

1. SPIRAEA Linnaeus, Sp. Pl. 1: 489. 1753.

绣线菊属 *xiu xian ju shu*

Lu Lingdi (陆玲娣 Lu Ling-ti); 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 \pm 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.

Spiraea holorhodantha H. Léveillé (Bull. Acad. Int. Géogr. Bot. 25: 44. 1915), described from Yunnan, is *Rodgersia sambucifolia* Hemsley var. *sambucifolia* in the Saxifragaceae (see Fl. China 8: 274. 2001).

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 \pm 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. hayatana*
- 7b. Leaf blades pubescent on both surfaces or only on veins; inflorescences $6\text{--}12 \times 4\text{--}14$ 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 $2\text{--}3 \times$ 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. Branchlets angled; leaf blades tomentose abaxially; pedicels 1–2 mm 10. *S. schochiana*
- 13b. Branchlets terete; leaf blades densely thinly villous abaxially; pedicels 4–8 mm.
- 14a. Bracts 2–4 mm; follicles thinly villous 9. *S. henryi*
- 14b. 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. Buds 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 petioles, 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-villous; leaf blades abaxially sericeous-villous, sometimes glabrescent.
- 29a. Petioles 3–5 mm; leaf blades ovate or ovate-lanceolate, abaxially sericeous-villous, later glabrescent, margin often entire 21. *S. velutina*
- 29b. Petioles 6–10 mm; leaf blades broadly ovate or rhombic-ovate, abaxially sericeous-villous, not glabrescent, margin lobed 22. *S. lobulata*
- 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.
- 31a. Leaf blade margin entire or with a few crenate teeth near apex; stamens equaling petals or nearly so.
- 32a. Branchlets conspicuously angled; flowers pinkish 66. *S. calcicola*
- 32b. Branchlets terete; flowers white.
- 33a. Leaf blades on sterile branches usually flabellate, ± as wide as long.
- 34a. Branchlets glabrous; leaf blades abaxially glabrous, with glaucous bloom 69. *S. compsophylla*
- 34b. Branchlets densely pubescent, later glabrescent; leaf blades abaxially densely pubescent 70. *S. aquilegiifolia*
- 33b. Leaf blades on sterile branches not flabellate, longer than wide, apex acute or obtuse.
- 35a. Branchlets glabrous or puberulent; leaf blades 15–20 × 5–7 mm; follicles glabrous 67. *S. hypericifolia*
- 35b. Branchlets densely pubescent, later glabrescent; leaf blades 4–14 × 3–5 mm; follicles pubescent 68. *S. hailarensis*
- 31b. Leaf blade margin serrate or slightly lobed; stamens shorter than petals.
- 36a. Leaf blade margin sharply serrulate.
- 37a. Leaf blades ovate to oblong-lanceolate, abaxially pubescent; pedicels 10–24 mm, pubescent 59. *S. prunifolia*
- 37b. Leaf blades linear-lanceolate, abaxially glabrous; pedicels 6–10 mm, glabrous 60. *S. thunbergii*
- 36b. Leaf blade margin coarsely serrate.
- 38a. Leaf blades glabrous on both surfaces 65. *S. kwangsiensis*
- 38b. Leaf blades pubescent on both surfaces or glabrous adaxially when old.
- 39a. Branchlets terete, pubescent or tomentose; pedicels and hypanthium abaxially glabrous.
- 40a. Branchlets densely tomentose; leaf blade margin usually 3-lobed, with a few large, obtuse teeth above middle, base cuneate or broadly so 61. *S. martini*
- 40b. Branchlets pubescent; leaf blade margin not lobed, with many large, crenate teeth above base, base subrounded 62. *S. cavaleriei*

