovate to ovate-oblong, outside pubescent. Petals pink, suborbicular to oblong, 1.5–1.7 cm in diam. Stamens many, unequal in length, shorter than petals. Ovary pubescent. Style shorter than stamens. Drupe greenish white, rarely golden yellow, sometimes with a reddish tinge, compressed globose, rarely subglobose, 3.5–5.5 × 4.4–7 cm, pubescent, very rarely glabrous, occasionally slightly glaucous; mesocarp succulent, sour-sweet, fragrant, separating from endocarp, not splitting when ripe; endocarp flattened globose, rarely subglobose to broadly ellipsoid, compressed on both sides, 1.7–3.5 × 1.3–3 cm, surface longitudinally furrowed and very sparsely pitted, base subtruncate, apex long acuminate. Seed bitter to slightly sweet. Fl. Mar–Apr, fr. Jul–Aug.

Cultivated throughout China, escaped from cultivation in waste fields or on disturbed slopes; 1500–2200 m. Escaped from cultivation in at least Gansu, Hebei, and Shanxi.

Although native to N China, truly wild peaches no longer exist. Peaches are important, fruit-bearing and ornamental plants cultivated throughout temperate and subtropical zones. Cultivated varieties have been named for whether the fruit are compressed or not, whether the fruit surface is pubescent or glabrous, and whether the endocarp is free or adnate to the mesocarp.


新疆桃 xin jiang tao


Trees to 8 m tall. Branchlets smooth, glabrous, lenticellate; current year’s branchlets reddish on exposed side, greenish on shady side, shiny; previous year’s branchlets reddish brown, squamose, with many lenticils. Winter buds 2 or 3 in leaf axils, pubescent. Petiole robust, 0.5–2 cm, with 2–8 nectaries; leaf blade lanceolate, 7–15 × 2–3 cm, abaxially pilose in vein axils, adaxially glabrous, base broadly cuneate to rounded, margin crenate with gland-tipped teeth, apex acuminate; secondary veins 12–14 on either side of midvein. Flowers solitary, opening before leaves, 3–4 cm in diam. Pedicel very short. Hypanthium shortly campanulate, outside green with a reddish tinge. Sepals ovate to ovate-oblong, outside pubescent. Petals pink, suborbicular to oblong, 1.5–1.7 cm in diam. Stamens many, unequal in length, shorter than petals. Ovary pubescent. Style shorter than stamens. Drupe greenish white, rarely golden yellow, sometimes with a reddish tinge, compressed globose, rarely subglobose, 3.5–5.5 × 4.4–7 cm, pubescent, very rarely glabrous, occasionally slightly glaucous; mesocarp succulent, sour-sweet, fragrant, separating from endocarp, not splitting when ripe; endocarp flattened globose, rarely subglobose to broadly ellipsoid, compressed on both sides, 1.7–3.5 × 1.3–3 cm, surface longitudinally furrowed and very sparsely pitted, base subtruncate, apex long acuminate. Seed bitter to slightly sweet. Fl. Mar–Apr, fr. Jul–Aug.

Cultivated in Xinjiang [cultivated in Kyrgyzstan and Uzbekistan].

This species is cultivated for its fruit, and the original, native distribution is uncertain.


山桃 shan tao

Trees to 10 m tall, crown ± spreading. Bark dark purplish red, smooth. Branchlets brown with age, slender, erect, glabrous when young. Winter buds reddish brown, ovoid, 2–5 mm, glabrous, apex acute. Petiole 1–2 cm, glabrous, usually with nectaries; leaf blade ovate-lanceolate, 5–13 × 1.5–4 cm, both surfaces glabrous, base cuneate to rounded, margin acutely or obtusely serrate, apex acuminate. Flowers solitary, opening before leaves, 2–3 cm in diam. Pedicel very short to flower subsessile. Hypanthium campanulate, outside glabrous. Sepals

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glabrous. Hypanthium campanulate, 3–4 mm, outside glabrous. Sepals oblong, nearly as long as hypanthium, outside glabrous, apex abruptly mucronate. Petals pink, obovate, 5–7 mm. Stamens many, unequal in length. Ovary pubescent. Style slender, ± as long as stamens, pubescent. Drupe broadly ovoid-globose, 1.2–1.5 × 1–1.2 cm, pubescent, apex acute; mesocarp thin, separating from endocarp and splitting at maturity; endocarp ovoid, 0.8–1.3 cm, surface smooth, shallowly furrowed but not pitted, ventral suture flattened, base asymmetric, apex mucronulate. Seed pale brown, broadly compressed ovoid. Fl. May–Jun, fr. Aug–Sep.

Hill lands in desert or desert grasslands, stony slopes, dry river beds; 1000–2400 m. Gansu, Nei Mongol, Ningxia [Mongolia].
ovate to ovate-oblong, purplish red, nearly as long as hypan-
thium, outside glabrous, apex obtuse. Petals pink, obovate to
suborbicular, 1–1.5 × 0.8–1.2 cm, apex obtuse or rarely emar-
ginate. Stamens many, nearly as long as petals. Ovary pubes-
cent. Style longer than or ± as long as stamens. Drupe yel-
lowish, globose, subglobose, ellipsoid, or oblong, 2.5–3.5 cm in
diam., densely pubescent; mesocarp thin, dry, not splitting
when ripe; endocarp globose, subglobose, ellipsoid, or oblong,
not compressed on both sides, surface longitudinally and trans-
versely furrowed and pitted, separating from mesocarp, base

- Forests, thickets, slopes, mountain valleys, waste fields; 800–
  3200 m. Gansu, Hebei, Heilongjiang, Henan, Nei Mongol, Ningxia,
  Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan.

1a. Leaf blade base cuneate, margin acutely
  serrate; drupe and endocarp subglobose
to globose ................................. 9a. var. davidiana

1b. Leaf blade base broadly cuneate to
  rounded, margin obtusely serrate; drupe
  and endocarp ellipsoid to oblong ......... 9b. var. potaninii

9a. Amygdalus davidiana var. davidiana

9b. Amygdalus davidiana var. potaninii

9a. var. davidiana

Persica davidiana Carrière, Rev. Hort. 1872: 74, 1872; 
Prunus davidiana (Carrière) Franchet; P. persica (Linnaeus) 
Batsch var. davidiana (Carrière) Maximowicz.

Leaf blade base cuneate, margin acutely serrate. Drupe
and endocarp subglobose to globose.

- Forests, thickets, slopes, mountain valleys, waste fields; 800–
  3200 m. Gansu, Hebei, Heilongjiang, Henan, Nei Mongol, Ningxia,
  Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan.

9b. var. potaninii

Persica potaninii (Batalin) T. T. Yu & 

9b. var. potaninii

P. persica (Linnaeus) Batsch var. potaninii Batalin, 
Trudy Imp. S.-Peterburgsk Bot. Sada 12: 164. 1892; Amygdalus 
persica Linnaeus var. potaninii (Batalin) Ricker; Persica 
potaninii (Batalin) Kovalev & Kostina; Prunus davidiana 
(Carrière) Franchet var. potaninii (Batalin) Rehder.

Leaf blade base broadly cuneate to rounded, margin ob-
tusely serrate. Drupe and endocarp ellipsoid to oblong.

- Sparse forests, thickets on slopes; 900–2000 m. Gansu, Shaanxi,
  Shanxi.

Wash. 38: 87. 1925.

10. Amygdalus kansuensis

Prunus kansuensis (Rehder) J. Arnold Arbor. 3: 21. 1921; 
Persica kansuensis (Rehder) Kovalev & Kostina.

Trees or shrubs, 3–7 m tall. Branchlets greenish brown,
later reddish brown on exposed side, slender, glabrous, with
indistinct small lenticels. Winter buds ovoid to long ovoid, gla-

brous, apex ± obtuse. Petiole 5–10 mm, glabrous, usually with-
out nectaries; leaf blade ovate-lanceolate to lanceolate, 5–12 × 
1.5–3.5 cm, broadest basally from middle, abaxially pubescent 
on midvein near base or glabrous, adaxially glabrous, base
broadly cuneate, margin sparsely thinly serrate with teeth
gland-tipped or not, apex acuminate. Flowers solitary, opening
before leaves, 2–3 cm in diam. Pedicel very short to nearly
absent, 4–5 mm in fruit. Hypanphylum campanulate, outside 
pubescent or rarely subglabrous. Sepals ovoid to ovate-oblong,
shorter than hypanphylum, outside pubescent or rarely subglab-
rous, apex obtuse. Petals white or pinkish, suborbicular to
broadly obovate, base tapering into claws, margin sometimes 
undulate or shallowly incised, apex obtuse. Stamens 20–30, un-
equal in length, shorter than petals. Ovary pubescent. Style
longer than stamens. Drupe yellowish, ovoid-globose to subgl-
obose, ca. 2 cm in diam., densely pubescent; mesocarp fleshy,
not splitting at maturity; endocarp subglobose, compressed, on
both sides, surface longitudinally and transversely shallowly
furrowed but not pitted, base truncate and symmetric, apex

- Mountain areas; 1000–2300 m. Gansu, Hubei, Qinghai, Shaan-
xi, Sichuan.

11. Amygdalus mira

(Rehder) Kovalev & Kostina

Trees to 10 m tall. Branchlets green when young, grayish
brown with age, slender, spreading, glabrous, with purplish
brown small lenticels. Winter buds purplish brown, ovoid, 3–6
mm, glabrous, apex acute. Petiole 0.8–1.5 cm, glabrous, often 
with flattened purplish red nectaries; leaf blade lanceolate 
to ovate-lanceolate, 5–11 × 1.5–4 cm, abaxially pubescent along
midvein, adaxially glabrous, base broadly cuneate to subround-
ed, margin shallowly crenate but entire near apex and teeth
usually gland-tipped, apex acuminate. Flowers solitary, opening
before leaves, 2.2–3 cm in diam. Pedicel 1–3 mm, 4–5 mm in
fruit, glabrous. Hypanphylum campanulate, purplish brown, out-
side glabrous. Sepals ovate to narrowly ovate, purplish green,
outside glabrous or slightly villous along margin, apex obtuse.
Petals pink, broadly obovate, 1–1.5 cm, apex emarginate. Sta-
mens many, much shorter than petals. Ovary densely pubes-
cent. Style longer than or ± as long as stamens. Drupe sub-
globose, ca. 3 cm in diam., densely pubescent; mesocarp fleshy,
not splitting when ripe; endocarp compressed ovoid-
globose, ca. 2 cm, slightly flattened on both sides, surface
smooth and with few longitudinal shallow furrows only on
dorsal and ventral sides, base subtruncate and slightly asym-

- Slopes in mixed forests, mountain valleys, ravines; 2000–4000 m.
  Sichuan, Xizang, Yunnan [Russia].

This species is cultivated for its fruit and seeds. It is often uncer-
tain whether collections are wild, cultivated, or escaped from cultiva-
tion.
49. ARMENIACA Scopoli, Meth. Pl. 15. 1754.

杏属 xing shu

Lu Lingdi (陆玲娣 Lu Ling-di); Bruce Bartholomew

Trees, rarely shrubs, deciduous. Branches unarmed, rarely spiny. Axillary winter bud solitary; terminal winter bud absent. Stipules present. Leaves simple, alternate, convolute when young; petioles usually with 2 nectaries; leaf blade margin singly or doubly serrate. Inflorescences apparently axillary, 1–3-flowered. Flowers bisexual, regular, solitary or to 3 in a fascicle, opening before leaves or rarely with leaves. Pedicel nearly absent to very short, rarely longer. Hypanthium caducous in fruit. Sepals 5, imbricate. Petals 5, inserted on mouth of hypanthium, imbricate. Stamens 15–45, perigynous; filaments free, filiform. Carpel 1 (or 2); ovary superior, hairy, 1-loculed; ovules 2, collateral, pendulous. Style terminal, elongated. Fruit a drupe, ± laterally compressed, hairy, rarely glabrous, with a conspicuous longitudinal groove; mesocarp succulent or fleshy, not splitting when ripe, rarely dry and splitting when ripe; endocarp hard, 2-valved, compressed on both sides, surface smooth, scabrous, or reticulate, rarely pitted, separating from or adnate to mesocarp. Seeds bitter or sweet.

About 11 species: E to SW Asia; ten species (five endemic) in China.

Armeniaca is widespread in China and is especially common in N China, but its distribution center is the middle and lower reaches of the Huang He. Many species and varieties are cultivated for their edible fruit and a few for their edible seeds. Many species are also grown as ornamentals. The seeds are sweet or bitter and are rich in oil and protein. Seeds are used as food or medicine and the oil is used in light industry. The high quality wood is also used commercially.

1a. First year’s branchlets green ................................................. 10. A. mume
1b. First year’s branchlets grayish brown to reddish brown.

2a. Leaf blade margin biserrate .................................................. 9. A. mandshurica
2b. Leaf blade margin not biserrate.

3a. Drupe dark purplish red .......................................................... 8. A. dassycarpa
3b. Drupe yellow to yellowish red, rarely white, with or without a red tinge.

4a. Leaf blade usually glabrous on both surfaces, rarely abaxially pubescent in vein axils (sometimes adaxially white pubescent in A. vulgaris).

5a. Petiole 1.8–2.1 cm; leaf blade elliptic to obovate-elliptic; sepals not reflexed ................................. 2. A. limeixing
5b. Petiole 2–3.5 cm; leaf blade ovate, suborbicular, or suborbicular-ovate; sepals apically recurved or reflexed.

6a. Trees 5–8 (–12) m tall; mesocarp succulent, not splitting when ripe ........................................ 1. A. vulgaris
6b. Shrubs or trees 2–5 m tall; mesocarp dry, splitting when ripe ........................................ 3. A. sibirica

4b. Leaf blade pubescent on both surfaces, somewhat glabrescent (often adaxially glabrous in A. hypotrichodes).

7a. Leaf blade ovate to elliptic-ovate, pubescent abaxially; fruiting pedicel 4–7 mm ........................ 4. A. holosericea
7b. Leaf blade elliptic, oblong, or lanceolate (sometimes elliptic-ovate in A. hongpingensis), densely villous abaxially; fruiting pedicel more than 7 mm.

8a. Leaf blade lanceolate, adaxially usually glabrous, apex acute; sepal margin ciliato-glandular ................................................................. 7. A. hypotrichodes
8b. Leaf blade elliptic to oblong, adaxially sparsely pubescent to pilose, apex acuminate to caudate; sepal margin not ciliato-glandular.

9a. Petioles densely pubescent; leaf blade elliptic to elliptic-ovate, densely yellowish brown villous abaxially, base rounded; endocarp elliptoid, pitted ........................................ 5. A. hongpingensis
9b. Petioles glabrous; leaf blade elliptic to oblong, densely grayish villous abaxially, base truncate, rarely rounded; endocarp narrowly elliptoid, scabrous, shallowly reticulate, not pitted ........................................ 6. A. zhengheensis

1. Armeniaca vulgaris Lamarck, Encycl. 1: 2. 1783.

杏 xing

Trees 5–8 (–12) m tall, crown spherical, spherical-flattened, or elongated oblong. Bark grayish brown, longitudinally splitting. Older branchlets brownish, glabrous, transversely lenticellate; young branchlets reddish brown, with many pale lenticels. Winter buds purplish red, ovoid, 2–4 mm, glabrous or puberulous at scale margins, apex obtuse. Petiole 2–3.5 cm, glabrous or white pubescent, basally usually with 1–6 nectaries; leaf blade broadly ovate to orbicular-ovate, 5–9 × 4–8 cm, both surfaces glabrous, abaxially pubescent in vein axils, or adaxially white pubescent, base cuneate, broadly cuneate, rounded, or subcordate and with several nectaries, margin crenate, apex acute to shortly acuminate. Flowers solitary or occasionally paired, opening before leaves, 2–4.5 cm in diam. Pedicel 1–3 mm, pubescent. Hypanthium purplish green, shortly cylindrical, 5–7 × 3–4 mm, outside pubescent near base. Sepals purplish green, ovate to ovate-oblong, 3–5 mm, reflexed after anthesis, apex acute to rarely obtuse. Petals white, pink, or tinged with red, orbicular to ovate, 0.8–1.2 cm and ± as broad, margin shortly unguiculate, apex rounded. Stamens 20–100, slightly

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shorter than petals; filaments white; anthers yellow. Ovary pubescent. Style slightly longer than or nearly as long as stamens, basally pubescent. Drupe white, yellow, orange, often tinged red, globose, ovoid, or rarely obvoid, 1.5 to more than 2.5 cm in diam., usually pubescent, glaucous or not; mesocarp succulent, not splitting when ripe; endocarp globose, ovoid, or ellipsoid, compressed laterally, often obtuse at ventral suture and more straight at dorsal suture, with keel-like ribs on ventral side, surface scabrous or smooth, base symmetric or rarely asymmetric, apex obtuse to ± rounded. Seed bitter or sweet. Fl. Mar–Apr, fr. Jun–Jul.

1b. Petiole and leaf blade yellowish brown pubescent; leaf base asymmetric ......... 1a. var. xiongyueensis

1a. Petiole and leaf blade yellowish brown pubescent ................................. 1e. var. xiongyueensis

2a. Flowers double, ca. 4–4.5 cm in diam.; stamens ca. 100 ............... 1d. var. meixianensis

2b. Flowers single, 2–3 cm in diam.; stamens 20–50.

3a. Leaf base cuneate to broadly cuneate; flowers usually 2; petals pink; endocarp surface reticulate ............. 1c. var. ansu

3b. Leaf base rounded to subcordate; flowers usually solitary; petals white or tinged with red; endocarp surface not reticulate.

4a. Petioles and adaxial surface of leaf blades glabrous; drupe more than 2.5 cm in diam.; endocarp surface scabrous or smooth, base symmetric or rarely asymmetric ............................. 1a. var. vulgaris

4b. Petioles and adaxial surfaces of leaf blades white pubescent; drupe 1.5–2 cm in diam.; endocarp surface smooth, base asymmetric ......... 1b. var. zhidanensis

**1a. Armeniaca vulgaris var. vulgaris**

杏(原变种) xing (yuán biàn zhòng)

*Prunus armeniaca Linnaeus; P. tiliifolia* Salisbury.

Petiole glabrous; leaf base rounded to subcordate, both surfaces sparsely pubescent or adaxially glabrous. Flowers solitary. Drupe more than 2.5 cm in diam.; endocarp surface scabrous or smooth, base usually symmetric or rarely asymmetric.

Sparse forests on mountain slopes, also cultivated; 700–3000 m. Gansu, Hebei, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang [C Asia].


志丹杏 zhì dān xìng


Petiole white pubescent; leaf base rounded to subcordate, adaxially white pubescent. Flowers solitary. Drupe 1.5–2 cm in diam.; endocarp surface smooth, base asymmetric.

- Cultivated or wild. Ningxia, Qinghai, Shaanxi, Shanxi.


陕梅 xīn méi


Slopes, gullies, also cultivated; 1000–1500 m. Gansu, Hebei, Henan, Jiangsu, Liaoiong, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang [Japan, Korea].


陕梅 xīn méi


- Cultivated or wild; near sea level. S Liaoning (Xiongyue).


熊岳杏 xióng yuè xìng

Petiole and leaf blade yellowish brown pubescent.

- Cultivated or wild; near sea level. S Liaoning (Xiongyue).


李梅杏 lǐ mei xìng

Trees 3–4 m tall, spreading. Trunk scabrous, bark grayish brown. Perennial branches grayish brown; previous year’s branches yellowish brown on exposed side, green to reddish brown on adaxial side, glabrous, with sparse flattened orbicular lenticels. Petiole 1.8–2.1 cm, glabrous, with 2–4 nectaries; leaf blade elliptic to obovate-elliptic, 6–7 × 3–4 cm, both surfaces glabrous or abaxially pubescent in vein axils, base cuneate, margin shallowly obtusely dentate, apex acuminate to caudate; midvein yellowish white. Flowers solitary to 3 in clusters, opening before or at same time as leaves, 1.5–2.5 cm in diam., slightly fragrant. Pedicel 3–8 mm, 4–12 mm in fruit, glabrous or rarely pubescent. Hypanths yellowish green to reddish brown, campanulate, outside glabrous. Sepals green, rarely
3a. **Armeniaca sibirica** var. **sibirica**


Flowers single. Petioles, leaf blades, and pedicels often glabrous.

*Forests, thickets, hill grasslands, dry sunny slopes; 700–2000 m.* Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shanxi [Korea].


*Flowers double. Petioles and leaf blades glabrous.*

*Forests, thickets, hill grasslands, dry sunny slopes; 700–2000 m.* Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shanxi [Korea].


*Flowers double. Petioles and leaf blades glabrous.*

*Slopes; ca. 400 m.* E Hebei (Qinglong Xian).


*Flowers double. Petioles and leaf blades pubescent.*

*Mountainous areas; ca. 800 m.* W Liaoning (Beipiao Xian).


*Flowers double. Petioles and leaf blades pubescent.*

*Trees 4–5 m tall. Branchlets reddish brown to grayish brown, pubescent when young, gradually glabrescent. Winter buds brown, ovoid. Petiole 1.5–2 cm, pubescent, usually with nectaries; leaf blade ovate to elliptic-ovate, 4–6 × 3–5 cm, both surfaces pubescent when young but glabrous, base rounded to subcordate, margin minutely serrate, apex acuminate. Flows unknown. Fruit pedicle 4–7 mm. Drupe ovoid-globose to ovoid-ellipsoid, 2–3 cm in diam., densely pubescent; mesocarp slightly fleshy, not splitting when ripe; endocarp ovoid-ellipsoid to ellipsoid, compressed laterally, ventral rib somewhat obtuse, surface rugose, base subsymmetric to slightly asymmetric, apex acute. Fr. Jun–Jul.*

*Thickets, sunny slopes, dry river valleys; 700–3300 m.* Qinghai, Shaanxi, Sichuan, SE Xizang.

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**Prunus sibirica** Linnaeus var. **sibirica**

山杏 (原变种) shan xing (yu an bian zhong)


Flowers single. Petioles, leaf blades, and pedicels often glabrous.

*Forests, thickets, hill grasslands, dry sunny slopes; 700–2000 m.* Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shanxi [Korea].

**Prunus sibirica** Linnaeus var. **pubescens** (Kostina) Nakai

Flowers single. Petioles, leaf blades, and pedicels pubescent but with age leaf blade only abaxially sparsely pubescent along veins.

*Sunny slopes in mixed forests, thickets, river valleys, grasslands; 1200–2000 m.* Gansu, Hebei, Nei Mongol, Shaanxi, Shanxi [Korea].


**Prunus armeniaca** Linnaeus var. **holosericea** Batalin, Trudy Imp. S.-Peterburgsk Bot. Sada 14: 167. 1895.

Trees 4–5 m tall. Branchlets reddish brown to grayish brown, pubescent when young, gradually glabrescent. Winter buds brown, ovoid. Petiole 1.5–2 cm, pubescent, usually with nectaries; leaf blade ovate to elliptic-ovate, 4–6 × 3–5 cm, both surfaces pubescent when young but glabrous, base rounded to subcordate, margin minutely serrate, apex acuminate. Flowers unknown. Fruit pedicle 4–7 mm. Drupe ovoid-globose to ovoid-ellipsoid, 2–3 cm in diam., densely pubescent; mesocarp slightly fleshy, not splitting when ripe; endocarp ovoid-ellipsoid to ellipsoid, compressed laterally, ventral rib somewhat obtuse, surface rugose, base subsymmetric to slightly asymmetric, apex acute. Fr. Jun–Jul.

*Thickets, sunny slopes, dry river valleys; 700–3300 m.* Qinghai, Shaanxi, Sichuan, SE Xizang.

洪平杏 hong ping xing

Armeniaca holosericea (Batalin) Kostina var. xupuensis T. Z. Li.

Trees to 10 m tall. Bark grayish brown, irregularly shallowly splitting. Branchlets pale brown to reddish brown, glabrescent. Winter buds small, ovoid. Petiole 1.5–2 cm, densely pubescent; leaf blade elliptic to elliptic-ovate, 6–10 × 2.5–5 cm, abaxially densely yellowish brown villous, adaxially sparsely pubescent, base rounded, margin densely acutely serrulate, apex narrowly acuminate to caudate. Flowers unknown. Fruiting pedicel 7–10 mm. Drupe subglobose, 3.5–4 × 3–3.5 cm, densely yellowish brown pubescent; mesocarp edible; endocarp ellipsoid, compressed on both sides, ventral rib obtuse, longitudinally furrowed on ventral side, surface pitted, base subsymmetric, apex acute. Fr. Jun–Jul.