- 39b. Branchlets prominently angled, pubescent or villous; pedicels and hypanthium abaxially hairy.
- 41a. Branchlets and buds appressed villous; pedicels and hypanthium abaxially villous when young; follicles glabrous or slightly pilose on adaxial suture 63. *S. daochengensis*
- 41b. Branchlets and buds densely pubescent; pedicels, hypanthium abaxially, and follicles pubescent 64. *S. muliensis*
- 30b. Flowers in pedunculate umbels or umbel-like racemes, with clustered leaves at base.
- 42a. Buds with 2 exterior scales.
- 43a. Leaf blade margin serrate; stamens longer than petals; sepals reflexed in fruit.
- 44a. Leaf blades oblong-elliptic to oblong-ovate, margin sharply serrate above middle or near apex; petioles 2–5 mm; stamens ca. 20 55. *S. flexuosa*
- 44b. Leaf blades broadly ovate, margin minutely serrate or doubly serrate; petioles 4–7 mm; stamens 35–50 56. *S. chamaedryfolia*
- 43b. Leaf blade margin entire or apically crenate-serrate; stamens subequaling petals; sepals erect or spreading in fruit.
- 45a. Branchlets, leaf blades, and inflorescences glabrous; follicles glabrous or slightly hairy on adaxial suture 57. *S. mongolica*
- 45b. Branchlets, leaf blades, and inflorescences villous; follicles pubescent 58. *S. mollifolia*
- 42b. Buds with several exterior scales.
- 46a. Leaf blade margin entire or apically crenate-serrate.
- 47a. Leaf blades abaxially hairy; follicles hairy; sepals reflexed in fruit.
- 48a. Leaf blade margin with a few obtuse teeth above middle; racemes dense 49. *S. tarokoensis*
- 48b. Leaf blade margin entire or on sterile shoots with sharp teeth apically; racemes lax.
- 49a. Branchlets glabrous or subglabrous; leaf blades abaxially glabrous or slightly pubescent in vein axils 48. *S. media*
- 49b. Branchlets densely villous; leaf blades abaxially densely long sericeous.
- 50a. Shrubs erect, to 2 m; leaf blades ovate-elliptic or elliptic, 1.5–4.5 cm; inflorescences 15–30-flowered; stamens longer than petals 46. *S. sericea*
- 50b. Shrubs prostrate; leaf blades broadly ovate, 0.8–1.5 cm; inflorescences 7–15-flowered; stamens slightly shorter than petals 47. *S. prostrata*
- 47b. Leaf blades abaxially glabrous (pubescent in *S. xizangensis*); follicles glabrous or pilose on adaxial suture; sepals erect, spreading, or reflexed in fruit.
- 51a. Branchlets terete, glabrous; sepals reflexed 54. *S. dahurica*
- 51b. Branchlets angled, pubescent; sepals erect or slightly spreading.
- 52a. Leaf blades 2–4 mm wide; veins inconspicuous.
- 53a. Flowers white; styles subterminal, divergent 50. *S. alpina*
- 53b. Flowers pink-red; styles abaxial, suberect 51. *S. xizangensis*
- 52b. Leaf blades 4–9 mm wide, ± conspicuously 3-veined at base.
- 54a. Inflorescences 2–4 cm; styles terminal, divergent 52. *S. myrtilloides*
- 54b. Inflorescences 1–1.5 cm; styles abaxial 53. *S. ningshiaensis*
- 46b. Leaf blade margin serrate or incised, sometimes lobed.
- 55a. Stamens longer than or rarely subequaling petals; flowers in umbel-like racemes.
- 56a. Follicles pubescent or hirsute; sepals erect in fruit.
- 57a. Pedicels and hypanthium abaxially pubescent; leaf blades abaxially pubescent, margin lobed 40. *S. sublobata*
- 57b. Pedicels and hypanthium abaxially glabrous; leaf blades abaxially pubescent on veins or in vein axils, margin not lobed.
- 58a. Leaf blades oblong-elliptic to lanceolate-elliptic, abaxially pubescent in vein axils, base cuneate, margin irregularly incised serrate, sometimes doubly serrate above middle 41. *S. elegans*
- 58b. Leaf blades triangular-ovate or lanceolate-ovate, abaxially pubescent on veins, base truncate, rarely subrounded, margin doubly serrate except near base 42. *S. anomala*
- 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-villous 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. papillosa*
- 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.
- 62a. 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. ×vanhouttei*
- 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. siccanca*
- 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. dasyantha*
- 70b. Leaf blades ovate to obovate, 1–2 cm, margin ± obtusely serrate or doubly serrate, apex obtuse or slightly 3-lobed 33. *S. yunnanensis*

1. *Spiraea salicifolia* Linnaeus, Sp. Pl. 1: 489. 1753.

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 glabrescent; buds ovoid to oblong-ovoid, 3–5 mm, with several brown scales, apex acute. Petiole 1–4 mm, glabrous; leaf blade oblong-lanceolate to lanceolate, 4–8 × 1–2.5 cm, glabrous, occasionally 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].

1b. *Spiraea salicifolia* var. *grosseserrata* Liou, Ill. Fl. Lign. Pl. N. E. China, 278, 564. 1955.

巨齿绣线菊 ju chi xiu xian ju

Leaf blade margin deeply incised doubly serrate.

- River banks, slopes. Heilongjiang, Jilin.

1c. *Spiraea salicifolia* var. *oligodonta* T. T. Yu, Acta Phytotax. Sin. 8: 215. 1963.

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 Linnaeus f., Suppl. Pl. 262. 1782.

绣线菊 *xiu xian ju*

Shrubs erect, to 1.5 m tall. Branchlets brownish to purple-brown, slender, subterete, 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. Corymbs 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, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Xizang, 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 rounded; inflorescences 5–7 cm in diam. 2d. var. *incisa*
 - 7b. Leaf blades oblong-lanceolate, 13–16 × 3–4 cm, base cuneate; inflorescences 7–14 cm in diam. 2e. var. *pinnatifida*

2a. Spiraea japonica var. **japonica**

绣线菊(原变种) *xiu xian ju* (yuan bian zhong)

Spiraea callosa Thunberg.

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].

2b. Spiraea japonica var. **acuta** T. T. Yu, Acta Phytotax. Sin. 8: 215. 1963.

急尖绣线菊 *ji jian xiu xian ju*

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

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

2c. Spiraea japonica var. **acuminata** Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 218. 1886.

渐尖绣线菊 *jian jian xiu xian ju*

Spiraea bodinieri H. Léveillé; *S. bodinieri* var. *concolor* H. Léveillé; *S. esquirolii* H. Léveillé.

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, Xizang, Yunnan, Zhejiang.

2d. Spiraea japonica var. **incisa** T. T. Yu, Acta Phytotax. Sin. 8: 216. 1963.

锐裂绣线菊 *rui lie xiu xian ju*

Leaf blades ovate-oblong to oblong-lanceolate, 6–9 × 1–3 cm, base broadly cuneate to rounded, margin incised pinnatifid, deeply and sharply incised doubly serrate. Inflorescences 5–7 cm in diam.

- Thickets, alpine steppes; 3200–4000 m. Henan, Sichuan, Yunnan.

2e. *Spiraea japonica* var. *pinnatifida* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 18: 490. 1980.

羽叶绣线菊 yu ye xiu xian ju

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.

2f. *Spiraea japonica* var. *ovalifolia* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 218. 1886.

椭圆绣线菊 tuo yuan xiu xian ju

Leaf blades elliptic to broadly ovate, 2–4 cm, margin crenulate 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.

光叶绣线菊 guang ye xiu xian ju

Spiraea fortunei Planchon, Fl. Serres Jard. Eur. 9: 35. 1853.

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, Shandong, Sichuan, Yunnan, Zhejiang.

2h. *Spiraea japonica* var. *glabra* (Regel) Koidzumi, Bot. Mag. (Tokyo) 23: 167. 1909.

无毛绣线菊 wu mao xiu xian ju

Spiraea callosa Thunberg var. *glabra* Regel, Index Seminum Hort. Petrop. 1869(Suppl.): 27. 1870.

Leaf blades ovate-oblong to long elliptic, 3.5–9 cm, margin sharply doubly serrate, apex acute to shortly acuminate. Inflorescences 6–12 cm in diam. Flowers pink.