- Along trails, sometimes cultivated in villages; 200–1800 m. W Hubei, W Hunan (Xupu Xian).

This species is cultivated for its edible fruit.


政和杏 zheng he xing

Trees 35–40 m tall, erect. Bark dark brown, somewhat smooth, flaking into pieces. Older branchlets grayish brown; younger branchlets reddish brown, smooth, pubescent, with dense and transverse lenticels; new shoots reddish brown on exposed side, green on opposite side. Petiole red, 1.3–1.5 cm, usually glabrous, with 2–4(–6) nectaries apically from middle; leaf blade elliptic to oblong, 7.5–15 × 3.5–4.5 cm, abaxially densely grayish villous, adaxially green and pilose on veins, base mostly truncate to rarely rounded, margin irregularly minutely gland-tipped serrate, apex acuminate to long caudate; midvein adaxially red or sometimes white. Flowers usually solitary, opening before leaves, ca. 3 cm in diam. Pedicel yellowish green, 3–4 mm, glabrous. Hypanthium basally green, apically reddish, campanulate, outside glabrous. Sepals purplish red, ligulate, reflexed after anthesis, outside glabrous. Petals white, elliptic, 1.3–1.5 × 0.8–0.9 cm, base shortly unguiculate, apex obtuse. Stamens 25–30, longer than petals. Drupe yellow, tinged red on exposed side, ovoid-globose, slightly pubescent; mesocarp succulent, sweet, adnate to endocarp and not splitting along suture when ripe; endocarp yellowish brown, narrowly ellipsoid, compressed laterally, 2–2.5 cm, ventral and dorsal ribs obtuse, rarely without lateral ribs, with a deep furrow running from apex to base, surface scabrous and shallowly reticulate but not pitted, base symmetric, apex obtuse. Seed compressed ellipsoid, bitter. Fl. Mar–Apr, fr. Jun–Jul.

- Mountain regions; 700–1000 m. N Fujian (Zhenghe Xian).


背毛杏 bei mao xing


Shrubs to 3 m tall. Branchlets glabrous, dark brown initially, later brownish gray. Winter buds ovoid, brown; scales orbicular, imbricate, margin pilose. Stipules small, lanceolate, caducous, margin glandular denticulate. Petiole 1–1.5 cm, usually glabrous, with 1–3 nectaries; leaf blade lanceolate, 5–12 × 1.5–4 cm, broadest near middle, abaxially brownish villous, adaxially glabrous or rarely pilose on veins, base narrowly subrounded, margin irregularly minutely gland-tipped serrate, apex acute. Flowers solitary, opening slightly before or with leaves, ca. 3 cm in diam. Pedicel 7–10 mm, glabrous. Hypanthium subcampanulate to obconic, outside glabrous. Sepals ligulate, shorter than hypanthium, reflexed, outside glabrous, margin ciliate glandular. Petals white, long obovate, 1.2–1.5 × 0.8–0.9 cm, base shortly and broadly unguiculate, margin entire, apex obtuse. Stamens ca. 30, arranged in several whorls, outer ones nearly as long as petals, inner ones shorter than petals; filaments slender, glabrous; anthers small, orbicular. Ovary densely villous. Style slender, slightly longer than or nearly as long as stamens, basally hisrate; stigma dilated. Drupe unknown. Fl. Mar–Apr.

- Calcareous mountain areas; ca. 1400 m. Chongqing (Chengkou Xian).


紫杏 zi xing

Prunus dasycarpa Ehrhart, Beitr. Naturk. 6: 90. 1791; Armeniaca atropurpurea Loiseleur-Deslongchamps; A. dasycarpa (Ehrhart) Persoon; A. fusca Turpin & Poiteau; Prunus armeniaca Linnaeus var. dasycarpa (Ehrhart) K. Koch.

Trees 4–7 m tall. Branchlets many, purplish red, somewhat thin, smooth and glabrous when young. Petiole thin, short, with or without small nectaries; leaf blade ovate to elliptic-ovate, 4–7 × 2.5–5 cm, abaxially pubescent along veins or in vein axils, adaxially dark green and glabrous, base cuneate to subrounded, margin irregularly densely minutely crenate, apex shortly acuminate. Flowers usually solitary (or 2), opening before leaves, ca. 2 cm in diam. Pedicel 4–7 mm, 7–12 mm in fruit, thinly pubescent. Hypanthium reddish brown, campanulate, outside subglabrous. Sepals reddish brown, suborbicular to broadly oblong, subglabrous, apex obtuse. Petals white or with pink spots, broadly obovate to spatulate, to 1 cm. Stamens many, nearly as long as petals. Ovary thinly pubescent. Drupe dark purplish red, subglobose, ca. 3 cm in diam., thinly pubescent, glaucous; mesocarp succulent, sour, adnate to endocarp; endocarp ovoid to ellipsoid-ovoid, compressed laterally, ventral and dorsal ribs slightly obtuse, surface longitudinally furrowed and coarsely scabrous or slightly pitted, base subsymmetric, apex acute. Seed bitter, rarely sweet. Fl. Apr.–May, fr. Jun–Jul.

Cultivated. Xinjiang [Kashmir, Russia; SW Asia].

This species is cultivated for its edible fruit and seeds and is unknown in the wild.


东北杏 dong bei xing
Rosaceae

Trees 5–15 m tall. Bark dark gray, deeply splitting. Branchlets reddish brown to greenish, glabrous. Winter buds purplish brown, ovoid, 2–4 mm, apex obtuse; scale margins glabrous or puberulous. Petiole 1.5–3 cm, puberulous, often with 2 nectaries; leaf blade broadly ovate to broadly elliptic, 5–12(–15) × 3–6(–8) cm, both surfaces glabrous or pubescent but gradually glabrescent and only abaxially pubescent in vein axes with age, base broadly cuneate, rounded, or sometimes cordate, margin irregularly acutely elongately biserate, apex acuminate to caudate. Flowers solitary, opening before leaves, 2–3 cm in diam. Pedicel 7–10 mm, glabrous or sparsely pubescent when young. Hypanthesis reddish brown, campanulate, outside usually glabrous. Sepals reddish brown, oblong to elliptic-oblong, outside usually glabrous, margin inconspicuously minutely serrate, apex obtuse to acute. Petals pink or white, broadly obovate to suborbicular. Stamens many, slightly longer than or nearly as long as petals. Ovary densely pubescent. Drupe yellow, sometimes white tinged red or reddish orange, 1.5–2.6 cm in diam., pubescent; mesocarp slightly fleshy to dry, sour or somewhat bitter, edible in largefruited forms, fragrant; endocarp subglobose to broadly ellipsoid, compressed laterally, 1.3–1.8 × 1.1–1.8 cm, ventral suture somewhat obtuse, distinctly longitudinally furrowed on ventral and dorsal sides, surface pitted, base cuneate, obtuse, or rounded, apex obtuse and abruptly mucronate. Seed bitter, rarely sweet. Fl. Apr–May, fr. May–Jul.

Mixed forests, thickets, mountain regions, open sunny slopes; 200–1000 m. Heilongjiang, Jilin, Liaoning [Korea, E Russia].

The wood is very hard.

1a. Leaf blade pubescent on both surfaces when young, gradually glabrescent and only abaxially pubescent in vein axes with age. 9a. var. mandshurica

1b. Leaf blade glabrous on both surfaces. 9b. var. glabra

9a. Armeniaca mandshurica var. mandshurica

东北杏(原变种) dong bei xing (yuan bian zhong)


Leaf blade pubescent on both surfaces when young, gradually glabrescent and only abaxially pubescent in vein axes with age.

Mixed forests, thickets, open sunny slopes; 400–1000 m. Jilin, Liaoning [N Korea, E Russia].


光叶东北杏 guang ye dong bei xing


Leaf blade glabrous on both surfaces.

Mountain regions; 200–400 m. Heilongjiang, Jilin, Liaoning [Korea].


梅 mei

Trees, rarely shrubs, 4–10 m tall. Bark grayish to tinged with green, smooth. First year’s branchlets green, smooth, glabrous or densely incanaceous. Winter buds purplish brown, ovoid, 3–6 mm, glabrous, apex acute. Petiole 1–2 cm, densely incanaceous or pubescent when young, often with nectaries; leaf blade ovate, ovate-elliptic, elliptic, obovate, or obovate-oblancoceolate, 4–8 × 2.5–5 cm, grayish green, both surfaces pubescent when young, gradually glabrescent or only abaxially pubescent in vein axes with age, base broadly cuneate to rounded, margin usually acutely serrulate, apex caudate. Flowers solitary or 2 in a fascicle, opening before leaves, 2–2.5 cm in diam., strongly fragrant. Pedicel 1–10 mm, glabrous. Hypanthesis usually reddish brown but green to greenish purple for some cultivated varieties, broadly campanulate, 2.5–4 mm, outside glabrous or sometimes pubescent. Sepals ovate to suborbicular, 3–5 mm, apex obtuse. Petals white or pink, obovate, 0.9–1.4 × 0.8–1.2 cm. Stamens shorter to slightly longer than petals. Ovary densely pubescent. Style shorter to slightly longer than stamens. Drupe yellow to greenish white, subglobose, 2–3 cm in diam., pubescent; mesocarp sour, adnate to endocarp; endocarp ellipsoid to subglobose, slightly compressed on both sides, ventral suture somewhat obtuse, distinctly longitudinally furrowed on ventral and dorsal sides, surface pitted, base cuneate, obtuse, or rounded, apex obtuse and abruptly mucronulate. Fl. winter–spring, fr. May–Jun (or Jul–Aug in N China).

Trees, rarely shrubs, 4–10 m tall. Bark grayish to tinged with green, smooth. First year’s branchlets green, smooth, glabrous or densely incanaceous. Winter buds purplish brown, ovoid, 3–6 mm, glabrous, apex acute. Petiole 1–2 cm, densely incanaceous or pubescent when young, often with nectaries; leaf blade ovate, ovate-elliptic, elliptic, obovate, or obovate-oblancoceolate, 4–8 × 2.5–5 cm, grayish green, both surfaces pubescent when young, gradually glabrescent or only abaxially pubescent in vein axes with age, base broadly cuneate to rounded, margin usually acutely serrulate, apex caudate. Flowers solitary or 2 in a fascicle, opening before leaves, 2–2.5 cm in diam., strongly fragrant. Pedicel 1–10 mm, glabrous. Hypanthesis usually reddish brown but green to greenish purple for some cultivated varieties, broadly campanulate, 2.5–4 mm, outside glabrous or sometimes pubescent. Sepals ovate to suborbicular, 3–5 mm, apex obtuse. Petals white or pink, obovate, 0.9–1.4 × 0.8–1.2 cm. Stamens shorter to slightly longer than petals. Ovary densely pubescent. Style shorter to slightly longer than stamens. Drupe yellow to greenish white, subglobose, 2–3 cm in diam., pubescent; mesocarp sour, adnate to endocarp; endocarp ellipsoid to subglobose, slightly compressed on both sides, ventral suture somewhat obtuse, distinctly longitudinally furrowed on ventral and dorsal sides, surface pitted, base cuneate, obtuse, or rounded, apex obtuse and abruptly mucronulate. Fl. winter–spring, fr. May–Jun (or Jul–Aug in N China).

Forested slopes, sparse forests, stream sides, slopes along trails, mountains, also commonly cultivated; below 3100 m. Native in W Sichuan and W Yunnan, perhaps also in N Taiwan; cultivated throughout most of China particularly in areas S of the Chang Jiang [Japan, Korea, N Laos, N Vietnam].

In addition to the varieties listed below, there are many cultivated varieties selected for their flowers or fruit.

1a. Branchlets and petioles densely incanaceous

1b. Branchlets glabrous, petioles pubescent when young but glabrescent.

2a. Leaf blade ovate to obovate-oblancoceolate; pedicel to 1 cm. 10c. var. cernua

2b. Leaf blade ovate, ovate-elliptic, or elliptic; pedicel usually not over 0.5 cm.

3a. Leaf blade thin; endocarp ellipsoid, base cuneate

3b. Leaf blade thick; endocarp subglobose, base obtuse to rounded

10a. Armeniaca mume var. mume

梅(原变种) mei (yuan bian zhong)


Prunus mume (Siebold) Siebold & Zuccarini; P. mume var. formosana Masamune; P. mume var. tonsa Rehder.

Leaf blade ovate to elliptic, thin. Pedicel short, 1–3 mm. Endocarp ellipsoid, base cuneate.
Commonly cultivated throughout most of China particularly in areas S of the Chang Jiang; perhaps native in N Taiwan [native to Japan and Korea].

This variety is cultivated for both its edible fruit and as an ornamental, but it is unknown in the wild in China except perhaps for plants in N Taiwan that have been called Prunus mume var. formosana (Mason, Annual Rep. Tainoku Bot. Gard. 2: 137. 1932).


Prunus mume (Siebold) Siebold & Zuccarini var. pallescens Franchet, Pl. Delavay. 197. 1890.

Leaf blade ovate to ovate-elliptic, thick, subleathery. Pedicel not over 5 mm. Endocarp subglobose, base obtuse to rounded.

- Forested slopes, stream sides; 1700–3100 m. W Sichuan, W Yunnan.


李属 li shu

Gu Cuizhi (谷粹芝 Ku Tsue-chii); Bruce Bartholomew

Trees or shrubs, deciduous. Branchlets sometimes spine-tipped. Axillary winter bud solitary, ovoid; terminal winter bud absent. Stipules membranous, soon caducous. Leaves simple, alternate, convolute [or conduplicate] when young; petiolate or sessile; petiole groove; mesocarp fleshy, not splitting when ripe; endocarp laterally compressed, smooth, rarely grooved or rugose.

Carpel 1; ovary superior, 1-loculed, glabrous or sometimes pubescent. Fruit a drupe, often glaucous, usually with a longitudinal groove; mesocarp fleshy, not splitting when ripe; endocarp laterally compressed, smooth, rarely grooved or rugose.


Many plum species are cultivated for their edible fruit and some for their flowers.

1a. Secondary veins and midvein at a less than 45° angle

1b. Secondary veins and midvein at a 45° angle.

2a. Young branchlets and bracts tomentose or pubescent; pedicel usually pubescent.

3a. Flowers solitary; fruiting pedicel erect; endocarp rugose

3b. Flowers usually 2 in a fascicle (but usually solitary in P. cerasifera); fruiting pedicel pendulous; endocarp nearly smooth

3. P. insititia

2b. Young branchlets and bracts glabrous or sparsely pubescent (densely pubescent in P. salicina var. pubipes);

pedicel glabrous or rarely pubescent.

4a. Leaf blade abaxially pubescent; drupe often glaucous

4b. Leaf blade abaxially glabrous or sparsely pubescent or pubescent on midvein; drupe not glaucous

(2). Prunus mume (Siebold) Siebold & Zuccarini var. formosana

5a. Leaf blade abaxially pubescent only on midvein; flowers usually solitary, very rarely 2 in a fascicle; endocarp smooth or scabrous

5b. Leaf blade abaxially glabrous or sparsely pubescent; flowers (2 or) 3 in a fascicle; endocarp rugose or grooved;

6a. Leaf blade glabrous; drupe 3.5–7 cm in diam.; endocarp rugose

6b. Leaf blade glabrous; drupe 1.5–2.5 cm in diam.; endocarp conspicuously grooved

7. P. assurienis


杏 xing li

Prunus simonii De Caen.; Persica simonii Maximowicz. Batsch var. nectarina Maximowicz.

Trees 5–8 m tall. Branches purple, glabrous; branchlets pale red, robust, glabrous. Winter buds purplish red, usually glabrous. Stipules linear, margin glandular, apex long acuminate. Petiole 1–1.3 cm, glabrous, apex often with 1 or 2 large nectaries on either side; leaf blade oblong-obovate, oblong-
lanceolate, or rarely elliptic, 7–10 × 3–5 cm, glabrous, abaxially pale green, adaxially dark green, base cuneate to broadly cuneate, margin conspicuously crenate or sometimes inconspicuously biserate, apex acuminate to acute; midvein and secondary veins abaxially conspicuous, adaxially conspicuously impressed, at a less than 45° angle with each other. Flowers 2 or 3 in a fascicle, rarely solitary, 1.5–2 cm in diam. Pedicel 2–5 mm, glabrous. Hypanthium outside glabrous. Sepals oblong, glabrous, margin glandular, apex obtuse. Petals white, oblong, base cuneate and shortly clawed, apex obtuse. Ovary glabrous. Stigma disk-shaped. Drupe red, appressed globose, 3–5(–6) cm in diam., glabrous; mesocarp pale yellow, fragrant; endocarp brown, ovoid to ellipsoid, ± broadly ellipsoid, or conical, 1–1.5 cm in diam., glabrous, margin glandular ciliate, apex acuminate. Petiole 1–2(–2.5) cm, pubescent; leaf blade ovate, elliptic, or rarely oblong, 3.5–6(–8) × 2–4 cm, pubescent, soon glabrescent, abaxially pale green, adaxially dark green, base cuneate to broadly cuneate and with a pair of nectaries, margin coarsely serrate with teeth apex obtuse and gland-tipped, apex acute to obtuse; midvein and secondary veins prominent. Flowers 2(or 3) in a fascicle, rarely solitary, 2–2.5 cm in diam. Pedicel 1–1.5 cm, pubescent. Hypanthium outside subglabrous. Sepals narrowly ovate to oblong, outside subglabrous, margin entire or repand, apex obtuse to shortly acute. Petals white and inconspicuously purplish veined, broadly ovate, base broadly cuneate and with a short claw, apex obtuse. Stamens 20–25. Ovary glabrous. Stigma disk-shaped. Drupe bluish black, subglobose to ovoid, 1–2.5 cm in diam., glabrous; endocarp small, ± flattened, nearly smooth. Fl. Apr–May, fr. Jun–Sep.

Native in Hebei; widely cultivated in N China.

This species is cultivated for its edible fruit and has many cultivars.


黑刺李 hei ci li

Prunus domestica Linnaeus var. spinosa (Linnaeus) Kuntze.

Shrubs, rarely trees, 4–8 m tall. Branches reddish brown, robust, glabrous, spiny; branchlets reddish brown, densely pubescent. Winter buds purplish red, pubescent. Stipules lanceolate, margin glandular, apex acuminate. Petiole 5–7 mm, pubescent, without nectaries; leaf blade oblong-ovate, elliptic-ovate, or rarely oblong, 2–4 × 0.8–1.8 cm, abaxially yellowish green and pubescent, adaxially dark green and sparsely appressed pubescent, glabrescent, base subrounded to broadly cuneate, margin crenate or sometimes doubly crenate, apex acute to obtuse; secondary veins 4 or 5(–8) on either side of midvein. Flowers solitary, opening before leaves, 1–1.5 cm in diam. Pedicel 6–8(–15) mm, glabrous or sparsely pubescent. Hypanthium outside glabrous. Sepals triangular-ovate, outside glabrous, margin serrulate, apex acute. Petals white with pale purple veins, oblong, base cuneate, apex obtuse. Stamens 20–25. Ovary glabrous. Stigma capitate. Drupe black, globose, broadly ellipsoid, or conical, 1–1.5 cm in diam., glabrous, glaucous; mesocarp pale yellow, fragrant; endocarp brown, ovoid to ellipsoid, ± flattened, rugose. Fl. Apr, fr. Aug.

Cultivated throughout China [native to N Africa, SW Asia, and Europe].

This species is cultivated for its edible fruit and as grafting stock for other species of Prunoideae.


乌荆子李 wu jing zi li

Prunus domestica Linnaeus var. insititia (Linnaeus) C. K. Schneider; P. domestica var. insititia (Linnaeus) Fiori & Paoletti.

Shrubs or trees, to 6 m tall. Branches grayish black, glabrous, sometimes spiny; branchlets purplish brown, tomentose. Winter buds solitary or 2 parallel, purplish red, sometimes subglabrous or ciliate at scale margins. Stipules lorate, margin glandular ciliate, apex acuminate. Petiole 1–2(–2.5) cm, pubescent; leaf blade obovate, elliptic, or rarely oblong, 3.5–6(–8) × 2–4 cm, pubescent, soon glabrescent, abaxially pale green, adaxially dark green, base cuneate to broadly cuneate and with a pair of nectaries, margin coarsely serrate with teeth apex obtuse and gland-tipped, apex acute to obtuse; midvein and secondary veins prominent. Flowers 2( or 3) in a fascicle, rarely solitary, 2–2.5 cm in diam. Pedicel 1–1.5 cm, pubescent. Hypanthium outside subglabrous. Sepals narrowly ovate to oblong, outside subglabrous, margin entire or repand, apex obtuse to shortly acute. Petals white and inconspicuously purplish veined, broadly ovate, base broadly cuneate and with a short claw, apex obtuse. Stamens 20–25. Ovary glabrous. Stigma disk-shaped. Drupe bluish black, subglobose to ovoid, 1–2.5 cm in diam., glabrous; endocarp small, ± flattened, nearly smooth. Fl. Apr–May, fr. Jun–Sep.

Cultivated in China [native to SW Asia and Europe].

This species is cultivated for its edible fruit and as a grafting stock for other species of Prunoideae.


欧洲李 ou zhou li

Prunus communis Hudson; P. domestica var. damascena Linnaeus; P. domestica subsp. oeconomica (Borkhausen) C. K. Schneider; P. sativa Rouy & Camus subsp. domestica (Linnaeus) Rouy & E. G. Camus.

Trees 6–15 m tall. Branches reddish brown, unarmed or with a few spines, glabrous; branchlets pale red to grayish green, sparsely pubescent. Winter buds reddish brown, usually glabrous. Stipules linear, margin glandular, apex acuminate. Petiole 1–2 cm, densely pubescent; leaf blade dark green, elliptic to ovate, 4–10 × 2.5–5 cm, abaxially pubescent, adaxially glabrous or sparsely pubescent on veins, base cuneate to occasionally broadly cuneate and with a pair of nectaries, margin remote crenate, apex acute to obtuse; secondary veins 5–7 on either side of midvein. Flowers solitary or to 3 in a fascicle, on apex of short branchlets, 1–1.5 cm in diam. Pedicel 1–1.2 cm, glabrous or pubescent. Hypanthium outside pubescent. Sepals ovate, outside pubescent, margin entire, apex acute. Petals white or occasionally greenish, ovate, base cuneate, apex rounded to obtuse. Drupe red, purple, green, or yellow, usually globose to oblong, rarely subglobose, 1–2.5 cm in diam., often glaucous; endocarp broadly ellipsoid, pitted. Fl. Mar, fr. Sep.

Cultivated in China [native to SW Asia and Europe].

This species has a long history of cultivation, with many horticultural varieties. It is grown for its fruit, which are eaten fresh or made into juice or preserves.


樱李 ying tao li

Prunus cerasifera subsp. myrobalana (Linnaeus) C. K. Schneider; P. domestica Linnaeus var. myrobalana Linnaeus; P. sogdiana Vassilczenko.

Shrubs or trees, to 8 m tall. Branches dark gray, sometimes spiny; branchlets dark red, glabrous. Winter buds purple; scale
1b. Branchlets, petioles, pedicels, and outside surface of hypanthia glabrous. Leaf blade abaxially sparsely pubescent on veins or barbate in vein axes.


Prunus botan André; P. gymnodonta Koehne; P. ichangiana C. K. Schneider; P. staminita Handel-Mazzetti; P. thibetica Franchet; P. triflora Roxburgh; P. triflora var. spinifera Koehne.

Branchlets, petioles, pedicels, and outside surface of hypanthia glabrous. Leaf blade abaxially sparsely pubescent on veins or barbate in vein axes.

- Sparse forests, thickets, scrub, along trails in mountains, stream sides in valleys, also cultivated; 200–2600 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Ningxia, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang.

This variety is an important, temperate fruit tree widely cultivated in China and other regions of Asia, Europe, and North America.