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

3. *Spiraea formosana* Hayata, J. Coll. Sci. Univ. Tokyo 30(1): 88. 1911.

台湾绣线菊 tai wan xiu xian ju

Spiraea japonica Linnaeus f. var. *formosana* (Hayata) Masamune.

Shrubs. Branchlets yellow-brown to dark brown, terete, densely pubescent when young, later glabrescent; buds ovoid, ca. 5 mm, with several scales, apex acute. Petiole 2–3 mm, pubescent; leaf blade abaxially pale, oblong to oblong-ovate, 4–6(–8) × 2–2.5 cm, abaxially pubescent especially on veins, adaxially glabrous, base broadly cuneate, margin doubly serrate, apex acute. Corymbs terminal on erect, long, leafy shoots of current year, compound, 6–10 × 8–12 cm, many flowered;

rachis and pedicels pubescent; pedicels 5–7 mm; bracts linear to subulate, pubescent. Hypanthium broadly campanulate, pubescent abaxially. Sepals triangular, 1.5–2 mm, reflexed in fruit. Petals orbicular, 2–3 mm in diam., apex obtuse or slightly emarginate. Stamens ca. 20, longer than petals. Disk annular, 10-lobed; lobes subobtuse at apex, rarely emarginate. Carpels adaxially pubescent; styles shorter than stamens. Follicles slightly spreading, subglabrous or puberulous on adaxial suture; styles persistent, spreading. Fl. May–Jun, fr. Aug–Sep.

- Forests, slopes; 2100–3000 m. Taiwan.

4. *Spiraea hayatana* H. L. Li, Lloydia 14: 237. 1951.

假绣线菊 jia xiu xian ju

Spiraea formosana Hayata var. *brevistyla* Hayata; *S. japonica* Linnaeus f. var. *formosana* (Hayata) Masamune subvar. *brevistyla* (Hayata) Masamune.

Shrubs to 1.5 m tall. Branches 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. Corymbs 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 subemarginate. Stamens ca. 20, long exerted; filaments 4–5 mm. Follicles erect, 2–3 mm, glabrous, slightly rostrate.

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

5. *Spiraea purpurea* Handel-Mazzetti, Symb. Sin. 7: 453. 1933.

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. Corymbs 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 broadly turbinate, glabrous or puberulous abaxially. Sepals triangular-ovate, 1.5–2 mm. Petals dark purple-red, orbicular, much longer than sepals. Stamens ca. 20, unequal, longer ones nearly equaling petals; anthers brown-purple. Disk annular, with prominent lobes. Styles shorter than stamens; stigma capitate. Follicles erect, glabrous. Fl. May–Jul, fr. Aug–Sep.

- Mixed forests, thickets on slopes; 2800–3300 m. Sichuan, Xizang, Yunnan.

6. *Spiraea bella* Sims, Bot. Mag. 50: t. 2426. 1823.

藏南绣线菊 zang nan xiu xian ju

Shrubs deciduous, to 2 m tall. Branchlets yellow-brown to red-brown, slightly angled, subglabrous to pubescent; buds brown to red-brown, small, with several scales, glabrous. Petiole 2–5 mm; leaf blade abaxially gray-green, adaxially bright green, ovate, elliptic-ovate, or ovate-lanceolate, 2–4 × 1–2 cm, abaxially pubescent or subglabrous on veins, adaxially glabrous, rarely puberulous, base broadly cuneate to rounded, margin sharply serrate or doubly serrate from below middle, apex acute. Corymbs terminal, compound, 2–4 × 1.5–2.5 cm, many flowered; rachis and pedicels pubescent; pedicels 5–8 mm; bracts elliptic-lanceolate, 3–5 mm, puberulous, apex acuminate. Flowers ± unisexual, 5–7 mm in diam. Hypanthium campanulate, slightly pubescent abaxially. Sepals triangular-ovate, 1.5–2.5 × 1.5–2 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 [Bhutan, India, Nepal, Sikkim].