6a. Prunus salicina var. salicina

李(原变种) li (yuan bian zhong)

Prunus botan André; P. gymnodonta Koehne; P. ichangiana C. K. Schneider; P. staminita Handel-Mazzetti; P. thibetica Franchet; P. triflora Roxburgh; P. triflora var. spinifera Koehne.

Branchlets, petioles, pedicels, and outside surface of hypanthia glabrous. Leaf blade abaxially sparsely pubescent when young, without nectaries; leaf blade elliptic, ovate, oblong-ovate, or rarely elliptic-lanceolate, (2–)6–12 cm, abaxially pale green and pubescent on midvein, adaxially dark green and glabrous, base cuneate to subrounded, margin crenate or sometimes doubly crenate, apex acute. Flowers solitary, rarely 2 in a fascicle, 2–2.5 cm in diam. Pedicel 1–2.2 cm, glabrous or sparsely pubescent. Hypanthium outside glabrous. Sepals narrowly ovate, outside glabrous, margin shallowly serrate, apex obtuse. Petals white, oblong-obovate to ovoid, smooth or scabrous, sometimes distinctly glandular serrulate, apex acute to obtuse. Stamens 25–30. Ovary villous. Stigma disk-shaped.

Drupe yellow, red, or black, subglobose to ellipsoid, 2–3 cm in diam., slightly glaucous; endocarp ellipsoid to ovoid, smooth or scabrous, occasionally densely glandular serrulate.

This species is an important, temperate fruit tree widely cultivated in China and other regions of Asia, Europe, and North America.


毛梗李 mao geng li


Branchlets, petioles, abaxial surface of leaf blades, pedicels, and outside base of hypanthia densely pubescent.

- Forest margins, thickets; 1600–2000 m. Gansu, Sichuan, Yunnan.


东北李 dong bei li

Prunus salicina Lindley var. mandscharica (Skvortzov) Skvortzov & Baranov; P. triflora Roxburgh var. mandscharica Skvortzov.

Trees 2.5–3 m tall. Branches grayish black, robust, glabrous; branchlets reddish brown, glabrous. Winter buds reddish brown, usually glabrous. Stipules lanceolate, margin glandular serrate, apex acuminate. Petiole glabrous, without nectaries; leaf blade oblong-obovate, rarely elliptic, 4–7 (–9) × 2–4 cm, abaxially pale green and basally sparsely pubescent, adaxially dark green and basally sparsely pubescent, base cuneate to rarely broadly cuneate, margin serrate or biserate with teeth often gland-tipped, apex acute, acuminate, or acute; midvein and secondary veins abaxially conspicuous and raised, adaxially impressed. Flowers 2 or 3 in a fascicle, rarely solitary, 1–1.2 cm in diam. Pedicel 0.7–1.3 cm, glabrous. Hypanthium outside glabrous. Sepals oblong, glabrous, margin gland-tipped serrate, apex acute. Petals white, oblanceolate, base cuneate and shortly clawed, margin undulate near apex. Ovary glabrous. Stigma disk-shaped. Drupe purplish red, ovoid, subglobose, or oblong, 1.5–2.5 cm in diam., glabrous; endocarp oblong, conspicuously grooved, inconspicuously pitted. Fl. Apr.–May fr. Jun.–Sep.

Forest margins, stream sides; 400–800 m. Heilongjiang, Jilin, Liaoning [Russia (Far East, E Siberia)].

This species is resistant to extreme cold and is cultivated in N China as a frost-hardy fruit tree.
The following taxa have been described from China, but we have seen no specimens and are therefore unable to assign them to genus or treat them in this account. Further revision is necessary.


**Prunus japonica** Thunberg var. fukiensensis Rehder (J. Arnold Arbor. 3: 29. 1922), described from Fujian: P. T. Dunn s.n.

**Prunus kawakamii** Hayata (J. Coll. Agric. Imp. Univ. Tokyo 25: 77. 1908), described from Taiwan: T. Kawakami & U. Mori s.n.

**Prunus nubium** Handel-Mazzetti (Symb. Sin. 7: 530. 1933), described from Hunan: T. H. Wang 1.


樱桃 ying shu

Li Chaoluan (李朝銮 Li Chao-luang); Bruce Bartholomew

*Padellus* Vassilczenko.

Trees or shrubs, deciduous. Branches unarmed. Axillary winter buds 1 or 3, lateral buds flower buds, central bud a leaf bud; terminal winter buds present. Stipules soon caducous, margin serrulate, teeth often gland-tipped. Leaves simple, alternate or fascicled on short branchlets, conduplicate when young; petiole usually with 2 apical nectaries or nectaries sometimes at base of leaf blade margin; leaf blade margin singly or doubly serrate, rarely serrulate. Inflorescences axillary, fasciculate-corymbose or 1- or 2-flowered, base often with an involucre formed by floral bud scales. Flowers opening before or at same time as leaves, pedicellate, with persistent scales or conspicuous bracts. Hypanthium campanulate or tubular. Sepals 5, reflexed or erect. Petals 5, white or pink. Stamens 15–50, inserted on or near rim of hypanthium. Carpel 1. Ovary superior, 1-loculed, hairy or glabrous; ovules 2, collateral, pendulous. Style terminal, elongated, hairy or glabrous; stigma emarginate. Fruit a drupe, glabrous, without a longitudinal groove. Mesocarp succulent, not splitting when ripe; endocarp globose to ovoid, smooth or ± rugose.

About 150 species: temperate Asia, Europe, North America; 44 species (30 endemic, five introduced) in China.

The Himalayan species *Cerasus rufa* (J. D. Hooker) T. T. Yu & C. L. Li (*Prunus rufa* J. D. Hooker) was reported from Xizang by both T. T. Yu et al. (Fl. Xizang. 2: 693. 1985) and T. T. Yu & C. L. Chao (FRPS 38: 80. 1986). However, it is now believed that this species does not occur in Xizang.

The present authors have seen no material of the following species described from Taiwan: *Prunus matuaeae* Sasaki; *P. takasagomontana* Sasaki; and *P. transarisanensis* Hayata. Their status is uncertain and they are not included in this treatment.

Many species of cherry are cultivated for their edible fruit or as garden ornamentals.

1a. Winter buds 3 per leaf axil with 2 lateral flower buds and 1 central leaf.

2a. Pedicel to 2.5 mm or flowers sessile; hypanthium longer than wide; sepals reflexed or erect; style villous basally or throughout.

3a. Leaf blade ovate-elliptic to obovate-elliptic, 2–7 cm, adaxially pilose, abaxially densely tomentose .......... 1. *C. tomentosa*

3b. Leaf blade obovate-oblancoceolate, 0.8–1.6 cm, glabrous ................................................................. 2. *C. tianshanica*

2b. Pedicel 4–20 mm; hypanthium as long as wide; sepals erect or spreading; style pilose basally or glabrous throughout.

4a. Leaf blade broadest from middle, base rounded ................................................................. 3. *C. japonica*

4b. Leaf blade broadest at about middle or apically (basally sometimes in *C. pogonostyla* var. *obovata* and *C. glandulosa*), base cuneate or broadly so.

5a. Leaf blade abaxially hirsute to pilose along veins.

6a. Leaf blade abaxially pilose along veins or sometimes between veins; style basally pilose .......... 4. *C. pogonostyla*

6b. Leaf blade abaxially densely brown hirsute; style glabrous ......................................................... 5. *C. dictyoneura*

5b. Leaf blade abaxially glabrous, sparsely pubescent, or with tufted hairs in vein axils.

7a. Leaf blade secondary veins 6–8 on either side of midvein; hypanthium outside pilose; style slightly shorter than stamens; drupe 1.5–1.8 cm in diam. ................................................................. 6. *C. humilis*

7b. Leaf blade secondary veins 4 or 5 on either side of midvein; hypanthium outside glabrous; style slightly longer than stamens; drupe 1–1.3 cm in diam. ................................................................. 7. *C. glandulosa*

1b. Winter bud 1 per leaf axil.

8a. Bracts green, persistent.

9a. Teeth of leaf blade margin non-glandular, with an apical cartilaginous mucro, or with an inconspicuous apical gland.

10a. Inflorescences corymbose, 5–10-flowered; endocarp markedly sculptured ....................................... 8. *C. maximovichii*

10b. Inflorescences umbellate, 2–4-flowered; endocarp smooth.

11a. Shrubs 0.2–1 m tall; sepals shorter than hypanthium; drupe ca. 1 cm ........................................... 9. *C. fruticosa*

11b. Trees 10–25 m tall; sepals nearly as long as hypanthium; drupe 1.2–2.5 cm.
12a. Petiole 1–2 cm; leaf blade glabrous; inflorescence inner involucral bracts straight; mesocarp sour .... 10. C. vulgaris
12b. Petiole 2–7 cm; leaf blade abaxially sparsely villous; inflorescence inner involucral bracts curved; mesocarp sweet ................................................................. 11. C. avium

9b. Teeth of leaf blade margin with a distinct apical gland.
13a. Glands disciform or depressed at apex of teeth along bract margins and sometimes along leaf blade margins.
14a. Inflorescences subcorymbose-racemose or racemose.
15a. Style glabrous or sparsely pilose .............................................................................. 12. C. szechuanica
15b. Style sparsely villous basal to middle .................................................................... 13. C. discadenia
14b. Inflorescences umbellate.
16a. Flowers opening at same time as leaves; hypanthium outside glabrous; petals apically rounded .... 14. C. tatsienensis
16b. Flowers opening before leaves; hypanthium outside pilose; petals apically 2-lobed ................... 15. C. discoidea

13b. Glands not disciform or depressed at apex of teeth along bract and leaf blade margins (sometimes depressed in C. patentipila).
17a. Inflorescences umbellate.
18a. Petiole glabrous; bracts 5–20 mm; sepals spreading ...................................................... 16. C. setulosa
18b. Petiole ± hairy (sometimes glabrous in C. clarofolia and C. conradinae); bracts 2–8 mm; sepals reflexed.
19a. Branchlets densely villous; leaf blade abaxially densely spreading villous; hypanthium outside densely villous ................................................................. 18. C. polytricha
19b. Branchlets glabrous or pilose; leaf blade abaxially pilose along veins or glabrous; hypanthium outside glabrous.
20a. Winter buds ovoid, glabrous; petiole glabrous or pilose; stamens 20–30; drupe long ellipsoid .... 17. C. clarofolia
20b. Winter buds ellipsoid-ovoid, pilose; petiole densely spreading villous; stamens 32–54; drupe ovoid to subglobose ................................................................ 36. C. conradinae

17b. Inflorescences corymbose-racemose (umbellate-racemose in C. clavulicata).
21a. Peduncles, rachises, pedicels, and outside of sepals glabrous.
22a. Young branchlets brown; bracts 0.5–2.5 cm; hypanthium ca. 5 mm in diam.; style nearly as long as stamens; endocarp ± sculptured ................................................................. 19. C. conadenia
22b. Young branchlets tinged reddish brown to reddish green; bracts 0.2–0.5 cm; hypanthium 3–4 mm in diam.; style slightly longer than stamens; endocarp markedly sculptured ........................................ 20. C. pleiocerasus
21b. Peduncles, rachises, pedicels, and outside sepals distinctly hairy.
23a. Leaf blade abaxially pilose or sparsely pubescent; teeth along bract margins and sometimes along leaf blade margins aristate and with a clavicate apical gland; hypanthium outside basally pilose to subglabrous; sepal margin sparsely ciliate ........................................ 21. C. dolichadenia
23b. Leaf blade abaxially densely horizontally spreading villous to hisrate; teeth along bract and leaf blade margins with a capitulate to flattened-capitate (depressed) apical gland; hypanthium outside pilose; sepal margin glandular serrate ........................................ 22. C. patentipila

8b. Bracts brown or rarely greenish brown, rarely persistent.
24a. Leaf blade margin coarsely incised biserrate or lobed; inflorescences 1- or 2-flowered.
25a. Prostrate shrubs; petiole 2–7 mm.
26a. Leaf blade obovate to obovate-elliptic, margin biserrate but not lobed, apex obtuse to acute .......... 24. C. mugus
26b. Leaf blade elliptic-ovate to elliptic-lanceolate, margin biserrate and lobed, apex acute to acuminate ......................................................... 25. C. crataegifolia

25b. Tree or shrubs; petiole 4–13 mm.
27a. Branchlets, pedicels, and outside of sepals hairy; style glabrous ............................................. 29. C. caudata
27b. Branchlets, pedicels, and outside of sepals glabrous (sometimes pilose in C. trichostoma); style hairy.
28a. Flowers opening at same time as leaves; stipules usually lanceolate to linear, 3–5 mm ............ 30. C. trichostoma
28b. Flowers opening slightly before leaves or nearly so; stipules on vegetative branches usually ovate and auriculate, 5–10 mm ...................................................... 31. C. stipulacea

24b. Leaf blade margin biserrate, serrate, or obtusely glandular crenate; inflorescences usually more than 2-flowered (sometimes 1-flowered in C. serrula and C. schneideriana).
29a. Inflorescences ± hairy or at least hairy when young.
30a. Style glabrous.
31a. Leaf blade lanceolate to ovate-lanceolate, apex acuminate to long acuminate; endocarp markedly sculptured ............................................. 39. C. serrula
31b. Leaf blade ovate to broadly ovate, apex usually caudate; endocarp smooth or ± sculptured.
32a. Petals apically emarginate; sepals nearly 1/2 or more as long as hypanthium ......................... 40. C. pseudocerasus
32b. Petals apically 2-lobed; sepals nearly 2 × as long as hypanthium ............................................ 41. C. dielsiana

30b. Style hairy.
33a. Petals abaxially hairy; pedicels 3.5–4.8 cm .............................. 44. *C. yaoana*
33b. Petals glabrous; pedicels not more than 3 cm.
33c. Petals glabrous; pedicels 3.5–4.8 cm .............................. 44. *C. yaoana*
33d. Petals abaxially pubescent or glabrous .......................... 44. *C. yaoana*
33e. Petals abaxially hairy; pedicels not more than 3 cm.
34a. Inflorescences subcorymbose-racemose to long racemose; petals apically subundulate to emarginate; hypanthium tubular-campanulate ................................. 42. *C. yunnanensis*
34b. Inflorescences umbellate or umbellate-racemose; petals apically marginate or lobed; hypanthium tubular.
35a. Sepals reflexed; hypanthium densely hirtellous outside ........................................ 43. *C. schneideriana*
35b. Sepals erect or spreading; hypanthium pilose outside.
36a. Secondary veins 10–14 on each side of midvein, straight and nearly parallel; inflorescences umbellate, 2–3-flowered; pedicel 1–2 cm; sepals nearly as long as hypanthium, apically laxly serrate .............................................................. 27. *C. subhirtella*
36b. Secondary veins 7–10 on each side of midvein, slightly curved; inflorescences umbellate-racemose, 3–4-flowered; pedicel 2–2.5 cm; sepals slightly shorter than hypanthium, apically serrate ...
37a. Inflorescences glabrous.
37b. Petals apically 2-lobed or emarginate.
38a. Style glabrous .............................................................................................. 23. *C. mahaleb*
38b. Style hairy.
39a. Flowers solitary or umbellate; hypanthium densely hairy outside ........................................ 26. *C. trichantha*
39b. Flowers in a corymbos-racemose inflorescence; hypanthium glabrous outside.
40a. Inflorescence distinctly pedunculate; pedicel 4–8 cm; hypanthium tubular-campanulate .... 32. *C. henryi*
40b. Inflorescence short pedunculate; pedicel 1–1.5 cm; hypanthium campanulate ................ 33. *C. pusilliflora*
41a. Sepals reflexed .............................................................. 34. *C. cyclamina*
41b. Sepals straight or spreading.
42a. Leaf blade margin serrulate or biserate with acumenate to aristate teeth ....................... 35. *C. serralata*
42b. Leaf blade sharply serrate.
43a. Flowers opening at same time as leaves; drupe purplish black; endocarp apex obtuse .......... 38. *C. cerasoides*
43b. Flowers opening before leaves; drupe red; endocarp apex acute.
44a. Leaf blade abaxially glabrous; involucre bracts 6–8 × 4–5 mm; hypanthium ca. 4 mm; petals apically 2-lobed .............................................................. 36. *C. conradinae*
44b. Leaf blade abaxially with tufts of hairs in vein axils; involucre bracts 5 × 3 mm; hypanthium ca. 6 mm; petals apically emarginate or rarely entire ........................................ 37. *C. campanulata*


毛樱桃 *mao ying tao*

*Prunus tomentosa* Thunberg in Murray, Syst. Veg. ed. 14, 464. 1784; *Cerasus tomentosa* var. pendula B. Y. Feng & S. M. Xie; *P. batalinii* (C. K. Schneider) Koehne; *P. cinerascens* Franchet; *P. tomentosa* var. batalinii C. K. Schneider; *P. tomentosa* var. breviflora Koehne; *P. tomentosa* var. endotricha Koehne; *P. tomentosa* var. heteromerica Koehne; *P. tomentosa* var. kashkarovii Koehne; *P. tomentosa* var. souliei Koehne; *P. tomentosa* var. trichocarpa (Bunge) Koehne; *P. tomentosa* var. tsuilaensis Koehne; *P. trichocarpa* Bunge.

Shrubs usually 0.3–1 m tall, rarely arborecent and 2–3 m tall. Branchlets purplish to grayish brown; young branchlets densely tomentose or glabrous. Winter buds ovoid, sparsely pubescent or glabrous. Stipules linear, 3–6 mm, villous. Petiole 2–8 mm, tomentose, glabrescent; leaf blade ovate-elliptic to obovate-elliptic, 2–7 × 1–3.5 cm, abaxially grayish green and densely gray tomentose but glabrescent, axially dark green and pilose, base cuneate, margin coarsely and acutely serrate, apex acute to acuminate; secondary veins 4–7 on either side of midvein. Flowers solitary or 2 in a fascicle, opening before or at same time as leaves. Pedicel almost absent to 2.5 mm. Hypanthium tubular to cup-shaped, 4–5 mm, outside pubescent or glabrous. Sepals triangular-ovate, 2–3 mm, both surfaces pubescent or glabrous, apex obtuse to acute. Petals pink or white, obovate, apex rounded. Stamens 20–25, shorter than petals. Ovary hairy or only hairy at base or apex. Style exerted, slightly longer than stamens. Drupe red, subglobose, 5–12 mm in diam.; endocarp sides sparsely ribbed. Fl. Apr–May, fr. Jun–Sep.

- Forests on mountain slopes, forest margins, thickets, scrub, meadows, also cultivated, 100–3700 m. Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Jiangxi, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Yunnan.

This species is widely cultivated in temperate E Asia for its flowers and edible fruit.


天山樱桃 *tian shan ying tao*

*Cerasus prostrata* (Labillardière) Seringe var. *concolor* Boissier; *Prunus prostrata* Labillardière var. *concolor* (Boissier) Lipsky.

Shrubs 1–1.5 m tall. Branchlets grayish brown; young branchlets grayish white tomentose. Winter buds ovoid, sparsely white tomentose. Stipules linear, ca. 2 mm. Petiole 1–2 mm, glabrous; leaf blade obovate-oblongellate, 8–16 × 3–7 mm,

*Prunus japonica* Thunberg in Murray, Syst. Veg. ed. 14, 463. 1784; *P. japonica* var. *kerrii* (Steudel) Koehne; *P. kerrii* Steudel; *Microcerasus japonica* (Thunberg) M. Roemer.


*Prunus japonica* Thunberg in Murray, Syst. Veg. ed. 14, 463. 1784; *P. japonica* var. *porphyrea* Takenouch; *P. japonica* Thunberg var. *nakaii* (H. Léveillé) Rehder.


3c. *Cerasus japonica* var. *zhejiangensis* (Yun B. Chang) T. C. Ku ex B. Bartholomew, comb. nov.


Stipules semi-ovate, margin laciniate. Petiole 7–10(–15) mm. Drupe black.

- Grassy scrub on waste mountains; ca. 1300 m. Zhejiang (Sui-chang Xian).


*Prunus pogonostyla* Maximowicz

Shrubs or small trees, 0.5–1.5 m tall. Branchlets grayish brown; young branchlets green to greenish brown, glabrous. Winter buds ovoid, glabrous. Stipules linear or semi-ovate, 4–6 mm, margin glandular serrate, laciniate or not. Petiole 2–10(–15) mm, glabrous or pilose; leaf blade ovate to ovate-lanceolate, 3–7 × 1.5–2.5 cm, abaxially pale green and glabrous or pilose along veins, axially dark green and glabrous, base rounded, margin acutely incised biserate or deeply serrate, apex acuminate; secondary veins 5–8 on either side of midvein. Flowers solitary or to 3 in a fascicle, opening at same time as leaves or before. Pedicel 0.5–2 cm, glabrous or pilose. Hypanthium turbinate, 2.5–3 × 2.5–3 mm, outside glabrous. Sepals elliptic, slightly longer than hypanthium, margin serrulate, apex rounded. Petals pink or white, obovate-elliptic. Stamens ca. 32. Style nearly as long as stamens, glabrous. Drupe dark red or black, subglobose, ca. 1 cm in diam.; endocarp smooth. Fl. May, fr. Jun–Aug.


- Grassy scrub on waste mountains; ca. 1300 m. Zhejiang (Sui-chang Xian).

4a. *Cerasus pogonostyla* var. *pogonostyla*

Leaf blade obovate-elliptic, abaxially pilose or only pilose along veins, apex shortly acuminate to rounded. Drupe ca. 8 × 4–5 mm. Fl. Mar, fr. May.

- Forests on mountain slopes; 200–500 m. Fujian, Jiangxi, Taiwan, Zhejiang.


- Sunny places in ravines; ca. 200 m. Fujian, Guangdong, Hunan, Taiwan.


Shrubs 0.3–1(–2) m tall. Branchlets grayish brown; young branchlets densely pubescent. Winter buds ovoid, densely downy. Stipules linear, 3–4 mm, margin glandular serrate. Peti-ole usually 2–3 mm, densely pubescent; leaf blade obovate-elliptic, usually 2–4 × 1–2.5 cm, abaxially pale green and densely brown hirsute, adaxially dark green and glabrous or pubescent and usually crisp, base cuneate, margin serrate or biserrate, apex rounded to acute; secondary veins 5–8 on either side of midvein; reticulate veins conspicuous. Flowers solitary or to 3 in a fascicle, opening before leaves. Pedicel 4–8 mm, densely pubescent. Hypanthium campanulate, ca. 3 × 3 mm, outside pubescent. Sepals ovate, ca. 3 mm, apex acute. Petals pink or white, obovate. Stamens 30–35. Style nearly as long as stamens, glabrous. Drupe red to purplish red, subglobose, 1.5–1.8 cm in diam.; endocarp sides sparsely ribbed. Fl. Apr–May, fr. Jun–Oct.

- Thickets, mountain slopes, sunny sandy slopes, also cultivated; 400–1800 m. Hebei, Heilongjiang, Henan, Jiangsu, Jilin, Liaoning, Nei Mongol, Shandong, Shanxi, Sichuan.

This species is used medicinally and for its edible fruit.


**Prunus glandulosa** Thunberg in Murray, Syst. Veg. ed. 14, 463. 1784; *Cerasus japonica* (Thunberg) Loiseleur-Deslongchamps var. *glandulosa* (Thunberg) Komarov & Alissova; *P. glandulosa f. paokangensis* (C. K. Schneider) Koehne; *P. glandulosa* var. *purdomii* Koehne; *P. glandulosa* f. *sinensis* (Persoon) Koehne; *P. glandulosa* var. *trichostyla* Koehne; *P. japonica* Thunberg var. *paokangensis* C. K. Schneider; *P. sinensis* Persoon.

Shrubs 0.5–1.5(–2) m tall. Branchlets grayish brown to brown, glabrous or pubescent when young. Winter buds ovoid, glabrous or pubescent. Stipules linear, ca. 5 mm. Petiole 1.5–3 mm, glabrous or pilose; leaf blade oblong to elliptic-lanceolate, 2.5–6 × 1–2 cm, abaxially pale green and glabrous or pilose along midvein, adaxially green, base cuneate, margin obtusely finely serrate, apex acuminate; secondary veins 4 or 5 on either side of midvein. Flowers solitary or 2 in a fascicle, opening at same time as leaves or nearly so. Pedicel 6–8 mm, subglobose. Hypanthium campanulate, nearly as long as wide, outside glabrous. Sepals triangular-elliptic, as long as hypanthium, recurved, margin frequently glandular dentate, apex acute. Petals pink or white, obovate. Stamens ca. 30. Style slightly longer than stamens, glabrous or basally pilose. Drupe red to purplish red, subglobose, 1–1.3 cm in diam. Fl. Mar–Apr, fr. May–Aug. 2n = 16.

- Thickets, mountain slopes, ravine sides, also cultivated; 400–2300 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei (Weichang Xian), Henan, Hubei, Hunan, Jiangsu, Shaanxi, Shandong, Sichuan, Yunnan, Zhejiang [Japan].


Trees to 7 m tall. Bark dark gray. Branchlets grayish brown; young branchlets tinged brown, densely villous. Winter buds long ovoid, appressed pubescent. Stipules linear, soon caducous after anthesis, margin with distant dark purple glands. Petiole 0.5–1.5 cm, densely villous; leaf blade obovate to obovate-elliptic, 3–9 × 1.5–4 cm, abaxially pale green and glabrous except appressed pilose along midvein and secondary veins, adaxially green and glabrous or appressed pilose along midvein, base cuneate to rounded, margin biserrate and non-glandular, apex cuspidate to shortly cuneate; secondary veins 6–9 on either side of midvein. Inflorescences corymbose, 5–10-flowered; involucre bracts spatulate-oblong, 10–15 × 5–6 mm, soon caducous after anthesis, abaxially pilose, margin with distinct dark red tiny glands; rachis densely appressed villous; bracts green, leaflike, elliptic, 6–7 × 5–6 mm, adaxially green and glabrous, outside glabrous or inconspicuously glandular. Flowers ca. 1.5 cm in diam., opening at same time as leaves. Pedicel 0.5–1.5 cm, densely appressed villous. Hypanthium obconical, 3–4 × 2.5–3 mm, outside appressed pubescent. Sepals elliptic-triangular, ± as long as hypanthium, margin distinctly serrate and teeth with an inconspicuous minute apical gland or nonglandular, apex acuminate. Petals white, elliptic, 6–7 × 5–6 mm. Stamens ca. 36. Style nearly as long as stamens; stigma capitate. Drupe black when ripe, ovoid, 7–8 × 5–6 mm; endocarp markedly densely appressed villous. Hypanthium obconical, 3–5 × 2.5–3 mm, outside glabrous. Sepals reflexed or erect. Petals white, obovate, ± as long as hypanthium, recurved after anthesis, margin glandular serrate. Petals white, 1–1.3 cm. Drupe pale red, globose to apically flattened, 1.2–1.5 cm in diam.; mesocarp yellowish and sour; endocarp brown, globose, 7–8 mm in diam., smooth, adnate to mesocarp. Fl. Apr–May, fr. Jun–Jul. 2n = 32.

Cultivated throughout China [native to SW Asia and Europe].

This species is cultivated for its fruit and as an ornamental.

**10. Cerasus vulgaris** Miller, Gard. Dict., ed. 8, Cerasus no. 1. 1768.

**Prunus cerasus** Linnaeus, Sp. Pl. 1: 474. 1753; **C. hortensis** Miller; **P. vulgaris** (Miller) Schur.

Trees to 10 m tall, usually producing root suckers; crown subglobose. Bark dark brown, with lateral lined lenticels, exfoliating. Branches spreading to drooping; young branchlets green, becoming reddish brown, glabrous. Stipules linear, to 8 mm, margin glandular serrate. Petiole 1–2(–5) cm, with or without 1 or 2 neactaries; leaf blade elliptic-obovate to ovate, 5–7(–12) × 3–5(–8) cm, abaxially glabrous or pubescent when young, base cuneate and often with 2–4 neactaries, margin finely biserrate and teeth with a very short cartilaginous apical cusp, apex acuminate to tapering to a short mucro. Inflorescences umbellate, 2–4-flowered, often with erect leaflike bracts. Flowers 2–2.5 cm in diam., opening at same time as leaves. Pedicel 1.5–3.5 cm. Hypanthium campanulate to obconical, outside glabrous. Sepals triangular, reflexed, margin glandular serrate. Petals white, 1–1.3 cm. Drupe pale red, globose to apically flattened, 1.2–1.5 cm in diam.; mesocarp yellowish and sour; endocarp brown, globose, 7–8 mm in diam., smooth, adnate to mesocarp. Fl. Apr–May, fr. Jun–Jul. 2n = 32.

Cultivated mainly in Hebei, Liaoning, and Shandong [native to SW Asia and Europe].

This species is cultivated for its fruit and as an ornamental.

四川樱桃  si chuan ying tao


Tree or shrubs, 3–7 m tall. Branchlets gray or reddish brown, glabrous or sparsely pilose. Winter buds oblong-ovoid, glabrous. Stipules green, ovate to broadly ovate, margin incised serrate, teeth with a capitate apical gland. Petiole 1–1.8 cm, glabrous or pilose, apically usually with 2 disciform to capitate nectaries; leaf blade ovate-elliptic, obovate-elliptic, or long elliptic, 5–9 × 2.5–4 cm, abaxially pale green and glabrous or pilose, adaxially green and usually glabrous or pilose along midvein, base broadly cuneate to rounded, margin biserate or serrate and teeth with a minute disciform, capitiate, or conical apical gland, apex ciliate to cuspidate; secondary veins 7–9 on either side of midvein. Inflorescences subcorymbose-racemose, 4–9 cm, 2–5-flowered; involucral bracts brown, obovate-oblong, 10–15 × 5–6 mm, glabrous or nearly so, margin with capitulate glands; rachis glabrous or pilose; bracts green, basally on rachis mostly sterile or only terminal 1–3 fertile, suborbicular, broadly ovate, or long ovate, 0.5–2.5 × 0.5–1.2 cm, margin with disciform glands, apex rounded. Pedicel 1–2 cm, glabrous or sparsely pilose. Hypanthium campanulate, ca. 5 × 4–5 mm, outside glabrous or pilose. Sepals triangular-lanceolate, slightly shorter than hypanthium, margin with capitulate glands, apex acuminate. Petals white or pink, suborbicular, apex erose. Stamens 40–47. Style nearly as long as stamens, glabrous; stigma disciform.

13. Cerasus discadenia (Koehne) C. L. Li & S. Y. Jiang, comb. nov.

盘腺樱桃  pan xian ying tao


Shrubs 4–6 m tall or trees 10–13 m tall. Stems 20–40 cm in diam. Branches gray to dark gray; branchlets usually dark red, darker in autumn, glabrous. Winter buds ca. 3 mm, glabrous. Stipules oblong to lanceolate, 3–4 mm, herbaceous, persistent, margin serrate, teeth gland-tipped fimbriate. Petiole sometimes dark red, 0.7–1.8 cm, glabrous, usually with 2 conspicuous nectaries at apex or at leaf blade base; leaf blade ovate, obovate, or sometimes oblong-ovate, 4–10 × 2.5–5 cm, glabrous or rarely abaxially conspicuously pilose along veins, base cordate, rounded, or rarely subacute, margin irregularly serrate and teeth with a prominently depressed-disciform apical gland, apex pubescent to ciliate; secondary veins 8–10 on either side of midvein, pallid, adaxially light green, abaxially pale. Rachises 3–6 cm excluding peduncle, 3–9-flowered; involucral bracts 1–4, scalelike, usually 1–1.8 cm, inner ones sometimes persistent at anthesis; peduncles 1–2 cm, glabrous; rachis glabrous; bracts 4–9, rotund to ovate-oblong, 8–10 mm but basically to 25 mm and sterile, margin serrate, teeth with a depressed-disciform apical gland. Flowers opening at same time as leaves. Pedicel 0.8–2.3 cm, glabrous. Hypanthium 4–5.5 or longer × 4–5.5 mm, outside glabrous. Sepals triangular, as long as or slightly longer than hypanthium, reflexed, glabrous, margin gland-tipped very shortly fimbriate, apex acute. Petals white, rotund, 6–8 mm in diam., apex erose-denticulate. Stamens 40–47, mostly 7–11 mm. Ovary ca. 1.1 cm. Style as long as or slightly shorter than stamens, sparsely villous basally to middle. Drupe red, subglobose, ca. 9 × 7 mm; endocarp ovoid, 5.5–6 × ca. 4 × 3.5 mm, obscurely few sulcate, smooth near keel. Fl. May, fr. Jul.


康定樱桃  kang ding ying tao


Shrubs or small trees, 2–5 m tall. Bark grayish brown. Branchlets gray, pilose or glabrous. Winter buds ovoid, glabrous. Stipules elliptic-lanceolate to ovate-lanceolate, margin serrate, teeth with a disciform apical gland. Petiole 8–10 mm, glabrous or pilose, apex with or without nectaries; leaf blade ovate to ovate-lanceolate, 1–4.5 × 1–2.5 cm, abaxially pale green, glabrous or with tufted hairs in vein axils, adaxially green and subglabrous, base rounded, margin biserate and teeth with a minute apical gland, apex acuminate; secondary veins 6–9 on either side of midvein. Inflorescences umbellate or subumbellate, 2–4-flowered; involucral bracts purplish brown, spatulate, ca. 8 × 4 mm, abaxially glabrous or sparsely villous; peduncle 5–12 mm, glabrous or pilose; bracts green, elliptic to suborbicular, 3–5 mm in diam., margin with disciform glands. Flowers ca. 1.5 cm in diam., opening at same time as leaves. Pedicel 1–2 cm, glabrous. Hypanthium campanulate, 3–4 × 2–3 mm, outside glabrous. Sepals ovate-triangular, nearly 1/2 as long as hypanthium, margin entire or distantly serrate, apex acute to obtuse. Petals white or pink, ovate. Stamens 20–35. Style nearly as long as stamens; stigma capitulate. Fl. Apr–Jun, fr. Jun–Aug.


迎春樱桃  ying chun ying tao

conical apical gland, apex caudate, cauda acutely incised serrate; secondary veins 8–10 on either side of midvein. Inflorescences umbellate, (1 or)2(0r 3)-flowered; involucre bracts brown, obovate-elliptic, 3–4 × 2–3 mm, abaxially glabrous, adaxially appressed pilose, margin with tiny capitulate glands, apex serrate-lobed; peduncle 1–1.5 cm, sparsely pilose or glabrous; bracts green, suborbicular, 2–4 mm in diam., leathery, subglabrous, margin with tiny disciform to depressed glands. Flowers opening before or rarely at same time as leaves. Pedicel 1–1.5 cm, pilose. Hypanthium tubular-campanulate, 4–5 × 2–3 mm, outside sparsely pilose. Sepals oblong, 2–3 mm, apex rounded or mucronate. Petals pink, long elliptic, apically 2-lobed. Stamens 34–40. Style glabrous; stigma dilated. Drupe red, ca. 1 cm in diam.; endocarp ± sculptured. Fl. Mar, fr. May.

- Forest in ravines, thickets beside streams; 200–1100 m. Anhui, Jiangxi, Zhejiang.


刺毛樱桃


Shrubs or small trees, 1.5–5 m tall. Bark grayish brown. Branchlets grayish white to brown, glabrous. Winter buds ovoid, glabrous. Stipules ovate-oblong to obovate-oblong, 4–8 × 1.5–3 mm, margin gland-tipped fimbriate. Petiole 4–8 mm, glabrous; leaf blade ovate, obovate, or ovate-elliptic, 2.5–3.5 cm, abaxially pale green, pilose along veins, and with tufted hairs in vein axils, adaxially green and appressed strigose, base rounded, margin obtusely biserate gland-tipped fimbriate, apex caudate-acuminate to cuspidate; secondary veins 6–8 on either side of midvein. Inflorescences umbellate, 2–3-flowered; involucral bracts brown, spatulate, ca. 5 × 1.5 mm, soon caducous, adaxially hairy, margin glandular; peduncle 5–7 mm, glabrous; bracts 2 or 3, green, foliaceous, ovate, 0.5–2 cm, both surfaces sparsely strigose, margin gland-tipped serrate. Flowers 6–8 mm in diam., opening at same time as leaves. Pedicel 0.8–1.2 cm, pilose or glabrous. Hypanthium tubular, 5–6 × 3–4 mm, outside sparsely strigose. Sepals triangularly long ovate, 2.3–3 mm, spreading, both surfaces pilose, margin distantly serrate, apex acute. Petals pink, obovate to suborbicular. Stamen 30–40, shorter than petals. Style slightly longer than or nearly equaling stamens, pilose basal to middle. Drupe red, ovoid-ellipsoid, ca. 8 × 6 mm; endocarp ± sculptured. Fl. Apr–Jun, fr. Jun–Aug.

- Forests or thickets on mountain slopes; 600–3600 m. Anhui, S Gansu, Guizhou, Hebei, Henan, Hubei, Ningxia, Shaanxi, Sichuan, Xizang, Yunnan, Zhejiang.


多毛樱桃


Trees or shrubs, 2–10 m tall. Bark black to grayish brown. Branchlets grayish reddish brown, densely villous. Winter buds ellipsoid-ovoid; scales abaxially pilose. Stipules oblong-lanceolate, sparsely villous, margin gland-tipped fimbriate. Petiole 8–10 mm, densely spreading villous, apex usually with 1–3 nectaries; leaf blade ovate-oblong, 4.8 × 2.4 cm, abaxially pale green, densely laterally spreading villous, and sparsely and appressed pubescent between veins, adaxially green and sparsely pubescent, base subrounded, margin serrate or biserate and teeth with a minute apical gland, apex acuminate; secondary veins 7–11 on either side of midvein. Inflorescences umbellate or subumbellate, 2–4-flowered; involucral bracts obovate-elliptic, 6–8 × 4–5 mm, abaxially subglabrous, adaxially sparsely villous; peduncle 2–10 mm, spreading pilose; bracts green, ovate to suborbicular, 4.8–8 mm, persistent in fruit, margin serrate, teeth with a capitulate apical gland. Pedicel 1–2 cm, densely villous. Hypanthium campanulate, 4–5 × 4–5 mm, outside densely villous. Sepals obovate-triangular, margin glandular saccate or entire, apex acute to acuminate. Petals white or pink, obovate to suborbicular. Stamens 20–30. Style ± as long as stamens, basally pilose; stigma capitulate. Drupe red, ellipsoid, 7–8 × 4–5 mm; endocarp ± sculptured. Fl. Apr–Jun, fr. Jun–Jul.

- Forests or thickets on mountain slopes; 600–3600 m. Anhui, S Gansu, Guizhou, Hebei, Henan, Hubei, Ningxia, Shaanxi, Sichuan, Xizang, Yunnan, Zhejiang.

ROSACEAE

锥腺樱桃  zhuì xiān yìng táo


Trees or arborescent shrubs, 6–10 m tall. Stems ca. 30 cm in diam.; branches glabrous; older branchlets dark brown to grayish white; young branchlets brown. Winter buds ca. 3 mm, glabrous. Stipules 3–4 mm, herbaceous, caducous, margin glandular serrate. Petiole 1.2–1.8 cm, glabrous, usually with 2 to several distinct nectaries at apex or at leaf blade base; leaf blade obovate, 3–9 × 2–4.8 cm, papery, abaxially glabrous or pilose along midvein, adaxially sparsely strigulose when young, more densely strigulose along veins, and glabrescent, base cordate, rounded, or broadly cuneate, margin mostly biserrate and teeth with a conical apical gland, apex caudate-acuminate; secondary veins 8–14 on either side of midvein. Inflorescences subcorymbosaceone, 2–3 cm excluding peduncle, 3.4–8 cm in fruit, 2–9-flowered; involucral bracts soon caducous; peduncle 5–10 mm, longer in fruit, glabrous; rachis glabrous; bracts 7–10, 1–3 basal ones usually sterile and ovate to orbicular, apical ones fertile and oblong, 0.5–2.5 × 0.4–1 cm, margin serrate, teeth with a conical apical gland. Flowers opening at same time as leaves. Pedicel 0.5–2 cm, glabrous. Hypanthium tubular, ca. 4 × 5 mm, outside glabrous. Sepals oblong triangular, ca. 3.5 mm, reflexed, glabrous, margin sparsely glandular denticulate, apex acute. Petals white, rotund-ovate, ca. 6 × 4.5 mm, apex erose. Stamens 27–30. Style nearly as long as stamens; basally sparsely villous.


雕核樱桃  diāo hé yìng táo


Trees 3–7 m tall. Bark dark grayish brown. Branchlets grayish brown; young branchlets tinged reddish brown to reddish green, glabrous. Winter buds ellipsoid-ovoid, glabrous. Stipules ovate to ovate-elliptic, margin serrate, teeth with a conical apical gland. Petiole 0.8–2 cm, glabrous, apex with 1–3 nectaries; leaf blade usually ovate-oblong to obovate-oblong, 4–8.5 × 2–3.5 cm, abaxially pale green or glabrous or with tufted hairs in vein axils, adaxially dark green and glabrous, base cuneate to rounded, margin shallowly obtusely serrulate, teeth with a minute conical apical gland; secondary veins 9–12 on either side of midvein. Inflorescences subcorymbosaceone, 4–6 cm, 2–9-flowered, basally usually with several sterile bracts; involucral bracts brown, obovate-elliptic, 4–8 × 4–5 mm, margin with conical glands; rachis glabrous; bracts broadly ovate, 2–5 × 2–5 mm, margin with conical glands. Pedicel 1–1.5 cm, glabrous. Hypanthium campanulate, 3–4 × 3–4 mm, outside glabrous. Sepals triangular to triangular-lanceolate, margin with conical glands, apex acuminate. Petals white, suborbicular. Stamens 30–34. Style slightly longer than stamens; stigma slightly dilate, minutely disciform. Drupe red to black, globose, 7–8 mm in diam.; endocarp markedly sculptured. Fl. Jun-Jul, fr. Aug–Sep.

- Forests on mountain slopes; 2000–3400 m. W Sichuan, N Yunnan.


长腺樱桃  cháng xiàn yìng táo


Small trees or arborescent shrubs, 5–13 m tall. Branchlets grayish brown, pilose and pubescent when young. Winter buds ovoid, glabrous. Stipules ca. 6 mm, margin strongly fimbriate, fimbria tipped with a clavate gland. Petiole 0.8–2 cm, pilose, apex sometimes with 2 stalked or sessile nectaries; leaf blade broadly elliptic to obovate-oblong, 4–9 × 3–5 cm, abaxially green and pilose or more sparsely hairy between veins, adaxially dark green and sparsely pubescent, base broadly cuneate, rounded, or subcordate, margin acutely biserrate and teeth aristate and with a clavicate apical gland, apex abruptly caudate; secondary veins 8–12 on either side of midvein. Inflorescences umbellate-racemose, 4–9 cm, 4–5-flowered; involucral bracts brown, obovate-oblong, 10–12 × ca. 5 mm, abaxially glabrous, adaxially sparsely villous, margin with distant clavate glands; rachis pilose; bracts green, mostly fertile but basal 1 or 2 sterile, orbicular to ovate, 7–12 × 5–10 mm, persistent and slightly enlarged in fruit, abaxially subglabrous, adaxially sparsely pubescent, margin with distant clavate glands. Flowers opening at same time as leaves. Pedicel 1–2.5 cm, pilose. Hypanthium tubular-campanulate, ca. 7 × 6 mm, outside basally pilose to subglabrous, base slightly swollen. Sepals broadly triangular, 1.5–2 mm, margin entire and sparsely ciliate, apex acute. Petals white or pink, broadly elliptic, 7–8 mm in diam., slightly longer than wide. Stamens 36. Style nearly as long as stamens; stigma dilated. Drupe ellipsoid-ovoid, ca. 8 × 6 mm; endocarp sculptured. Fl. Jul, fr. Aug.

- Forests on mountain slopes, shady ravines; 1400–2300 m. Gansu, Shaanxi, Sichuan, Xizang, Yunnan.


散毛樱桃  sǎn máo yìng táo


Trees or shrubs, 5–13 m tall. Branchlets gray, densely villous and pubescent when young, glabrescent. Winter buds ovoid-ellipsoid, glabrous. Stipules lanceolate, margin with long-stalked glands. Petiole 0.8–2 cm, densely spreading villous, hairs thicker and yellowish brown with age, apex with 1–3 depressed to capitate nectaries; leaf blade obovate-oblong to ovate-elliptic, 4–12 × 3–5 cm, abaxially pale green, densely horizontally spreading villous along veins, sparsely pubescent between veins, and hairs yellowish brown with age, adaxially green and pilose when young but glabrescent, base broadly cuneate,
M. trees to 1 m tall, prostrate to ascending. Bark grayish brown, densely villous; young branchlets densely appressed pubescent. Winter buds ovoid, glabrous, apex acute. Stipules linear, 5–8 mm, margin gland-tipped fimbriate. Petiole 2–7 mm, glabrous; leaf blade obovate to obovate-elliptic, 1.3–5 × 0.7–2 cm, abaxially pale green and glabrous, adaxially dark green and glabrous or pilose when young, base cuneate, margin acutely biserate, apex obtuse to acute; secondary veins 5–9 on either side of midvein. Inflorescences 1-flowered or 2-flowered in a fascicle; involucral bracts obovate-oblong, 5.8–2–3 mm, abaxially glabrous, adaxially pilose, margin glandular hairy; peduncle absent. Flowers usually opening at same time as leaves. Pedicel 0.3–3 cm, glabrous. Hypanthium tubular, 6.8–2–3 mm. Sepals triangularly long ovate, 2–3 mm, margin glandular serrate, apex acuminate to acute. Petals white or pink, suborbicular, apex erose. Stamens 30–45, Style exserted after anthesis, much longer than stamens, glabrous. Drupe dark red, ca. 1 × 0.8 cm; endocarp markedly sculptured. Fl. May–Jul, fr. Jul–Aug.

- Forest margins on mountain slopes, thickets; 3200–3700 m. NW Yunnan.


山楂叶樱桃 shan zha ye ying tao


- Alpine forests, thickets on rocky slopes; 3400–4200 m. SE Xizang, NW Yunnan.


毛瓣樱桃 mao ban zang ying


- Alpine forests, thickets on rocky slopes; 3400–4200 m. SE Xizang, NW Yunnan.
pilose. Stipules linear to lanceolate. Petiole 5–10 mm, densely hairy or pilose; leaf blade obovate-lanceolate to obovate-elliptic, (3–)5–12 × 2.5–5.5 cm, abaxially villous along veins, adaxially pilose but soon glabrescent, base cuneate, margin sharply serrulate and teeth apically with conical to capitate glands, apex acuminate to caudate-acuminate; secondary veins 9–11 on each side of midvein. Inflorescences 1- or 2-flowered or several in an umbel, 3–4.5 cm; involucral bracts brown, spatulate-oblong, 7–10 × 3–4 mm, outside glabrous, inside densely villous, margin glandular serrate; peduncle very short to subse-sile, glabrous; bracts green or brown, 10–12 × 1.2–2.5 mm, margin glandular. Flowers opening at same time as leaves. Pedicel 1–2.2 cm, glabrous. Hypanthium tubular to campanulate, (8–)10–15 × 4–5 mm, outside hairy. Sepals straight or spreading, ovate-triangular, 2–3(–4) mm, ca. 1/2 as long as hypan-thium to very short, margin sparsely glandular. Petals white or pink, ovate, 5–6 × 4–6 mm, margin entire or apically erose, outside pilose. Stamens ca. 45. Ovary glabrous, apex obtuse and not lobed. Style pubescent basally from middle. Drupe ellipsoid to obovoid, ca. 1.1 × 1.8 cm. Fl. May–Jun, fr. Jul.

Sparse forests, forest margins, thickets, mountain slopes; 2800–3900 m. Xizang [Nepal, Sikkim].


大叶旱樱 da ye han ying

Trees 3–10 m tall. Bark grayish brown. Young branchlets green, densely white pubescent. Winter buds ovoid; bud scale margin pilose. Stipules brown, linear, shorter than petiole, margin glandular denticate. Petiole 5–8 mm, white pubescent; leaf blade ovate to ovate-oblong, 3–6 × 1.5–3 mm, abaxially pale green and appressed white pubescent or more densely so along midvein, adaxially dark green and glabrous or appressed pilose on veins, base broadly cuneate, margin sharply biserrate, apex acuminate; secondary veins 10–14 on each side of midvein, straight and parallel. Inflorescences umbellate, 2- or 3-flowered; involucral bracts obovate, ca. 4 × 3 mm, outside pilose, soon deciduous after flowering. Flowers opening at same time as leaves. Pedicels 1–2 cm, pilose. Hypanthium tubular to nearly urceolate, 4–5 × 2–3 mm, base dilated, outside appressed white pilose. Sepals oblong-ovate, nearly as long as hypan-thium, margin laxly dentate, apex acuminate. Petals pale red, obovate to oblong, apex concave. Stamens ca. 10. Style short. Drupe black, ovoid; endocarp sculptured. Fl. Apr, fr. Jun.

Cultivated. Mainly in Anhui, Hubei, Jiangxi, Sichuan, and Zhejiang [native to Japan].

27a. Cerasus subhirtella var. subhirtella 大叶旱樱(原变种) da ye han ying (yuan bian zhong)


Cultivated. Mainly in Anhui, Hubei, Jiangxi, Sichuan, and Zhejiang [native to Japan].


垂枝大叶旱樱 chui zhi da ye han ying

Prunus subhirtella var. pendula Yo. Tanaka, Useful Pl. Jap. 70, no. 620. 1891; Prunus itosakura Siebold var. taiwani ana (Hayata) Kudô & Masamune; P. taiwani ana Hayata.

Branches spreading and curved; branchlets pendulous; hypanthium abaxially glabrous.

Cultivated. Taiwan [native to Japan].


东京樱花 dong jing ying hua


Trees 4–16 m tall. Bark gray. Branchlets pale purplish brown, glabrous; young branchlets green, pilose. Winter buds ovoid, glabrous. Stipules lanceolate, pubescent. Petiole 1.3–1.5 cm, densely pubescent, with or without 1 or 2 glands at apex; leaf blade elliptic to obovate, 5–12 × 2.5–7 cm, abaxially pale green and pilose on veins, adaxially dark green, glabrous, base rounded to rarely cuneate, margin sharply glandular serrate, apex acuminate to cuspidate; secondary veins 7–10 on each side of midvein. Inflorescences umbellate-racemose, 3- or 4-flow-ered; involucral bracts brown, 3- or 4-flow-ered; involucral bracts brown, elliptic-ovate, 6–7 × 4–5 mm, pilose on both surfaces; peduncle very short; bracts brown, spatulate-oblong, ca. 5 × 2–3 mm, margin glandular. Flowers opening before leaves, 3–3.5 cm in diam. Pedicel 2–2.5 cm, pubescent. Hypanthium tubular, 7–8 × ca. 3 mm, outside pilose, margin glandular serrate, apex emarginate or 2-lobed. Stamens ca. 32, shorter than petals. Style base pilose. Drupe black, sub-globose, 0.7–1 cm in diam.; endocarp slightly sculptured. Fl. Apr, fr. May. 2n = 16.

Cultivated mainly in Beijing, Jiangsu (Nanjing Shi), Jiangxi (Nanchang Shi), and Shandong (Qingdao Shi) [native to Japan and Korea (Cheju Island)].


尖尾樱桃 jian wei ying tao

Prunus caudata Franchet, Pl. Delavay. 196. 1890.

Trees. Bark gray, lenticellate. Branchlets densely hirtel-lous. Stipules linear to subulate, margin with stalked glands. Petiole 4–8 mm, hirtellous; leaf blade ovate, obovate, or ovate-oblong, 2–3.8 × 1–2 cm, abaxially hirtellous along midvein but
other part glabrous, adaxially striigulose, base obtuse, margin incised biserrate with teeth broadly ovate and apically subobtuse with a capitulate apical gland, apex oblique and narrowly caudate; secondary veins ca. 10 on either side of midvein. Inflorescences racemose-corymbose, umbellate, or 1- or 2-flowered, densely pubescent, involucral bracts caducous; peduncle to 8 mm or absent; bracts 2–3 mm, tinged brown. Flowers opening at same time as leaves. Pedicel 4–9 mm, densely pubescent. Hypanthium broadly campanulate, 5–6 mm, outside densely pubescent. Sepals triangular, ca. 2.5 mm, suberect, both surfaces pilose, margin entire or nearly so, apex acute. Petals white, broadly ovate-oblong, ca. 4 × 2 cm, abaxially pale green and pilose along veins or sometimes between veins, adaxially dark green and pubescent; involucral bracts caducous; peduncle to 5 mm or absent; bracts brown, rarely with tufts of hair at axils of veins, adaxially green and pilose or glabrous, abaxially cuneate, narrowly cuneate, or subrounded, margin acutely serrate or biserate with teeth non-glandular or with a minute apical gland, apex acute to acuminate; secondary veins 6–10 on either side of midvein. Inflorescences 1 (or)2(or 3)-flowered; involucral bracts brown, ovate, with tufted hairs at axils of veins, abaxially green and pilose along veins or sometimes between veins, adaxially dark green and pilose or glabrous, base cuneate to rounded, margin acutely serrate or biserate with teeth and with a minute capitulate apical gland, apex acuminate; secondary veins 7–10 on either side of midvein. Inflorescences subcorymbose-racemose, 2.5–4 cm, 3–7-flowered; involucral bracts obovate, 4–5 × ca. 3 mm, soon caducous, abaxially glabrous, adaxially densely villous, margin glandular serratate; bracts brown to slightly greenish brown, ovate, 2–3 mm, glabrous or pilose, margin glandular serratate. Flowers ca. 1.5 cm in diam., opening slightly before leaves or nearly so. Pedicel 0.7–1.3 cm, 1–1.5 cm and apically thickened in fruit, glabrous. Hypanthium tubular-campanulate, 4–5 × 3–4 mm, outside glabrous. Sepals triangular, 3–4 mm, margin entire, apex acute. Petals pale red or white, broadly obovate, apex obtuse to acute. Stamens 35–40, rarely slightly shorter than petals. Style exerted, much longer than stamens, basally pilose. Drupe red, ellipsoid, 1–1.2 × 0.8–1 mm; endocarp ± sculptured. Fl. May–Jun, fr. Jul–Aug.

- Forested in ravines, thickets on mountain slopes, mountain slopes; 1800–3900 m. Gansu, Qinghai, Shaanxi, Sichuan.


Trees to 3 m tall. Branchlets purplish brown, glabrous. Winter buds ovoid, glabrous. Stipules narrowly lorate, shorter than petiole, margin gland-tipped firmbriate. Pedicel 5–13 mm, glabrous, apex with 1 or 2 nectaries; leaf blade long ovalate to oblong-oblong, ca. 4 × 2 cm, abaxially pale green and glabrous or with tufts of hair at axils of veins, adaxially greenish brown and pilose, base cuneate to rounded, margin acutely serrate or biserate with teeth and with a minute capitulate apical gland, apex acuminate; secondary veins 7–10 on either side of midvein. Inflorescences subcorymbose-racemose, 2.5–4 cm, 3–7-flowered; involucral bracts obovate, 4–5 × ca. 3 mm, soon caducous, abaxially glabrous, adaxially densely villous, margin glandular serratate; bracts brown to slightly greenish brown, obovate, 2–3 mm, glabrous or pilose, margin glandular serratate. Flowers ca. 1.5 cm in diam., opening before leaves or nearly so. Pedicel 0.6–1.5 cm, glabrous. Hypanthium tubular-campanulate, 3–4 × 2–3 mm, outside glabrous. Sepals oblong-triangular, nearly 1/2 as long as hypanthium, reflexed after anthesis, apex acute to obtuse. Petals white, ovate, 1 cm, apex rounded to subundulate. Stamens 30–45, nearly as long as petals. Style nearly as long as stamens, basally sparsely villous; stigma dilated. Fl. Mar, fr. Apr–May.

- Forests on mountain slopes; ca. 1800 m. Yunnan.

细花樱桃 xi hua ying tao


Trees or shrubs, 3–10 m tall. Bark grayish brown to grayish black. Branchlets gray; young branchlets green, glabrous or nearly so. Winter buds ovoid, glabrous. Stipules linear, slightly shorter than petiole, soon caducous, margin gland-tipped fimbricate. Petiole 5–8 mm, pilose, glabrescent, with 1 or 2 purplish black nectaries at apex or leaf blade base; leaf blade obovate-oblong to ovate-elliptic, 4–6 × 2–3.5 cm, abaxially pale green and pilose along veins but glabrescent, adaxially dark green and glabrous, base rounded to rarely subcordate, margin acutely serrate and/or biserrate and teeth with a minute apical gland, apex acute to rarely acuminate. Inflorescences umbellate-racemose, 3–5–flowered; involucral bracts ovate-elliptic, 3–4 mm, abaxially glabrous, adaxially appressed pilose, margin glandular serrate; peduncle very short, slightly elongate in fruit; bracts brown, ca. 1.5 mm. Flowers 1–1.5 cm in diam. Pedicel 5–10 mm, glabrous. Hypanthium campanulate, 4–5 × 2–3 mm, outside glabrous. Sepals long ovate, 1/2 or more as long as hypanthium, margin distinctly serrate, apex acute. Petals white, ovate, apex rounded to sometimes emarginate. Stamens 25–40. Style slightly longer than stamens, glabrous. Drupe red or purplish black, globose to ovoid, 8–10 mm in diam.; endocarp ± sculptured. Fl. Apr–May; fr. May–Jul.


襄阳山樱桃 xiang yang shan ying tao (yuán biàn zhòng)

*Prunus cyclamina* Koehne in Sargent, Pl. Wilson. 1: 207. 1912; *P. malifolia* Koehne; *P. malifolia* var. rosthornii Koehne.


- Woodlands; 600–1500 m. Chongqing (Nanchuan Xian), Guangdong, Guangxi, Hunbei, Hunan, Sichuan.

34a. *Cerasus cyclamina* var. *cyclamina*

－ 叶片卵状椭圆形，叶片基部两侧各具2～3个长圆形的腺点


双花襄阳山樱桃 shuang hua xiang yang shan ying tao


- Thickets; ca. 1300 m. Hunan, Sichuan.


山樱花 shan ying hua

Trees 3–8 m tall. Bark grayish brown to grayish black. Branchlets grayish white or tinged brown, glabrous. Winter buds ovoid, glabrous. Stipules linear, 5–8 mm, margin gland-tipped fimbricate. Petiole 1–1.5 cm, glabrous, sparsely pilose, or pubescent, apex with 1–3 rounded nectaries; leaf blade ovate-elliptic to ovate-elliptic, 5–9 × 2.5–5 cm, abaxially pale green and glabrous, sparsely pilose, or pubescent, adaxially dark green and glabrous or sparsely pilose, base rounded, margin acuminate or serrate or biserrate and teeth with a minute apical gland, apex acuminate; secondary veins 6–8 on either side of midvein. Inflorescences corymbose-racemose or subumbellate, 2–3-flowered; involucral bracts brownish red, obovate-oblong, ca. 8 × 4 mm, abaxially glabrous, adaxially villous; peduncle 5–10 mm, glabrous; bracts brown or tinged greenish brown, 5–8 × 2.5–4 mm, margin glandular serrate. Pedicel 1.5–2.5 cm, glabrous, sparsely pilose, or pubescent. Hypanthium tubular, 5–6 × 2–3 mm, apically enlarged. Sepals triangular-lanceolate, ca. 5 mm, margin entire, apex acuminate to acute. Petals white or rarely pink, obovate, apex emarginate. Stamens ca. 38. Style glabrous. Drupe purplish black, globose to ovoid, 8–10 mm in diam. Fl. Apr–May; fr. May–Jul.

- Forests in ravines, forests on mountain slopes, also cultivated;
400–1500 m. Anhui, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Shaanxi, Shandong, Shanxi, Zhejiang [Japan, Korea].

1a. Leaf blade margin biserrate, teeth acuminate with a long awn apically .......... 35c. var. lannesiana
1b. Leaf blade margin serrate or biserrate, teeth with a minute gland apically.

2a. Petioles, both surfaces of leaf blades, and pedicels glabrous or sparsely pilose .......... 35a. var. serrulata
2b. Petioles, abaxial surface of leaf blades, and pedicels pubescent .................. 35b. var. pubescens

35a. Cerasus serrulata var. serrulata


Petioles, both surfaces of leaf blades, and pedicels glabrous or sparsely pilose. Leaf blade margin serrate or biserrate; teeth with a minute gland apically. Fl. Apr–May, fr. May–Jul.

Forests in ravines, also cultivated; 500–1500 m. Anhui, Guizhou, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Shandong, Zhejiang [Japan, Korea].


毛叶山樱 mao ye shan ying hua


Petioles, abaxial surface of leaf blades, and pedicels pubescent. Leaf blade margin serrate or biserate; teeth with a minute gland apically. Fl. Apr–May, fr. May–Jul.

● Forests on mountain slopes, also cultivated; 400–800 m. Anhui, Hebei, Heilongjiang, Henan, Hubei, Liaoning, Shaanxi, Shandong, Shanxi, Zhejiang.


日本晚樱 ri ben wan ying

Cerasus lannesiana Carrière, Rev. Hort. 1872: 198. 1872; Prunus lannesiana (Carrière) E. H. Wilson; P. serrulata var. lannesiana (Carrière) Makino.

Leaf blade margin biserrate; teeth acuminate with a long awn apically.

Widely cultivated in China [native to Japan].

This variety is widely cultivated in gardens as a ornamental tree.


Prunus conradinae Koehne in Sargent, Pl. Wilson. 1: 211. 1912; Cerasus glabra (Pampanini) T. T. Yu & C. L. Li; P. conradinae var. trichogyna Cardot; P. glabra (Pampanini) Koehne; P. helenae Koehne; P. hirtipes Hemsley var. glabra Pampanini; P. rafoides C. K. Schneider var. glabrifolia C. K. Schneider; P. twymania Koehne.

Trees 3–10 m tall. Bark grayish brown. Branchlets grayish brown; young branchlets green, glabrous. Winter buds ovoid to elliptic-ovoid, glabrous or pilose. Stipules linear to oblong-lanceolate, ca. 6 mm, soon caducous after anthesis, margin gland-tipped fimbriate. Petiole 6–10 mm, glabrous or densely spreading villous, with 1–3 nectaries; leaf blade obovate, elliptic, or obovate-oblong, 4.5–9 × 2.5–4 cm, both surfaces glabrous, abaxially pale green, adaxially green, base rounded to broadly cuneate, margin biserrate or sharply serrulate and teeth with a punctiform apical gland, apex abruptly acuminate to caudate; secondary veins 6–9 on either side of midvein. Inflorescences umbellate, 2–5-flowered; involucral bracts brown, obovate-elliptic, 6–8 × 4–5 mm, abaxially glabrous or subglabrous, adaxially densely villous; peduncle 2–15 mm, rarely absent, glabrous or spreading pilose; bracts brown or green, ovate, suborbicular, or broadly fan-shaped, 1.3–8 mm, caducous or persistent in fruit, margin glandular serrate. Flowers ca. 1.5 cm in diam., opening before or nearly at same time as leaves. Pedicel 1–2.5 cm, glabrous. Hypantherium campanulate to tubular-campanulate, ca. 4 × 3 mm, outside glabrous. Sepals triangular to triangular-ovate, 2–2.5 mm, reflexed after flowering, apex obtuse to acute. Petals white or pink, oblong, ovate, or obovate, apically 2-lobed. Stamens 32–54. Style shorter to slightly longer than stamens, glabrous. Drupe red, ovoid to subglobose, 8–11 × 5–9 mm; endocarp ± sculptured, apex acute. Fl. Mar, fr. Apr–May.

● Forests in ravines, slopes; 500–2600 m. Fujian, Gansu, Guangxi, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Yunnan, Zhejiang.


钟花樱桃 zhong hua ying tao


Trees or shrubs, 3–8 m tall. Bark blackish brown. Branchlets grayish brown to purplish brown; young branchlets green, glabrous. Winter buds ovoid, glabrous. Stipules soon caducous. Petiole 0.8–1.3 cm, glabrous, apex with 2 nectaries; leaf blade ovate, ovate-elliptic, or obovate-elliptic, 4–7 × 2–3.5 cm, abaxially pale green and glabrous or with tufts of hairs in vein axils, adaxially green and glabrous, base rounded, margin acutely and usually somewhat irregularly serrate, apex acuminate; secondary veins 8–12 on either side of midvein. Inflorescences umbellate, 2–4-flowered; involucral bracts elliptic, ca. 5 × 3 mm, both surfaces appressed villous; peduncle 2–4 mm; bracts brown, rarely greenish brown, 1.5–2 mm, margin glandular ser-
rate. Flowers 1.5–2 cm in diam., opening before leaves. Pedicel 1–1.3 cm, 1.5–2.5 in fruit and apically slightly swollen, glabrous or sparsely pubescent. Hypanthium campanulate, ca. 6 × 3 mm, outside glabrous or very sparsely pilose, base slightly swollen. Sepals oblong, ca. 2.5 mm, persistent in fruit, margin entire, apex obtuse. Petals pink, obovate-oblong, apically darker and marginate or rarely entire. Stamens 39–41. Style longer or rarely shorter than stamens, glabrous. Drupe red, ovoid, ca. 10 × 5–6 mm; endocarp ± sculptured. Fl. Jan–Mar, fr. Apr–May.

Forests in ravines, forest margins; 100–1300 m. Fujian, Guangdong, Guangxi, Hainan, Hunan, Taiwan, Zhejiang [Japan, Vietnam].


盆樱 桃 colorado

Prunus cerasoides Buchanan-Hamilton ex D. Don, Prodr. Fl. Nepal. 239. 1825; Cerasus puddum Roxburgh ex Seringe; C. cerasoides var. rubea (Ingram) T. T. Yu & C. L. Li; Madderia pedicellata J. D. Hooker; P. cerasoides var. majestica (Koehne) Ingram; P. cerasoides var. rubea Ingram; P. majestica Koehne; P. puddum (Roxburgh ex Seringe) Brandis (1874), not Miqel (1865–1866).

Trees 3–10(–30) m tall. Branches grayish black; branchlets green, pubescent, glabrescent. Stipules linear, basally strongly gland-tipped fimbriate. Petiole 1.2–2 cm, apex with 2–4 nectaries; leaf blade ovate-lanceolate, obovate-lanceolate, oblong-ovate, or obovate-obovate, (4–)8–12 × (2–)3.2–5 cm, subleathery, abaxially pale green and glabrous or villous along veins, adaxially dark green, base rounded, margin acutely biserulate, biserate, or serrate and teeth with a minute capitulate apical gland, apex acuminate to long acuminate; secondary veins 10–15 on either side of midvein; reticulate veins fine. Inflorescences umbellate, 1–4-flowered; involucral bracts 1–1.2 cm, apically divided, withered after anthesis; peduncle 1–1.5 cm, glabrous; bracts brownish to greenish brown, suborbicular, papyry, persistent or caducous after anthesis, margin glandular serrate. Flowers opening at same time as or before leaves. Pedicel 1–2.3 cm, elongated to 3 cm and apically thickened in fruit. Hypanthium red to dark brown, campanulate to broadly campanulate. Sepals usually reddish, 0.4–5.5 cm, erect, margin entire, apex acute to obtuse. Petals white or pink, ovate to obovate, apically entire or emarginate. Stamens 32–34, shorter than petals. Style as long as stamens, glabrous; stigma dis- ciform. Drupe purplish black, ovoid, 1.2–1.5 × 0.8–1.2 cm; endocarp ovoid, laterally deeply furrowed and pitted, apex obtuse. Fl. Oct–Dec, Feb–Mar.

Forests in ravines; 700–3700 m. S Xizang. NW Yunnan [Bhutan, N India, Kashmir, N Laos, Myanmar, Nepal, Sikkim, N Thailand, N Vietnam].

This species is cultivated for its fruit.


细齿樱 桃 colorado

Prunus serrula Franchet, Pl. Delavay. 196. 1890; P. cerasoides Buchanan-Hamilton ex D. Don var. tibetica (Batalin) C. K. Schneider; P. odontocalyx H. Léveillé; P. puddum Roxburgh ex Wallich var. tibetica Batalin; P. serrula var. tibetica (Batalin) Koehne.

Trees 2–12 m tall. Bark grayish to purplish brown. Branchlets purplish brown, glabrous; young branchlets appressed pilose. Winter buds acutely ovoid, glabrous or appressed pilose. Stipules linear, shorter than petiole, caducous after anthesis. Petiole 5–8 mm, pilose, glabrescent; leaf blade lanceolate to ovate-lanceolate, 3.5–7 × 1–2 cm, abaxially pale green and glabrous or pilose on lateral sides of midvein, adaxially dark green and pilose, base rounded, margin acutely serrate or biserate and teeth with a minute capitulate apical gland, apex acuminate; secondary veins 11–16 on either side of midvein. Inflorescences 1–2-flowered; involucral bracts brown, narrowly elliptic, ca. 6 × 3 mm, abaxially glabrous, adaxially pilose, margin glandular serrate; peduncle short or absent; bracts brown, narrowly ovate-oblong, 2–2.5 mm, margin glandular serrate. Flowers ca. 1 cm in diam., opening at same time as leaves. Pedicel 6–12 mm, 1.5–2 cm in fruit and apically slightly enlarged, pilose. Hypanthium tubular-campanulate, 5–6 × ca. 3 mm, base outside pilose. Sepals ovate-triangular, ca. 3 mm. Petals white, obovate-elliptic, apex obtuse. Stamens 38–44. Style longer than stamens, glabrous. Drupe purplish black, ovoid, ca. 1 × 0.6–0.7 cm; endocarp markedly sculptured. Fl. May–Jun, fr. Jul–Sep.

● Mountain slopes, forest in ravines, forest margins, grassy mountain slopes; 1200–4000 m. Guizhou, Qinghai, Sichuan, Xizang, Yunnan.


樱 桃 colorado


Trees 2–8 m tall. Bark grayish white to reddish brown. Branchlets grayish brown; young branchlets green, glabrous or pilose. Winter buds ovoid to long elliptic, glabrous or subglabrous. Stipules lanceolate to narrowly lorate, soon caducous, margin gland-tipped fimbriate. Petiole 0.5–1.5 cm, glabrous or pilose, apex with 1–3 large nectaries; leaf blade ovate, oblong-ovate, or long elliptic, 5–12 × 3–6 cm, abaxially pale green and pilose along and between veins, adaxially dark green and subglabrous, base rounded, margin acutely biserate or incised serrate, teeth with a minute capitulate apical gland; secondary veins 9–11 on either side of midvein. Inflorescences corymbose or subumbellate, 3–7-flowered; involucral bracts brown, obovate-elliptic, ca. 5 × 3 mm, margin glandular serrate. Flowers opening before leaves. Pedicel 0.8–1.9 cm, pilose. Hypanthium campanulate, 3–6 × 2–3 mm, outside pilose. Sepals triangular-ovate to ovate-oblong, 1/2 or more as long as hypanthium, margin entire, apex acute to obtuse. Petals white, ovoid to long elliptic, apically emarginate or 2-lobed. Stamens 30–35(–50 in cultivated varieties). Style nearly as long as stamens, glabrous. Drupe red, subglobose, 0.9–1.3 cm in diam.; endocarp ± sculptured. Fl. Mar–Apr, fr. May–Jun.

● Sunny mountain slopes, sides of ravines, glades, usually cultivated; 300–1300 m. Anhui, Chongqing (Nanchuan Xian), Fujian, Gan-
尾叶樱桃 wei ye ying tao

Trees or shrubs, 5–10 m tall. Branchlets grayish brown, glabrous; young branchlets glabrous or densely brown villous. Winter buds ovoid, glabrous. Stipules narrowly lanceolate, 0.8–1.5 cm, margin glandular serrate. Petiole 0.8–1.7 cm, densely spreading villous, glabrescent, with 1–3 nectaries at apex or on apical part; leaf blade elliptic to elliptic-obovate, 6–14 × 2.5–4.5 cm, abaxially pale green, densely spreading-villous on mid and secondary veins but other part pilose, adaxially dark green and glabrous, base broadly cuneate to rounded, margin acutely serrate or biserrate and teeth with a minute apical gland, apex ciliate-acuminate; secondary veins 10–13 on either side of midvein. Inflorescences umbilicate or subumbellate, 2–6-flowered; involucral bracts brown, long elliptic, adaxially densely appressed villous; peduncle 0–2 cm or nearly absent, spreading yellow villous; bracts ovate, 3–6 mm in diam., margin strongly fimbriate, fimbria with a long-stalked gland. Flowers opening before leaves or nearly so. Pedicel 1–3.5 cm, spreading brown pilose. Hypanthium campanulate, 3.5–5 mm, outside pilose. Sepals elliptic to elliptic-lanceolate, nearly twice as long as hypanthium, reflexed, margin ciliate, apex acute to obtuse. Petals white or pink, ovate, apically 2-lobed. Stamens 32–36, as long as hypanthium, apex obtuse. Petals white, ovate, purple, apically 2-lobed. Stamens 32–36, nearly as long as petals. Style ± as long as stamens, glabrous. Drupe red, subglobose, 8–9 mm in diam.; endocarp smooth. Fl. Mar–Apr, fr. May–Jun.

- Forests, ravines, stream banks; 500–1400 m. Anhui, Chongqing, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan.

1a. Inflorescences 3–6-flowered; peduncle 0.6–2 cm ................................. 41a. var. dielsiana
1b. Inflorescences 2(or 3)-flowered; peduncle very short to nearly absent ............ 41b. var. abbreviata

41a. Cerasus dielsiana var. dielsiana

尾叶樱桃 (原变种) wei ye ying tao (yu yan biao zhong)


- Forests, ravines, stream banks; 500–900 m. Anhui, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan.

短梗尾叶樱桃 duan geng wei ye ying tao


Inflorescences 2(or 3)-flowered, rarely more; involucral bracts persistent; peduncle very short to nearly absent. Fl. Mar, fr. May–Jun.

- Forests; 1200–1300 m. Chongqing (Nanchuan Xian), Guizhou.

云南樱桃 yun nan ying tao

Trees 4–8 m tall. Bark gray. Branchlets grayish brown, glabrous; young branchlets green, hirtellous, soon glabrescent. Winter buds ovoid to long ovoid, glabrous. Stipules narrowly lorulate, slightly shorter than petiole, soon caducous, margin glandular serrate. Petiole 6–12 mm, hirtellous to glabrous, glabrescent with 2 orbicular nectaries; leaf blade elliptic, oblong, obovate-oblong, or ovate-oblong, 3.5–6 × 2–3.5 cm, abaxially green, hirtellous when young, and more densely so along veins, adaxially dark green and pilose, both surfaces glabrescent, base rounded to cuneate, margin acutely serrate and sometimes biserrate and teeth with a capitulate apical gland, apex abruptly acute to acuminate; secondary veins 7–14 on either side of midvein. Inflorescences subcorymbose-racemose or long racemose, 3.5–7 cm, 3–9-flowered; involucral bracts brown, elliptic, spatulate-oblong, or obovate-oblong, 3.5–12 mm, abaxially glabrous or pilose, adaxially pilose, both surfaces glabrescent, margin glandular serrate, apex rounded; bracts brown to greenish, ovate to obovate, 2–3 mm in diam., membraneous to leathery, margin glandular serrate. Flowers ca. 1.5 cm in diam., opening at same time as leaves or slightly before. Pedicel 0.3–2 cm, hirtellous. Hypanthium tubular-campanulate, 3–5 × 3–4 mm, outside densely hirtellous. Sepals ovate, nearly 1/2 or less as long as hypanthium, apex obtuse. Petals white, ovate to suborbicular, apex subundulate to emarginate. Stamens 33–45, nearly as long as petals. Style basally pilose. Drupe purplish red, ellipsoid to ovoid, 7–10 × 5–8 mm; endocarp ± sculptured. Fl. Mar–May, fr. May–Jun.

- Forests in ravines, mountain slopes, also cultivated; 1900–2600 m. Guangxi, W Hubei, Sichuan, Yunnan.

1a. Inflorescences subcorymbose-racemose, 3–5–(7)-flowered; bracts deciduous after anthesis ................................. 42a. var. polybotrys
1b. Inflorescences long racemose, 5–9-flowered; bracts persistent after anthesis ................................. 42b. var. polybotrys

42a. Cerasus yunnanensis var. yunnanensis

云南樱桃 (原变种) yun nan ying tao (yu yan biao zhong)

Prunus yunnanensis Franchet, Pl. Delavay. 195. 1890; Cerasus duclouxii (Koehne) T. T. Yu & C. L. Li; P. duclouxii Koehne; P. hirtifolia Koehne; P. macgregoriana Koehne.


- Forests in ravines, mountain slopes, also cultivated; 1900–2600 m. Guangxi, W Hubei (Badong Xian), Sichuan, Yunnan.

多花云南樱桃 duo hua yun nan ying tao


- Mountain slopes; 2300–2500 m. Yunnan.


新闽樱桃 *zhe min ying tao*


Trees 2.5–6 m tall. Branchlets purplish brown; young branchlets grayish green, densely grayish brown hirtellous. Winter buds ovoid, glabrous. Stipules brown, 4–7 mm, soon caducous, margin with distant long-stalked glands. Petiole 5–8 mm, densely brown hirtellous, apex with 2 (or 3) black nectaries; leaf blade elliptic, ovate-oblong, or obovate-oblong, 4–8 × 1.5–4.5 cm, abaxially grayish green, grayish yellow hirtellaries; leaf blade margin glandular serrate and biserrate and teeth with a capitate apical gland; secondary veins 8–11 on either side of midvein. Inflorescences umbellate, (1 or)2 (or 3)-flowered; involucral bracteoles green, leaflike, narrowly elliptic, margin glandular serrate; peduncle 0.7–2.8 cm, hairy; bracts ovate-lanceolate. Flowers opening at same time as leaves, ca. 8 mm in diam.; pedicel 3.5–4.8 cm, hairy. Hypanthium cylindric, ca. 6 × 3 mm. Sepals spreading, ovate, both surfaces sparsely long-strigose, apex obtuse. Petals broadly ovate, abaxially hairy, apiculate. Hypanthium tubular, 3–4 × 2–3 mm, outside appressed brown pubescent. Sepals lorate-lanceolate, nearly as long as hypanthium, reflexed, apex obtuse. Petals ovate, apically 2-lobed. Stamens ca. 40, shorter than petals. Ovary and basal part of style sparsely hirtellous. Drupe purplish red, ellipsoid, ca. 8 × 5 mm; endocarp sculptured. Fl. Mar, fr. May.

- Forests; 600–1300 m. Fujian, Guangxi, Zhejiang.


西藏樱桃 *xi zang ying tao*

Trees to 8 m tall. Branchlets brown, hispid. Stipules long subulate, 4–10 × ca. 0.5 mm, margin glandular serrate. Petiole 0.7–1.2 cm, sparsely hispid or subglabrous; leaf blade rhomboid-elliptic or ovate-elliptic, 2.2–9 × 1.6–5 cm, abaxially striate veins, axially sparsely striate; secondary veins 6–12 on either side of midvein. Inflorescences umbellate, (1 or)2–3-flowered; involucral bracts green, leaflike, narrowly elliptic, margin glandular serrate; peduncle 0.7–2.8 cm, hairy; bracts ovate-lanceolate. Flowers opening at same time as leaves, ca. 8 mm in diam.; pedicel 3.5–4.8 cm, hairy. Hypanthium cylindric, ca. 6 × 3 mm. Sepals spreading, ovate, both surfaces sparsely long-strigose, apex obtuse. Petals broadly ovate, abaxially hairy, apex subcordate. Style much longer than stamens, base villous. Drupe ellipsoid, ca. 8 × 5 mm, apex sparsely villous. Fl. May, fr. Jun–Jul.

- Forests; ca. 3000 m. E Xizang (Nyingchi Xian).

The following taxa have been described from China, but we have seen no specimens and are therefore unable to treat them in this account. Further revision is necessary.


稠李属 *chou li shu*

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Bruce Bartholomew

Trees or shrubs, deciduous, many branched. Branches unarmed. Axillary winter buds ovoid; terminal bud present. Stipules membranous, soon caducous. Leaves simple, alternate, conduplicate when young; petiole usually with 2 nectaries at apex or at base of leaf blade margin; leaf blade margin serrate, rarely entire. Inflorescences terminal on current year’s branchlets, racemose, many flowered, base with a soon caducous involucre formed by floral bud scales; peduncle usually with leaves. Hypanthium campanulate to cup-shaped. Sepals 5. Petals 5, white. Stamens 10 or more, inserted on rim of hypanthium. Ovary superior, 1-lobed; ovules 2, collateral, pendulous. Style terminal, elongated; stigma flat. Fruit a drupe, glabrous, not glaucous, without a longitudinal groove; mesocarp succulent, not splitting when ripe; endocarp bony.

About 20 species; mostly in N temperate regions; 16 species (nine endemic) in China.

1a. Racemes basally leafless; sepals persistent in fruit.

2a. Branchlets and abaxial surface of leaf blades glabrous; peduncle subglabrous to sparsely pubescent

2b. Branchlets pubescent and leaf blades pubescent at least on veins; peduncle densely pubescent.

3a. Leaf blade margin acutely serrate; inflorescence base without squamose involucral bracts

2. *P. stellipila*
3b. Leaf blade margin serrulate; inflorescence base with persistent squamose involucral bracts ........................................ 3. P. perulata
1b. Racemes basally leafy (usually leafless in P. maackii and P. laxiflora); sepals soon caducous in fruit.
4a. Inflorescence base leafless or sometimes with 1 or 2 small bracts near base; leaves abaxially glandular or
eglandular.
   5a. Leaf blade abaxially glandular, midvein pubescent .................................................................................. 4. P. maackii
   5b. Leaf blade not glandular, midvein sericeous-villous ........................................................................... 5. P. laxiflora
4b. Inflorescence base leafy; leaf blade abaxially non-glandular.
   6a. Peduncles and pedicels thickened, conspicuously pale lenticellate in fruit.
      7a. Branchlets and abaxial surface of leaf blades glabrous or very rarely sparsely pubescent when
       young ............................................................................................................................................... 15. P. napaudensis
      7b. Branchlets and abaxial surface of leaf blades pubescent ....................................................................... 16. P. wilsonii
   6b. Peduncles and pedicels not thickened and not lenticellate in fruit.
      8a. Style exerted ......................................................................................................................................... 6. P. grayana
      8b. Style not exerted (not seen in P. brunnescens or P. integrifolia).
         9a. Style 1/2 as long as stamens; pedicel 1–1.5(–2.4) cm ......................................................................... 7. P. avium
         9b. Style nearly as long as stamens (not seen in P. brunnescens or P. integrifolia); pedicel shorter than
          1 cm.
            10a. Leaf blade margin serrulate ........................................................................................................ 14. P. cornuta
            10b. Leaf blade margin entire, crenulate, or serrate.
               11a. Leaf blade margin aristate serrate; inflorescences 16–30 cm.
                  12a. Leaf blade elliptic to ovate-oblong, abaxially brown pubescent; peduncles
                      and pedicels brown pubescent .............................................................................................. 8. P. brunnescens
                  12b. Leaf blade oblong to rarely elliptic or lanceolate, glabrous; peduncles and
                      pedicels not brown pubescent.
                     13a. Petiole 1.5–4.2 cm; peduncle with very small leaves at base; pedicels
                         glabrous ..................................................................................................................................... 10. P. ssiori
                     13b. Petiole 1.5–2.3 cm; peduncle with larger leaves at base; pedicels
                          pubescent .................................................................................................................................. 9. P. brachypoda
               11b. Leaf blade margin not aristate serrate; inflorescences 8–15 cm.
                  14a. Leaf blade margin entire or very rarely apically sparsely serrate ............. 13. P. integrifolia
                  14b. Leaf blade margin crenulate or appressed serrate.
                     15a. Leaf blade abaxially glabrous; branchlets glabrous or pubescent; peduncles
                         and pedicels pubescent ...................................................................................................... 11. P. obtusata
                     15b. Leaf blade abaxially velutinous; branchlets velutinous; peduncles and
                         pedicels velutinous .................................................................................................................. 12. P. velutina


*橃木*inn mu


Trees 6–12(–25) m tall. Branches brown; branchlets purplish brown, usually glabrous, with pale lenticils. Winter buds ovoid to conical, usually glabrous; scale margins rarely ciliate. Stipules linear, margin glandular serrate, apex acuminate. Petiole 1–1.5 cm, usually glabrous; leaf blade elliptic, oblong-elliptic, or rarely obovate-elliptic, 4–10 × 2.5–5 cm, both surfaces glabrous, abaxially pale green, adaxially dark green, base rounded, broadly cuneate, or occasionally cuneate, margin acutely appressed serrate, apex caudate-acuminate to shortly acuminate. Racemes 6–9 cm, usually 20–30-flowered, base leafless; peduncle subglabrous to sparsely pubescent. Flowers 5–7 mm in diam. Pedicel ca. 2 mm, to 3 mm in fruit, subglabrous to sparsely pubescent, glabrescent. Hypanthium campanulate, outside glabrous or sparsely pubescent, margin irregularly serrulate, apex acute. Petals white, broadly ovate, base cuneate to shortly clawed, margin apically erose. Stamens 10. Ovary glabrous. Style ca. 1/2 as long as stamens; stigma discoid to semi-rounded. Drupe blackish brown, subglobose to ovoid, ca. 5 mm in diam., glabrous. Fl. Apr–May, fr. May–Oct.

Dense forests on slopes, along trails, sunny places on slopes; 1000–3000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, Japan, Korea, Sikkim].


*星毛嶺李*xing mao chou li


Dense forests on slopes, along trails, sunny places on slopes; 1000–3000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Sichuan, Yunnan, Zhejiang [Bhutan, Japan, Korea, Sikkim].

Trees 6–9 m tall. Branches blackish brown, glabrous, with pale lenticils; branchlets grayish brown, densely velutinous. Winter buds conical; scale margined glabrous or pubescent. Stipules linear-lanceolate, margin glandular serrate, apex acuminate. Petiole 5–8 mm, pubescent, without nectaries; leaf blade...
elliptic, narrowly oblong, or rarely obovate-oblong, 1–10(–13) × 2.5–4 cm, abaxially brown stellate hair on veins or in vein axils, adaxially glabrous or pubescent only on midvein and secondary veins, base rounded to broadly cuneate, margin irregularly spreading and acutely serrate, apex ciliate, long acuminate, or rarely acute. Racemes 5–8 cm, many flowered, base leafless; peduncle velutinous. Flowers 3–7 mm in diam. Pedicel 2–4 cm, velutinous, glabrescent. Hypanthium campanulate. Sepals triangular, persistent in fruit, outside glabrous, margin glandular serrulate, apex obtuse. Petals white, broadly obovate, base cuneate and shortly clawed, margin apically erose. Stamens 10. Ovary glabrous. Style slightly shorter than stamens. Drupe black, subglobose, 5–6 mm in diam., glabrous. Fl. Apr–May, fr. May–Oct.

- Slopes, along trails, scrub; 1000–1800 m. Gansu, Guizhou, Hebei, Jiangxi, Shaanxi, Sichuan, Zhejiang.


Trees 6–12 m tall. Branches blackish brown to reddish brown, glabrous, with pale lenticels; branchlets reddish brown to purplish brown, velutinous when young. Winter buds ovoid, glabrous or sometimes pubescent at scale margins. Stipules linear-lanceolate, margin glandular serrate, apex acuminate. Petiole 1.2–2.5 cm, velutinous when young, non-glandular; leaf blade oblong-obovate, to obovate-ob lanceolate, rarely elliptic, 5–11 × 3–5.5 cm, abaxially pale green, hairy on midvein, and barbate in vein axils, adaxially dark green and glabrous, base rounded to broadly cuneate, margin appressed serrulate, apex acute to shortly acuminate. Racemes 5–10 cm, many flowered, base leafless; involucral bracts persistent; peduncle velutinous, glabrescent. Flowers 5–7 mm in diam. Pedicel ca. 2 mm, to 8 mm in fruit, velutinous, glabrescent. Hypanthium campanulate, outside glabrous. Sepals triangular-ovate, persistent in fruit, outside glabrous, margin glandular, apex acute. Petals white, nearly suborbicular to ovate, apically undulate. Stamens 10. Ovary glabrous. Style slightly shorter than stamens; stigma disk-shaped. Drupe black, subglobose, 7–8 mm in diam., glabrous. Fl. Apr–May, fr. May–Oct.

- Mixed forests, sparse forests beside streams, river sides, valleys; 1800–3200 m. W Sichuan, NW Yunnan.


Sparse forests on sunny slopes, forest margins, under pine woods, stream sides; 800–2000 m. Heilongjiang, Jilin, Liaoning [Korea, Russia (Far East)].

5. Padus laxiflora (Koehne) T. C. Ku, comb. nov.


Trees to 10 m tall. Trunk to 40 cm d.b.h. Branches dark brown or tinged black, glabrescent, lenticels few and small; young branchlets puberulent. Stipules narrowly linear, 5–10 mm, pubescent. Petiole 7–12 mm, densely pubescent; leaf blade obovate-oblong to broadly so, 3.5–6 × 1.6–2.7 cm, abaxially glabrous except sericeous-villosus along veins, more densely so along midvein, and not papillose, adaxially light green and glabrescent except pubescent-villosus along midvein, base broadly cuneate and with 2 flattened nectaries, margin incised subduplicate-serrulate, apex acuminate. Inflorescences laxly racemose, 4.5–7 cm, 6–12-flowered, racis appressed pubescent; peduncle 0.7–1.7 cm, sometimes with 1 or 2 brown sterile bracts, appressed pubescent; bracts basally on rachis 4–10 mm, gradually shortened to 1 mm apically, persistent. Pedicel ca. 1.8 cm for basalmost flowers, ca. 2 mm for apical flowers, laxly villous. Hypanthium semiglobose-campanulate, ca. 3 × 3 mm, outside basally pilose. Sepals triangular, as long as hypanthium, margin incised subduplicate-serrulate, apex acuminate. Stamens 15–50. Ovary and style hairy or glabrous. Endocarp globose to ovoid, smooth or ± rugose. Fl. May.

- Woods; ca. 1700 m. W Hubei.
Trees 8–10–(16) m tall. Branches blackish brown, glabrous, with pale lenticels; branchlets reddish brown to grayish green, velutinous when young. Winter buds ovoid, glabrous or sometimes sparsely pubescent at scale margins. Stipules linear, margin glandular, apex acuminate. Petiole 5–10 mm, usually glabrous; leaf blade grayish green, ovate-oblong to oblong, 4–10 × 1.8–4 cm, glabrous or abaxially pubescent on midvein, base rounded to subcordate, margin acutely serrate or incised, apex long acuminate to long caudate. Racemes 5–8 cm, dense, many flowered, basally with 2–4 (or 5) leaves; peduncle glabrous. Flowers 7–8 mm in diam. Pedicel 2–4 mm, 6–9 mm in fruit, glabrous. Hypanthium campanulate, outside glabrous. Sepals triangular-ovate, soon caducous, outside glabrous, margin serrulate, apex acute. Petals white, oblong-obovate, base cuneate and shortly clawed, margin apically erose; stamens 20–30. Ovary glabrous. Style long and exserted; stigma discoid. Drupe blackish brown, ovoid-globose, 5–6 mm in diam., glabrous. Fl. Apr.–May, fr. Jun–Sep.

Mixed forests in valleys, shady places on slopes, along trails; 1000–3800 m. Anhui, Fujian, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang [Japan].


**稠李** **chou li**

Trees to 15 m tall. Branches purple to brownish gray, with pale lenticels; branchlets reddish brown, glabrous, pubescent, or densely brown villous. Winter buds ovoid, glabrous or with ciliate scale margins. Stipules linear, margin glandular serrate, apex acuminate. Petiole 1–1.5 cm, glabrous, pubescent, or densely brown villous, apically with 2 nectaries; leaf blade abaxially pale green, adaxially dark green and glabrous, base rounded to broadly cuneate, margin irregularly and acutely serrate or sometimes biserate, apex caudate. Racemes 7–10 cm, 7- or 8-flowered, glabrous, pubescent, or densely brown villous, basally with 1 or 2 leaves. Flowers 1–1.6 cm in diam. Pedicel 1–1.5(–2.4) cm. Hypanthium campanulate, outside glabrous. Sepals triangular-ovate, soon caducous, outside glabrous, margin glandular, apex acute to obtuse. Petals white, oblong, base shortly clawed. Stamens many. Ovary glabrous. Style 1/2 as long as stamens; stigma disk-shaped. Drupe reddish brown to black, ovoid-globose, 8–10 cm in diam., smooth. Fl. Apr.–Jun, fr. May–Oct.

Forest on slopes, thickets in valleys, moist slopes; 1200–2000 m. Hebei, Henan, Liaoning, Nei Mongol, Shanxi.

**7c. Padus avium** var. asiatica (Komarov) T. C. Ku & B. Bartholomew, comb. nov.

**北亚稠李** bei ya chou li


- Forest on slopes, thickets in valleys, moist slopes; 1200–2000 m. Hebei, Henan, Liaoning, Nei Mongol, Shanxi.


**褐毛稠李** he mao chou li

Trees 7–12 m tall. Branches blackish brown, glabrous, with pale lenticels; branchlets reddish brown to purplish brown, brown velutinous, glabrescent. Winter buds ovoid, usually glabrous. Stipules linear, margin entire, apex obtuse. Petiole 1.5–2.3 cm, glabrous or brown pubescent; leaf blade elliptic to ovate-oblong, 8–14 × 4–8 cm, abaxially brownish and densely brown pubescent at least on veins or tufted in vein axils, adaxially dark green and glabrous, base cordinate to rarely rounded, margin acutely appressed serrate with teeth apically aristate, apex acute to caudate. Racemes 17–22 cm, many flowered, basally with 1–3 leaves; peduncle brown pubescent. Flowers not seen. Fruiting pedicel ca. 4 mm, brown pubescent. Drupe reddish brown to purplish brown, globose to ovoid, ca. 5 mm in diam., glabrous; sepals soon caducous. Fl. May, fr. Jun–Jul.

Trees 8–10 m tall. Branches blackish, glabrous; branchlets blackish brown, glabrous, with sparse lenticels; young branchlets reddish brown, velutinous to subglabrous. Winter buds ovoid, usually glabrous. Stipules linear, margin glandular serrate, apex acuminate. Petiole 1.5–2.3 cm, glabrous, apically with 2 nectaries; leaf blade oblong to rarely elliptic or lanceolate, 6–16 × 3–7 cm, abaxially pale green and glabrous or with tufted hairs in vein axils, adaxially dark green and glabrous, base rounded, subcordate, or rarely truncate, margin appressed to spreading serrate or curved serrate with teeth apically shortly aristate, apex acute, acuminate, or shortly caudate. Racemes 16–30 cm, many flowered, basally with 1–3 leaves; peduncle pubescent. Flowers 5–7 mm in diam. Pedicel 5–7 mm, pubescent. Hypanthium campanulate, base persistent in fruit, outside pubescent. Sepals triangular-ovate, caducous in fruit, outside sparsely pubescent, margin glandular serrate, apex acute. Petals white, ovate, base cuneate and shortly clawed, outside sparsely pubescent. Stamens many. Ovary glabrous. Petals spreading, white, oblong, 4–5 mm, nearly as long as stamens, margin sparsely serrate. Drupe black, globose. Fl. May–Jun, fr. Aug–Sep.

**9a. Padus brachypoda var. brachypoda**

Trees to 7 m tall. Branchlets glabrous. Petiole 1.5–4.2 cm, glabrous, with nectaries near apex; leaf blade oblong to ovate, 7–15 × 3–7 cm, abaxially glabrous or hairy in vein axils, adaxially glabrous, base usually cordate or deeply so, margin simply or doubly sharply serrate, apex acuminate. Racemes 15–20 cm, densely many flowered, glabrous, base with very small leaves. Flowers ca. 10 mm in diam. Pedicel 7–8 mm, glabrous. Hypanthium cup-shaped. Sepals semi-ovariculate, short, margin glandular dentate. Petals spreading, white, oblong, 4–5 mm, nearly as long as stamens, margin sparsely serrate. Drupe black, globose. Fl. May–Jun, fr. Aug–Sep.

**9b. Padus brachypoda var. microdonta** (Koehne) Rehder; **P. vaniotii** var. microdonta (Koehne) T. T. Yu 

Trees 6–20 m tall. Branches purplish brown to dark brown, glabrous, with sparse lenticels; branchlets reddish brown when young, pubescent or glabrous. Winter buds ovoid, glabrous. Stipules linear, margin glandular serrate, apex acuminate. Petiole 1–2.2 cm, pubescent or glabrous, apex usually with a nectary on either side; leaf blade narrowly oblong, elliptic, or obovate, 4.5–11 × 2–4.5 cm, both surfaces glabrous, abaxially pale green, adaxially dark green, base subrounded, broadly cuneate, or rarely subcordate, margin crenulate, apex acute, acuminate, or rarely obtuse; midvein and secondary veins abaxially prominent. Racemes 10–15 cm, many flowered, basally with 2 leaves; peduncle pubescent. Flowers 8–10 mm in diam. Pedicel 3–7 mm, pubescent. Hypanthium campanulate, outside pubescent. Sepals triangular-ovate, soon caducous, outside subglabrous, margin crenulate, apex acute. Petals white, subcorbiculate to oblong, base cuneate and shortly clawed, margin apically erose or undulate. Stamens many. Ovary glabrous. Style slightly shorter than stamens; stigma discoid. Drupe black, ovoid-globose, 6–8 mm in diam., glabrous. Fl. May–Jun, fr. Jul–Sep.

Trees 7–20 m tall. Branches blackish brown, glabrous, sparsely lenticellate; branchlets reddish brown, velutinous to subglabrous. Winter buds ovoid; scale margins velutinous when young. Stipules linear, margin glandular serrate, apex acuminate. Petiole 1.5–2.5 cm, densely brown velutinous, apex with a nectary on either side; leaf blade ovate, elliptic, or occasionally obovate, 6–10 × 3–5.5 cm, abaxially pale green to brownish green, velutinous, and densely velutinous along midvein and veins, adaxially dark green and glabrous, base rounded, margin appressed serrate, apex acute to shortly acuminate. Racemes 10–15 cm, many flowered, basally with 2–4 leaves; peduncle densely velutinous. Flowers 8–10 mm in diam. Pedicel ca. 5 mm, to 6 mm in fruit, densely velutinous, nearly glabrescent in fruit. Hypanthium cup-shaped, outside glabrous. Sepals triangular to semiorbicular, soon caducous, outside glabrous, margin glandular serrate, apex obtuse to acute. Petals white, oblong, base cuneate and shortly clawed, margin glandular serrate, apex obtuse. Stamens 22–28. Ovary glabrous. Style slightly shorter than stamens; stigma disk-shaped. Drupe reddish brown, globose, 5–7 mm in diam., glabrous. Fl. Apr–May, fr. Jun–Oct.


Trees 2–7 m tall. Branches purplish brown to blackish brown, glabrous, with sparse pale lenticels; branchlets reddish brown, velutinous to subglabrous. Winter buds ovoid; scale margins velutinous when young. Stipules not seen. Petiole 1.5–2.2 cm, densely velutinous, apex with 1 nectary; leaf blade elliptic, ovate-elliptic, or rarely oblong, 7–10(–12) × 3–4.5 cm, abaxially pale green and glabrous, adaxially dark green and velutinous on midvein or basally on secondary veins, base subrounded, subcordate, or broadly cuneate, margin entire or very rarely apically sparsely serrate, apex shortly acuminate. Racemes 8–13 cm, many flowered, basally with 1–3 leaves; peduncle densely velutinous. Flowers not seen. Fruiting pedicel 4–6 mm, densely velutinous. Drupe black, ovoid, flat on both sides, 6–7 mm in diam., glabrous; sepals soon caducous. Fr. Jun–Oct.


Trees 3–15 m tall. Branches blackish brown, glabrous, with sparse oblong lenticels; branchlets purplish brown, glabrous or sometimes velutinous. Winter buds ovoid, usually glabrous. Stipules linear, margin glandular serrate, apex acuminate. Petiole 1–2.3 cm, glabrous or subglabrous, apex with 2 nectaries; leaf blade narrowly elliptic to oblong, rarely oblong-lanceolate or obovate, 6–11 × 3–5 cm, abaxially pale green and glabrous or with tufts of hair at veins axils, adaxially dark green and glabrous, base subcordate to broadly cuneate, margin sparsely serrulate, apex shortly acuminate to shortly caudate. Racemes 8–16 cm, many flowered, basally with 1–3 leaves; peduncle velutinous. Flowers 6–8 mm in diam. Pedicel 5–7 mm, velutinous. Hypanthium campanulate, outside basally velutinous, inside glabrous. Sepals triangular-ovate, soon caducous, outside glabrous, margin glandular serrate, apex obtuse. Petals white, obovate, base cuneate and shortly clawed, margin apically erose. Stamens 20–25. Ovary glabrous. Style slightly shorter than stamens; stigma disk-shaped. Drupe black-brown, ovoid-globose, ca. 8 mm in diam., glabrous. Fl. Apr–May, fr. May–Oct.

Secondary forests, slopes, along trails; 2700–3300 m. S Xizang (Cona Xian, Yadong Xian) [Afghanistan, Bhutan, N India, Nepal, Sikkim].


Cerasus napaulensis Seringe in Candolle, Prod. 2: 540. 1825; Prunus napaulensis (Seringe) Steudel.

Trees to 27 m tall. Branches blackish brown, glabrous, with conspicuous pale lenticels; branchlets reddish brown, glabrous. Winter buds ovoid, glabrous. Stipules linear, margin glandular serrate, apex acuminate. Petiole 0.8–1.5 cm, glabrous, without nectaries; leaf blade narrowly elliptic, ovate-elliptic, or elliptic-lanceolate, 6–14 × 2–6 cm, abaxially pale green and glabrous or very rarely sparsely pubescent when young, adaxially dark green and glabrous, base cuneate, margin coarsely serrate or sometimes undulate, apex acute to shortly acuminate. Racemes 7–14 cm, many flowered, basally with 2 or 3 leaves; peduncle glabrous or subglabrous, later thickened and with pale lenticels. Flowers ca. 1 cm in diam. Pedicel 4–6 mm, conspicuously thickened in fruit, velutinous, glabrescent or nearly so, with conspicuous pale lenticels in fruit. Hypanthium cup-shaped, outside pubescent to subglabrous. Sepals triangular-ovate, soon caducous, outside pubescent, margin serrate, apex acuminate. Petals white, obovate-oblong, base cuneate and shortly clawed, margin apically erose. Stamens 22–27. Ovary glabrous. Style longer than stamens; stigma disk-shaped. Drupe dark purple to black, ovoid, 1–3 cm in diam., glabrous. Fl. Apr, fr. Jul.

Broad-leaved evergreen or deciduous mixed forests, open places beside streams; 1200–2500 m. Anhui, Guizhou, Hunan, Jiangxi, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, N India, N Myanmar, Nepal, Sikkim].

绢毛稠李 jian mao chou li

*Padus napaulensis* (Seringe) C. K. Schneider var. *sericea* (Batalin) C. K. Schneider; *Prunus dunniana* H. Léveillé; *P. napaulensis* (Seringe) Steudel var. *sericea* Batalin; *P. rufomi-cans* Koehne; *P. sericea* (Batalin) Koehne; *P. sericea var. bata-linii* Koehne; *P. sericea var. brevifolia* Koehne; *P. sericea var. septentrionalis* Koehne; *P. wilsonii* (C. K. Schneider) Koehne; *P. wilsonii var. leiobotrys* Koehne.

Trees 10–30 m tall. Branches purplish brown to blackish brown, robust, pubescent to subglabrous, with conspicuous pale lenticels; branchlets reddish brown, pubescent. Winter buds ovoid, glabrous or pubescent at scale margins. Stipules linear, margin hairy when young, apex long acuminate. Petiole 7–8 mm, glabrous or pubescent, apex with 2 nectaries; leaf blade elliptic, oblong, or oblong-obovate, 6–14(–17) × 3–6 cm, abaxially pale green, densely white silky pubescent when young, and later brownish silky pubescent but conspicuously more so on midvein and veins, adaxially dark green to purplish green, base rounded, cuneate, or broadly cuneate, margin rounded to sometimes acutely serrate, apex shortly acuminate to shortly caudate. Racemes 7–14 cm, many flowered, basally with 3–5 leaves; peduncle thickened in age, brown silky pubescent. Flowers 6–8 mm in diam. Pedicel 5–8 mm, to 1 cm in fruit, thickened and densely covered with pale lenticels with age, brown silky pubescent. Hypanthium campanulate to cup-shaped, outside silky pubescent. Sepals triangular-ovate, soon caducous, outside silky pubescent, inside sparsely pubescent but margin densely so, margin serrulate, apex acute. Petals white, obovate-oblong, base cuneate and shortly clawed, margin apically erose. Stamens ca. 20. Ovary glabrous. Style slightly longer than stamens; stigma disk-shaped. Drupe reddish brown at first, becoming blackish purple, globose to ovoid, 8–10 mm in diam., glabrous. Fl. Apr–May, fr. Jun–Oct.

- Slopes, valleys; 900–2500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Xizang, Yunnan, Zhejiang.

53. **LAUROCERASUS** Duhamel, Traité Arbr. Arbust. 1: 345. 1755.

桂樱属 gui ying shu

Lu Lingdi (陸玲娣 Lu Ling-ti); Bruce Bartholomew

Trees or shrubs, evergreen or very rarely deciduous. Branches unarmed. Stipules small, free or sometimes connate, soon caducous. Leaves simple, alternate, conduplicate when young, usually with 2 to rarely several nectaries on petiole, at base on leaf blade tripartite or tridentate apex; bracteoles often absent. Flowers usually bisexual, sometimes male with ovary ± reduced. Hypanthium campanulate to cup-shaped, outside silky pubescent, inside sparsely pubescent but margin densely so, margin serrulate, apex acute. Petals white, obovate-oblong, base cuneate and shortly clawed, margin apically erose. Stamens ca. 20. Ovary glabrous. Style slightly longer than stamens; stigma disk-shaped. Drupe reddish brown at first, becoming blackish purple, globose to ovoid, 8–10 mm in diam., glabrous. Fl. Apr–May, fr. Jun–Oct.

- Slopes, valleys; 900–2500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Xizang, Yunnan, Zhejiang.

About 80 species: Asia, Europe, New Guinea, North and South America; 13 species (six endemic) in China.

1a. Leaf blade abaxially scattered purplish black or black punctate.
   2a. Leaf blade herbaceous to subleathery, apex long caudate, tertiary veins conspicuous on both surfaces; drupe subglobose to transversely ellipsoid, 8–10 mm in diam., wider than long; endocard smooth ...........................  1. *L. phaeosticta*
   2b. Leaf blade thickly leathery, apex acute to shortly acuminate, tertiary veins very inconspicuous to nearly invisible on both surfaces; drupe elongated ovoid-globose to ellipsoid, 6–8 mm in diam., longer than wide; endocard slightly reticulately rugose ........................................................................................................ 2. *L. fordiana*

1b. Leaf blade abaxially not scattered purplish black or black punctate.
   3a. Leaf blade abaxially densely pubescent.
      4a. Petioles 6–10 mm, often with a pair of basal nectaries; leaf blade elliptic to elliptic-oblong, densely gray pubescent abaxially, margin ± densely coarsely serrate; drupe ovoid-oblong, 1–1.2 cm in diam., apex acute ........................................................................................................... 3. *L. hypotricha*
      4b. Petioles 10–15 mm, without nectaries; leaf blade ovate-oblong to oblong, densely yellowish pubescent abaxially, margin indistinctly shallowly obtusely serrate apically from middle; drupe broadly oblong, 1.4–1.7 cm in diam., apex obtuse ........................................................................................................ 4. *L. menghaiensis*
   3b. Leaf blade abaxially glabrous.
      5a. Rachises and pedicels glabrous.
         6a. Leaf blade elliptic to oblong-lanceolate, margin entire or rarely with a few teeth apically from middle; racemes 5–10 cm; ovary pubescent; drupe ovoid-globose to ellipsoid, 1–1.6 cm .......................... 5. *L. undulata*
         6b. Leaf blade oblong to ovate-oblong, margin sparsely and shallowly serrulate with minute teeth; racemes 2–5 cm; ovary glabrous; drupe globose to compressed globose, 0.7–1 cm ........................................... 6. *L. andersonii*
      5b. Rachises and pedicels pubescent.
         7a. Drupe 1.4–1.6 cm in diam.; endocard thick and hard, surface prominently coarsely reticulately rugose ................................................................. 7. *L. jenkinsii*
7b. Drupe 0.6–1.1 cm in diam.; endocarp thin and fragile, surface smooth or slightly reticulately rugose.
8a. Drupe 1.8–2.4 cm; petiole 1–2 cm ................................................................. 8. L. zippeliana
8b. Drupe 0.8–1.4 cm; petiole 0.1–1 cm (rarely 1.5 cm in L. spinulosa).
9a. Leaf blade margin entire or sparsely acutely serrate, secondary veins indistinct.
10a. Leaf blade obovate-oblong, 5–7(–9) cm, base narrowly cuneate, apex acuminate; drupe ovoid-globose; endocarp thinly reticulately rugose ........................................ 12. L. marginata
10b. Leaf blade elliptic to ovate-orbicular, 2–5(–6) cm, base broadly cuneate to rounded, apex obtuse; drupe subglobose; endocarp smooth ........................................ 13. L. aquifoliioides
9b. Leaf blade margin undulate to serrate, secondary veins distinct.
11a. Leaf blade elliptic; secondary veins 5–7 on either side of midvein ..................... 11. L. australis
11b. Leaf blade obovate-oblong; secondary veins 8–14 on either side of midvein.
12a. Leaf blade herbaceous to thinly leathery, margin usually undulate with few acicular teeth apically from middle or near apex, apex acuminate to ciliate; drupe ellipsoidal ................................................................................................... 9. L. spinulosa
12b. Leaf blade thickly leathery, margin not undulate but coarsely acutely serrate with teeth incurved, apex acute to shortly acuminate; drupe ovoid-globose .................................................. 10. L. dolichophylla


Mao bei gui ying


Shrubs or trees, 4–12 m tall. Branchlets dark purplish brown, ± pubescent when young, glabrous and purplish black with age, with sparse orbicular lenticels. Winter buds purplish brown, ovoid, 2–4 mm, glabrous, apex acute to obtuse. Petiole 4–8 mm, glabrous, without nectaries; leaf blade narrowly elliptic, oblong, oblong-lanceolate, or rarely obovate-oblong, 6–12 × 2–4 cm, herbaceous to subleathery, both surfaces glabrous, abaxially scattered black punctate, base cuneate and with 2 large flat nectaries near margin, margin entire or on sterile branchlets acutely serrate, apex long caduate; secondary veins 6–10 on either side of midvein; tertiary veins abaxially somewhat elevated, adaxially slightly prominent. Rachemes in axes of normal leaves on basal part of lateral branchlets or in axes of cataphylls on apical part of branchlets, solitary, 4–6 cm, several to 10-flowered or more; cataphylls small, soon caducous, apex truncate; rachis often glabrous, rarely pubescent; bracts linear to lanceolate, 2–4 mm, soon caducous, glabrous, margin glandular serrate. Flowers 4–6 mm in diam. Petiole 2–3 mm, glabrous, without nectaries; leaf blade elliptic to oblong, 5–12 × 2–4 cm, thickly leathery, both surfaces glabrous, abaxially scattered purplish black minutely punctate and with or sometimes without 2–4 larger flat nectaries near basal margin, adaxially lustrous, base cuneate, margin entire or rarely with a few teeth, apex acute to shortly acuminate; secondary veins 7–11 on either side of midvein; tertiary veins very indistinct on both surfaces or abaxially nearly invisible. Racemes in leaf axils, solitary, 3–9 cm, more than 10-flowered; rachis glabrous; bracts 2–4 mm, soon caducous, margin ciliate, basal ones sterile, hard and dark, and longer persistent. Flower 5–6 mm in diam. Pedicel 3–8 mm, glabrous. Hypanthium campanulate, 1–2 mm, outside glabrous. Sepals ovate-triangular, 1–2 mm, outside glabrous, apex obtuse to acute. Petals white, suborbicular, glabrous. Stamens 25–40, 3–4 mm. Ovary glabrous. Style to 4 mm, glabrous. Drupe blackish brown, elongately ovoid-globose to ellipsoid, 9–14 × 6–8 mm, glabrous; endocarp thin, slightly reticulately rugose. Fl. Mar–Apr, fr. May–Aug.

Forests, slopes, foothills, river banks; 600–1800 m. Guangdong, Guangxi [Cambodia, Vietnam].


Mao bei gui ying

Trees 5–15 m tall. Branchlets brownish to grayish brown, yellowish gray pubescent, with inconspicuous small lenticels. Petiole 6–10 mm, pubescent, glabrescent, with a pair of large flat nectaries apically from middle; leaf blade elliptic to elliptic-oblong, 10–18 × (4–)5–7 cm, leathery, abaxially densely gray pubescent, adaxially lustrous and glabrous, base rounded to broadly cuneate, margin ± densely coarsely serrate and teeth with a dark brown apical gland, apex shortly acuminate; secondary veins 10–12 on either side of midvein, prominent, abaxially raised. Racemes usually solitary, sometimes 2 or 3 in a fascicle, 2–5 cm; rachis pubescent; bracts ovate-lanceolate, 5–6 mm, soon caducous, basal ones sometimes with a tridentate apex. Pedicel 2–5 mm, glabrous, rarely slightly pubescent; bracts 1–2 mm, soon caducous, basal ones sometimes with a tridentate apex. Flowers unknown. Drupe blackish brown, ovoid-globose to ellipsoid, 1–1.6 × 0.7–1.1 cm, glabrous, apex acute to ± obtuse; endocarp ± thin, ± smooth. Fl. Aug.–Oct, fr. winter–spring.

Slopes in broad-leaved evergreen and mixed coniferous forests, stream sides; 500–3600 m. Guangdong, Guangxi, Guizhou, Jiangxi, Sichuan, Yunnan, Jiangxi, Shaanxi, Sichuan, Xizang, Yunnan [Bangladesh, Bhutan, E India, Indonesia, N Laos, N Myanmar, Nepal, Sikkim, N Thailand, Vietnam].


勐海桂樱 mei hai gui ying

Trees to 14 m tall. Branchlets purplish brown, robust, yellowish pubescent when young, glabrescent, with many small lenticels. Petiole stout, 1–1.5 cm, yellowish pubescent, without nectaries; leaf blade ovate-oblong to oblong, 8–13 × 3–5 cm, thick, leathery, abaxially densely yellowish pubescent, adaxially shining and glabrous, base broadly cuneate, margin indistinctly shallowly obtusely serrate apically from middle, apex acute; secondary veins 7–11 on either side of midvein, distinct. Flowers unknown. Drupe blackish brown, broadly oblong, 2.2–2.5 × 1.4–1.7 cm, glabrous, apex obtuse; endocarp slightly compressed, ± thin, fragile. Fl. Sep.–Oct, fr. Nov.–Dec.

- Sparse forests, slopes, mountain valleys, stream sides; 200–2600 m. Fujian, Guangdong, Guangxi, Guizhou, Jiangxi, Sichuan, Yunnan.


云南樱花 yun nan gui ying

*Pygeum andersonii* J. D. Hooker, Fl. Brit. India 2: 320. 1878; *Prunus pygeoides* Koehne; *P. semiarmillata* Koehne.

Trees, rarely shrubs, to 6 m tall. Branchlets brown to grayish brown, glabrous. Petiole 0.7–1.5 cm, glabrous; leaf blade oblong to ovate-oblong, 6–16 × 2–4 cm, thinly leathery, both surfaces glabrous, base broadly cuneate to subrounded and with 1 to several small nectaries per side, margin sparsely and shallowly serrulate and teeth with a black apical gland, apex acute to shortly acuminate; secondary veins 8–12 on either side of midvein, slightly prominent. Racemes axillary, solitary, 2–5 cm, several to 10-flowered or more; rachis glabrous; bracts to 2 mm, soon caducous, basal ones often sterile and with a tridentate apex. Flowers 3.5–5 mm in diam. Pedicel 3–6 mm, glabrous; bracteoles present at base of pedicel. Hypanthium campanulate, outside glabrous. Sepals triangular, 1–2 mm, outside glabrous, apex obtuse. Petals white, elliptic, slightly longer than sepals, puberulous. Stamens 25–30, 2.3 mm. Ovary glabrous, slightly shorter than stamens. Drupe glabrous, compressed globose, 7–10 × 8–10 mm, glabrous; endocarp glabrous, incontinuously reticulately rugose. Fl. Jul.–Aug, fr. winter.

Rocky forested slopes, ravines; 900–1500 m. SE Yunnan [India].


坚核樱 jian he gui ying

8. Laurocerasus macrophylla

Trees to 20 m tall. Branchlets reddish brown to blackish brown, glabrous, with sparse suborbicular small lenticels. Winter buds reddish brown, ovoid, 2–4 mm, glabrous. Petiole 5–10 mm, glabrous; leaf blade oblong to rarely obovate-oblong, (6–)8–16 × 2.5–5 cm, herbaceous to thinly leathery, both surfaces glabrous, abaxially paler and usually with a pair of purplish black basal nectaries near margin, adaxially shining, base broadly cuneate, margin sparsely and shallowly acicular serrate or sometimes entire near base or basally from middle, apex shortly acuminate to ciliate; secondary veins 10–14 on either side of midvein, abaxially raised, adaxially slightly prominent to somewhat impressed. Racemes axillary, solitary, 5–9 cm; rachis sparsely pubescent; bracts 2–2.5 mm, soon caducous, slightly pubescent, basal ones usually sterile, hard, hard, and tridentate at apex. Pedicel 2–3 mm, sparsely pubescent. Hypanthium shortly campanulate, 1.5–2 mm, outside slightly pubescent. Petals white, suborbicular, 2–3 mm in diam., glabrous. Stamens 20–30, 4–5 mm, glabrous. Ovary glabrous. Style slightly longer than or nearly as long as stamens. Drupe dark brown, broadly ellipsoid to obovoid-globose, 1.7–2 × 1.4–1.6 cm, glabrous, narrowed towards base and apex but apex more obtuse; endocarp thick and hard, prominent coarsely reticulately rugose. Fl. autumn, fr. winter.

9. Laurocerasus spinulosa

Trees to 20 m tall. Branchlets purplish brown to blackish brown, glabrous or puberulous when young, glabrescent. Winter buds dark brown, ovoid; scales hard, margin ciliate. Petiole 5–10–15 mm, glabrous; leaf blade oblong to obovate-oblong, 5–10 × 2–4.5 cm, herbaceous to thinly leathery, abaxially pale green and with 1 or 2 pairs of basal nectaries or on border of blade and petiole, both surfaces glabrous, adaxially bright green, base broadly cuneate to subrounded and often unequal, margin undulate and with a few acicular teeth apically from middle to near apex, apex acuminate to ciliate; secondary veins 8–14 on either side of midvein, slightly prominent. Racemes axillary, solitary, 5–10 cm, 10–20-flowered or more; rachis thinly pubescent; bracts 2–3 mm, soon caducous, basal ones usually sterile, hard, hard, and more persistent. Flowers 3–5 mm in diam. Pedicel 1–4 mm, thinly pubescent. Hypanthium campanulate to cup-shaped, outside glabrous or puberulous. Petals ovate-triangular, 1–2 mm, outside glabrous or puberulous, apex obtuse. Petals white, suborbicular, 2–3 mm in diam., glabrous. Stamens 25–35, 4–5 mm; filaments glabrous. Ovary glabrous. Style slightly shorter than stamens. Drupe brown to blackish brown, ellipsoid, 8–11 × 6–8 mm, glabrous; endocarp thin, smooth. Fl. Sep–Oct., fr. Nov–Mar.

Sunny forested slopes, broad-leaved evergreen forests along rivers, mountain valleys; 400–1500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Zhejiang [Japan].

10. Laurocerasus dolichophylla

Trees to 20 m tall. Branchlets grayish brown to purplish brown, glabrescent, with sparse small lenticels. Petiole 6–8 mm, glabrous, without nectaries; leaf blade narrowly oblong to obovate-oblong, 9–14 × 2.5–4.5 cm, thickly leathery, both surfaces glabrous, abaxially paler and usually without basal nectaries, adaxially shining, base cuneate and asymmetric, margin coarsely acutely serrate with teeth incurved, apex acute to shortly acuminate; secondary veins 10–14 on either side of midvein, abaxially raised, adaxially impressed. Racemes axillary, solitary, 7–9 cm, 10–20-flowered or more; rachis yellowish brown
pubescent; bracts small, soon caducous. Flowers 5–7 mm in diam. Pedicel 5–8 mm, yellowish brown pubescent. Hypanthium campanulate, 2–3 mm, outside yellowish brown pubescent. Sepals ovate-triangular, ca. 2 mm, outside yellowish brown pubescent, apex obtuse. Petals white, suborbicular to obovate, 2–3 mm, glabrous. Stamens 20–30, 4–5 mm. Ovary glabrous. Style slightly longer than or nearly as long as stamens. Drupe blackish brown, ovoid-globose, 1.2–1.4 × 0.9–1.1 cm, glabrous; endocarp thin, smooth. Fl. Aug–Sep, fr. Dec–Jan.

- Stony forested slopes; 1300–1500 m. SE Yunnan (Malipo Xian, Xichou Xian).


南方桂樱 nan fang gui ying

Shrubs or trees, 3–4 m tall. Branchlets grayish brown to purplish brown, glabrous, with small lenticels. Petiole slender, 5–7 mm, glabrous, usually without nectaries, rarely with a pair of minute nectaries apical from middle; leaf blade elliptic, 4.5–9 × 2–3.5 cm, leathery, both surfaces glabrous, base cuneate, margin densely and minutely obtusely serrate and teeth with a small purplish black apical gland, apex acute to shortly acuminate; secondary veins 5–7 on either side of midvein, slightly prominent. Racemes axillary, solitary, 4–5 cm, 10-flowered or more; rachis pubescent; bracts small, soon caducous. Flowers 5–6 mm in diam. Pedicel 4–6 mm, pubescent. Hypanthium campanulate, outside puberulous. Sepals ovate-triangular, outside puberulous. Petals white, obovate to suborbicular, longer than sepals. Stamens 15–20, longer than petals. Ovary glabrous. Style nearly as long as stamens. Drupe dark brown blackish brown, ovoid-globose, 10–12 × 7–9 mm, glabrous; endocarp very thin, thinly reticulately rugose when mature. Fl. spring, fr. autumn–winter.

- Mountain top forests, thickets, sunny slopes, along trails, ravines; 500–700 m. Guangdong.


冬青叶桂樱 dong qing ye gui ying

Shrubs to 4 m tall. Branchlets grayish brown to grayish black, yellowish brown pubescent when young, glabrescent, with inconspicuous small lenticels. Petiole 1–4 mm, glabrous; leaf blade elliptic to ovate-orbicular, 2–5(–6) × 1.5–3 cm, thickly leathery, both surfaces glabrous, abaxially paler and with or rarely without 2 basal nectaries on margin, adaxially dark and shining, base broadly cuneate to rounded, margin sparsely acutely serrate to nearly entire, apex obtuse to obtusely mucronate; secondary veins inconspicuous. Flowers not seen. Fruiting racemes axillary, solitary, 1–3 cm, with several fruit. Pedicels 2–3 mm, pubescent. Drupe brownish black, subglobose, ca. 1 cm and nearly as broad, glabrous; endocarp ± thin, smooth. Fr. Sep–Oct.

- Mixed or dense forests, mountain valleys; 500–700 m. C and N Guangdong (Qingyuan Xian, Ruayan Xian).


 Jordaniaceae	tun guo mu shu

Lu Lingdi (陆玲娣); Bruce Bartholomew

Trees or shrubs, evergreen. Branches unarmed. Stipules small, free, soon caducous, rarely persistent. Leaves simple, alternate, petiolate; leaf blade abaxially with a pair of flat to depressed nectaries near base and additional nectaries sometimes near margin, margin entire or very rarely minutely serrulate. Racemes axillary, solitary or sometimes several in a fascicle, unbranched or branched; bracts small, soon caducous, very rarely persistent after anthesis. Flowers bisexual or unisexual by want of ovary, sometimes polygamo-dioecious. Hypanthium obconic, campanulate, or cyathiform, caducous at fruiting time, only annular base remained. Perianth segments 5–10(–14), small. Sepals and petals often similar but sometimes distinct in shape and texture. Petals white, as many as sepals, very rarely absent, usually 1.5–2 × as long as sepals. Stamens 10–30(–85), in 1 to many series; filaments filiform. Ovary superior, 1-loculed, glabrous or hairy; ovules 2, collateral, pendulous. Style terminal; stigma capitate. Fruit a drupe, dry, usually transversely oblong to ellipsoid, obscurely didymous, sometimes subglobose to oblong and distinctly longer than wide; endocarp cartilaginous.
Pygeum griseum Blume ex Müller Stuttgart (Prunus griseum (Blume ex Müller Stuttgart) Kalkman) was reported from Lan Yu off the coast of SE Taiwan by Ohashi (Fl. Taiwan, ed. 2, 3: 98–100. 1993, as Prunus grisea). The species is not included in this treatment because the present authors have seen no Chinese specimens.

1a. Leaf blade secondary veins 9–14 on either side of midvein.

2a. Bracts ovate to triangular-ovate, persistent at anthesis; ovary densely pubescent; drupe ovoid-globose .................. 1. P. henryi

2b. Bracts lanceolate to linear-lanceolate, caducous at anthesis; ovary often glabrous; drupe compressed globose to transversely shortly oblong ........................................ 3. P. wilsonii

1b. Leaf blade secondary veins 5–8(9) on either side of midvein.

3a. Drupe wider than long.

4a. Leaf blade ovate-elliptic to elliptic, apex shortly acuminate and with an apical obtuse tip; racemes 4–7 cm; drupe reniform, apically depressed, 0.8–1 cm ................................................................. 2. P. topengii

4b. Leaf blade lanceolate to lanceolate, apiculolate to caudate-acuminate; racemes 1.5–4 cm; drupe compressed ovoid-globose to transversely shortly oblong, 1.6–2 cm .................................................. 5. P. laxiflorum

3b. Drupe as long as or longer than wide.

5a. Leaf blade lanceolate, base cuneate, apex acuminate to caudate; drupe oblong ................................................. 4. P. oblongum

5b. Leaf blade elliptic to obovate-elliptic, base rounded, apex abruptly pointed; drupe compressed ovoid-globose .................................................................................................................................................................................. 6. P. macrocarpum


云南臀果木 yun nan tun guo mu

Trees 6–15 m tall. Branchlets grayish brown to grayish black, reddish brown pubescent when young, glabrescent, with distinct orbicular lenticels. Winter buds brown, small, ovoid, pubescent. Petiole ca. 1 cm, reddish brown pubescent; leaf blade oblong-lanceolate to rarely elliptic, 9–17 × 4–7 cm, leathery, both surfaces reddish brown pubescent when young, adaxially initially brown pubescent along veins but glabrescent, adaxially glabrescent, base broadly cuneate to rounded, margin entire, apex shortly acuminate to acute; secondary veins 9–12 on either side of midvein, abaxially raised. Racemes solitary to several in a fascicle, 3–6 cm; rachis, bracts, pedicels, hypanthia, and sepals densely reddish brown pubescent; bracts small, ovate to triangular-ovate, persistent at anthesis. Flowers 2–4 mm in diam. Pedicel 1–2 mm. Hypanthium campanulate. Sepals 5, oblong, 1–2 mm. Petals 5, obovate, 0.8–1 × 1–1.6 cm, glabrous, apically depressed. Fl. Jun–Sept, fr. winter.

● Foothill mixed forests, thickets, mountain valleys, along trails, stream sides; 100–1600 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Yunnan.


臀果木 tun guo mu

Pygeum tokangpengii Merrill.

Trees to 25 m tall. Bark dark gray to grayish brown. Branchlets dark brown, brown pubescent when young, glabrescent, with orbicular small lenticels. Winter buds ovoid, 2.5–5 mm, brown pubescent, apex acute. Petiole 5–8 mm, brown pubescent; leaf blade ovate-elliptic to elliptic, 6–12 × 3–5.5 cm, leathery, abaxially brown appressed pubescent and more densely so along midvein and secondary veins but glabrescent or only very sparsely pubescent and with 2 black nectaries near base, adaxially lustrous and glabrous, base broadly cuneate and asymmetric, margin entire, apex shortly acuminate and with an apical obtuse tip; secondary veins 5–8 on either side of midvein, abaxially raised. Racemes solitary or to several in a fascicle, 4–7 cm, many flowered; rachises, pedicels, bracts, hypanthia, and sepals densely brown pubescent; bracts small, ovate-lanceolate to lanceolate, soon caducous. Flowers 2–3 mm in diam. Pedicel 1–3 mm. Hypanthium obconic, 2.2–2.5 mm. Sepals 5 or 6, triangular-ovate, 1–2 mm; apex acute. Petals as many as sepals, obovate, slightly longer than sepals or indistinguishable from sepals, outside brown pubescent, apex ± obtuse. Ovary glabrous. Drupe dark brown, reniform, 0.8–1 × 1–1.6 cm, glabrous, apically depressed. Fl. Aug–Sep, fr. Nov–Dec.

● Foothill mixed forests, forested slopes, thickets on slopes; 900–1700 m. Sichuan, Xizang, Yunnan.


西南臀果木 xi nan tun guo mu

Trees 8–24 m tall. Branchlets grayish brown, brown pubescent, glabrescent, lenticellate. Petiole 7–10 mm, densely brown pubescent; leaf blade oblong to obovate-oblong, 10–39 × 4–15 cm, papery to subleathery, abaxially persistent brown appressed pubescent and usually with 2 nectaries near base, adaxially initially brown pubescent along veins but glabrescent, base rounded to broadly cuneate, margin entire, apex acuminate; secondary veins 10–14 on either side of midvein, abaxially elevated. Racemes axillar, solitary to several in a fascicle, more than 10-flowered; rachises, pedicels, bracts, hypanthia, and sepals densely brown pubescent; bracts lanceolate to linear-lanceolate, soon caducous. Flowers 2–3 mm in diam. Pedicel 1–3 mm, 5–12 mm in fruit and sparsely brown pubescent. Hypanthium campanulate. Sepals 5, oblong, 1–2 mm. Petals 5, spatulate-oblong, slightly longer than sepals or resembling sepals. Stamens 24–30. Ovary often glabrous. Drupe black when dry, compressed globose to transversely shortly oblong, 0.9–1 × 1–1.5 cm, glabrous, apex usually abruptly pointed. Fl. Aug–Sep, fr. Nov–Dec.
1a. Leaf blade ± thin, 10–18 × 4–7 cm; fruiting pedicel 5–7 mm. ........................................... 3a. var. wilsonii
1b. Leaf blade ± thick, 19–39 × 8–15 cm; fruiting pedicel 7–12 mm. ................... 3b. var. macrophyllum

3a. Pygeum wilsonii var. wilsonii
西南臀果木 (原变种) xi nan tun guo mu (yuan bian zhong)

Leaf blade ± thin, 10–18 × 4–7 cm. Fruiting pedicel 5–7 mm.
- Foothill mixed forests, thickets on slopes; 900–1200 m. Si-chuan, Xizang, Yunnan.


dai ye tun guo mu

Leaf blade ± thick, 19–39 × 8–15 cm. Fruiting pedicel 7–12 mm.
- Forested slopes; ca. 1700 m. SE Xizang (Mêdog Xian).


长圆臀果木 chang yuan tun guo mu

Trees to 4 m tall. Branchlets grayish brown to dark purplish brown, reddish brown pubescent when young, glabrescent, with few inconspicuous small lenticels. Petiole 8–10 mm, densely reddish brown pubescent; leaf blade lanceolate, 8–13 × 2–3.5 cm, subleathery to leathery, abaxially densely reddish brown pubescent, not glabrescent, and without or rarely with 2 flat nectaries near base, adaxially glabrous, base cuneate, margin entire, apex acuminate to caudate-acuminate; secondary veins 6–8 on either side of midvein, abaxially slightly raised. Racemes axillary, solitary or to 3 in a fascicle, 1.5–4 cm, with loose flowers; rachises, pedicels brown pubescent, glabrescent or with persistent hairs; bracts small, soon caducous. Flowers 1–3 mm in diam. Pedicel 1–3 mm. Hypanthium campanulate to obconic, ca. 2 × 3 mm, outside brown pubescent. Sepals 5, triangular-ovate, 0.5–1 mm, outside brown pubescent, apex acute to shortly acuminate. Petals 5, oblong, slightly longer than sepals but sometimes resembling them, apex obtuse. Stamens 15–25, 4–6 mm, glabrous. Ovary glabrous. Style ca. 3 mm.
- Forests on stream banks, foothills; 100–700 m. Guangdong, Guangxi.


大果臀果木 da guo tun guo mu


Trees 8–10 m tall. Branchlets purplish brown to dark grayish brown, brown pubescent when young, glabrescent, with many distinct lenticels. Petiole 1–1.2 cm, pubescent when young, brown pubescent, leaf blade elliptic to oblong-elliptic, 10–18 × 5–9 cm, papery to subleathery, abaxially paler, sparsely brown pubescent along veins, glabrescent, and with or without 2 flat nectaries near base, adaxially greenish brown and glabrescent, base rounded, margin entire, apex abruptly short pointed; secondary veins 6–8 on either side of midvein, abaxially conspicuously raised. Racemes solitary or to 3 in a fascicle; rachises, pedicels, hypanthia, and sepals brown pubescent. Drupe purplish brown, compressed ovoid-globose, 1.5–1.8 cm and ± as broad as to slightly broader than long, glabrous, apex acute; mesocarp sometimes splitting when ripe. Seed fragrant. Fl. Aug–Oct, fr. winter–spring.
- Forests, forest margins, deep ravines, stream sides; 500–1000 m. SE Yunnan (Jinping Xian, Malipo Xian).


臭樱属 chou ying shu

Gu Cuizhi (谷粹芝 Ku Tsue-chih); Bruce Barholomew

Trees or shrubs, deciduous, polygamous dioecious. Branches unarmed. Winter buds large, oblong to ovoid, with several scales. Stipules large, persistent, margin glandular. Leaves alternate, simple; leaf blade margin with gland-tipped simple, double, or incised teeth. Inflorescences inserted apically on branchlets, racemose, many flowered; bracts soon caducous. Pedicel short. Hypanthium campanulate. Sepals and petals essentially identical. Perianth segments 10–12, to 3 mm. Stamens 20–40, in 2 whorls, irregularly inserted on rim of hypanthium. Bisexual flowers: ovary superior, (1 or)2-loculed, glabrous; ovules 2 per locale, parallel, pendulous;
1a. Leaf blade abaxially glabrous; branchlets glabrous or pubescent.

2a. Leaf blade abaxially whitish, glaucous, margin irregularly simply serrate or doubly serrate; secondary veins 14–18 on each side of midvein ......................................................... 1. M. hypoleuca

2b. Leaf blade abaxially green, not glaucous, margin doubly serrate or incised doubly serrate; secondary veins 9–15 on each side of midvein.

3a. Branchlets densely pubescent; leaf blade 5–10(–15) × 3–5(–8) cm, margin incised doubly serrate .... 2. M. incisoserrata

3b. Branchlets sparsely pubescent; leaf blade 4–5 × 2–2.5 cm, margin not incised doubly serrate .......... 3. M. fujianensis

1b. Leaf blade abaxially densely pubescent at least on veins; branchlets densely pubescent.

4a. Branchlets of first year’s growth villous; winter buds purplish red; hypanthium villous; style ± as long as stamens ......................................................... 6. M. himalaica

4b. Branchlets of first year’s growth pubescent or tomentose-pubescent; winter buds purplish brown; hypanthium pubescent; style longer than stamens.

5a. Winter bud scales to 2 × 1 cm; stipules linear to lanceolate, herbaceous; inflorescence bracts lanceolate to ovate-lanceolate ......................................................... 4. M. hypoxantha

5b. Winter bud scales to 1.5 × 0.8 cm; stipules lorate-lanceolate, membranous; inflorescence bracts oblong .... 5. M. wilsonii


臭樱 chou ying

Trees 2–7 m tall. Branches purple, glabrous, lustrous; branchlets of first year’s growth purplish red or greenish, pubescent, glabrescent. Winter buds purple, ovoid; scales to 10 × 8 mm, outside glabrous. Stipules lanceolate, ca. 1.5 cm, herbageous, margin basally glandular serrate and apically entire, apex long acuminate. Petiole 2–4 mm, glabrous or apically pubescent when young; leaf blade ovate-oblong, oblong, or elliptic, 4–9(–15) × 2–4(–8) cm, both surfaces glabrous, abaxially whitish and glaucous, adaxially dark green, base subcordate, rounded, or rarelly broadly cuneate, margin irregularly simply serrate or biserrate, apex acuminate to caudate; midvein and secondary veins prominent; secondary veins 14–18 on either side of midvein. Racemes 1.7–5 cm; peduncle 3–5 cm. Pedicel 3–5 cm, abaxially pale green, glabrous, and not glaucous, adaxially dark green and glabrous or occasionally sparsely appressed pubescent, base subrounded to broadly cuneate, margin incised and biserrate, apex acute to caudate; midvein and secondary veins yellowish, conspicuously prominent; secondary veins 10–15 on either side of midvein. Racemes 3–5 cm, dense; peduncle densely brown pubescent; bracts lanceolate to linear, membranous, margin glandular serrate or non-glandular. Bisexual flowers 2–4 mm in diam. Pedicel ca. 2 mm, densely brown pubescent, glabrescent. Perianth segments oblanceolate, ca. 3 mm, soon caducous or base persistent in fruit, outside pubescent, inside subglabrous, margin entire, apex acute. Stamens 23–30. Ovary glabrous. Style slender, nearly as long as stamens; stigma oblique. Drupe black, ovoid, ca. 8 mm in diam., glabrous, apex acute. Fl. Apr–May, fr. Jun.

- Forests in valleys, slopes, scrub; 1100–2900 m. Anhui, Gansu, Guizhou, S Henan, Qinghai, Shaanxi, Shanxi, Sichuan, Zhejiang.


锐齿臭樱 rui chi chou ying

Shrubs 2–4 m tall, erect. Branches grayish green, glabrous; branchlets of first year’s growth slightly puberulous to puberulous, glabrescent. Winter buds ovoid; scales several, imbricate, margin densely ciliate. Stipules linear, 1–1.5 cm, margin apically ciliate. Petiole 2–4 mm; leaf blade ovate, 4.5 × 3–2.5 cm, abaxially pale green, glabrous or sometimes pubescent in vein axis, adaxially glabrous; secondary veins 9–12 on each side of midvein. Racemes lax; peduncle 3–5 cm. Pedicel 2.5 × 2.5–3 mm, glabrous. Sepals 10, slightly unequal, triangular, glabrous. Stamens 20–28. Ovary glabrous. Style shorter than stamens. Fruit unknown. Fl. Apr.

- Sparse forests; ca. 1700 m. N Fujian (Chong’an Xian).


四川臭樱 si chuan chou ying
ROSACEAE

Shrubs 3–6 m tall. Branches purplish brown, glabrous, lustrous; branchlets of first year’s growth yellowish brown, brown pubescent, glabrescent. Winter buds purplish brown, ovoid; scales to 2 × 1 cm, outside brown pubescent but glabrescent, margin basally glandular serrate and apically entire, apex acuminate. Pedicel 2–7 mm, densely brown villous; leaf blade oblong to elliptic, 5–11 × 2.5–5 cm, abaxially yellowish green and densely brown pubescent on midvein and secondary veins, adaxially dull green and glabrous, base subrotund to broadly cuneate, margin biserrate or sometimes incised serrate, apex acute, acuminate or shortly caudate; secondary veins 12–20 on either side of midvein. Racemes 3–5 cm; peduncle densely brown pubescent; bracts lanceolate to ovate-lanceolate, membranous, margin entire or indistinctly shallowly serrate. Bisexual flowers 2–4 mm in diam. Pedicel ca. 2 mm, to 3 mm in fruit, densely brown pubescent. Hypanthium outside pubescent. Perianth segments ovate, soon caducous, outside and inside brown pubescent, margin entire, apex acute. Stamens many. Ovary glabrous, Style slender, longer than stamens; stigma oblique. Drupe purple, ovoid, ca. 8 mm in diam., glabrous. Fl. Apr–May, fr. Jun. 2n = 32*.

● Shady valleys, scrub; 2100–3200 m. Qinghai, W Sichuan, Yunnan.


华西臭樱 hua xi chou ying

Trees or shrubs, 3–5 m tall. Branches purplish brown to brown, glabrous, lustrous; branchlets of first year’s growth yellowish brown, densely yellowish brown tomentose-pubescent, glabrescent. Winter buds purplish brown, ovoid; scales to 1.5 × 0.8 cm, tomentose or outside subglabrous. Stipules lorate-lanceolate, abaxially pubescent, margin glandular serrate, apex acuminate. Petiole 2–7 mm, yellowish brown villous; leaf blade oblong to oblanceolate, 3.5–12 × 1.8–6 cm, abaxially pale green to brown, densely yellowish brown villous or white pubescent, and more densely hairy on veins, adaxially brownish green and glabrous or sometimes sparsely appressed pubescent, base subcordate, margin irregularly incised and biserrate or sometimes singly serrate, apex acute; midvein and secondary veins prominent; secondary veins 15–20 on either side of midvein. Racemes 3–4 cm; peduncle sometimes brownish, densely tomentose-pubescent; bracts oblong, submembranous, subglabrous, margin entire. Bisexual flowers 2–4 mm in diam. Pedicel sometimes brown, ca. 2 mm, thickened in fruit, densely tomentose-pubescent. Hypanthium outside pubescent. Perianth segments triangular-ovate, ca. 3 mm, soon caducous, outside pubescent, inside glabrous, margin entire, apex acute. Stamens 30–40. Ovary glabrous; style slender, longer than stamens, base persistent in fruit; stigma oblong. Drupe black, ovoid, ca. 8 mm in diam., smooth, apex acute. Fl. Apr–Jun, fr. Jun.

● Slopes, scrub, sunny places by rivers; 1500–3600 m. S Gansu, Guizhou, W Hubei, Shaanxi, Sichuan.


喜马拉雅臭樱 xi ma la ya chou ying

Maddenia himalaica var. glabrifolia H. Hara.

Trees 3–8(–10) m tall. Branchlets more than two years old purplish brown to reddish brown, pubescent, lustrous; branchlets of first year’s growth reddish brown, densely brown villous, glabrescent. Winter buds purplish red, ovoid; scales outside brown villous to subglabrous. Stipules lorate-lanceolate, abaxially pubescent, margin glandular serrate, apex acuminate. Petiole 2–5 mm, densely brown villous; leaf blade abaxially pale green and densely brown villous especially on veins but occasionally glabrous except on veins, adaxially dark green and glabrous, margin teeth with an apical gland when young; midvein and secondary veins abaxially conspicuously prominent, adaxially impressed; secondary veins 15–20 on either side of midvein. Sterile shoots with leaf blade narrowly elliptic, oblong, or rarely ovate, 5–15 × 1.8–5 cm, base subrounded to cordate, margin aristate biserate, apex long acuminate to caudate. Flowering shoots with leaf blade ovate to ovate-lanceolate, 5–9.5 × 2–5 cm, base cordate, margin incised and simply serrate or biserate, apex long acuminate to caudate. Racemes 3.5–6 cm, dense; peduncle densely brown villous; bracts oblong lanceolate, membranous, outside sparsely pubescent, margin glandular serrate. Bisexual flowers 2–4 mm in diam. Pedicel ca. 2 mm, to 5 mm in fruit, densely brown villous. Hypanthium outside brown villous. Perianth segments ovate, ca. 3 mm, soon caducous, outside brown villous, inside subglabrous, margin entire, apex acute. Stamens 20–30. Ovary glabrous. Style slender, ± as long as stamens, base persistent in fruit; stigma disk-shaped. Drupe purple, ovoid, ca. 9 mm in diam., apex acute. Fl. May, fr. Jun.

● Forests; 2800–4200 m. E and S Xizang (Bomi Xian, Yadong Xian) [Bhutan, Nepal, Sikkim].
ROSACEAE