- 1a. Follicles puberulous only on adaxial suture 6a. var. *bella*
- 1b. Follicles pubescent throughout 6b. var. *pubicarpa*

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

藏南绣线菊(原变种) 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 [Bhutan, India, Nepal, Sikkim].

6b. *Spiraea bella* var. *pubicarpa* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 18: 490. 1980.

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 (Lu) believes that *Spiraea hemicyptophyta* 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 corymbs all terminal.

7. *Spiraea fritschiana* C. K. Schneider, Bull. Herb. Boissier, sér. 2, 5: 347. 1905.

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. Corymbs 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, puberulous. Flowers 5–6 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1.5–2 mm, about as broad as long, reflexed in fruit, apex acute. Petals white, pinkish in bud, ovate, 2–4 × 2–2.5 mm, glabrous, apex obtuse. Stamens 25–30, longer than petals. Disk annular, with 8–10 unequal, emarginate lobes. Carpels pubescent; styles shorter than stamens. Follicles suberect, spreading, glabrous or pubescent only on adaxial suture; styles terminal, erect or slightly divergent. Fl. May–Jun, fr. Aug–Sep.

• 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)

Spiraea fritschiana var. *villosa* Y. Q. Zhu & D. K. Zang.

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.

• Mountain valley forests, rocky slopes; 100–2000 m. Gansu, Hebei, Henan, Hubei, Jiangsu, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang.

7b. *Spiraea fritschiana* var. *angulata* (Fritsch ex C. K. Schneider) Rehder in Sargent, Pl. Wilson. 1: 453. 1913.

大叶华北绣线菊 da ye hua bei xiu xian ju

Spiraea angulata Fritsch ex C. K. Schneider, Bull. Herb. Boissier, sér. 2, 5: 347. 1905; *S. fritschiana* var. *latifolia* Liou.

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, Jiangxi, Liaoning, Shaanxi, Shandong, Shanxi.

7c. *Spiraea fritschiana* var. *parvifolia* Liou, Ill. Fl. Lign. Pl. N. E. China, 279, 563. 1955.

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.

• Dry slopes; 800–1000 m. Hebei, Liaoning, Shandong.

8. *Spiraea miyabei* Koidzumi, Bot. Mag. (Tokyo) 23: 166. 1906.

长蕊绣线菊 *chang rui xiu xian ju*

Spiraea silvestris Nakai.

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 subobtusate. Petiole 2–5 mm, glabrous; leaf blade occasionally glaucescent 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. Corymbs 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. *glabrata*
 - 2b. Leaf blades to 7 cm, glaucescent abaxially, base cuneate; petiole to 1 cm 8b. var. *tenuifolia*

8a. *Spiraea miyabei* var. *glabrata* Rehder in Sargent, Pl. Wilson. 1: 454. 1913.

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.

• Mixed forests, slopes, gullies; 1000–2000 m. Anhui, Hubei, Shaanxi.

8b. *Spiraea miyabei* var. *tenuifolia* Rehder in Sargent, Pl. Wilson. 1: 455. 1913.

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).

8c. *Spiraea miyabei* var. *pilosula* Rehder in Sargent, Pl. Wilson. 1: 455. 1913.

毛叶长蕊绣线菊 *mao ye chang rui xiu xian ju*

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

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

9. *Spiraea henryi* Hemsley, J. Linn. Soc., Bot. 23: 225. 1887.

翠蓝茶 *cui lan cha*

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 subobtusate. Corymbs terminal on short, lateral branchlets, compound, 3–7 × 4–7 cm, many flowered; rachis and pedicels glabrous or 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 equaling 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.

- 1a. Inflorescences villous; leaf blades densely thinly villous abaxially 9a. var. *henryi*
- 1b. Inflorescences glabrous; leaf blades subglabrous or sparsely villous abaxially 9b. var. *omeiensis*

9a. *Spiraea henryi* var. *henryi*

翠蓝茶(原变种) *cui lan cha (yuan bian zhong)*

Leaf blades densely thinly villous abaxially. Inflores-

cences villous.

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

9b. *Spiraea henryi* var. *omeiensis* T. T. Yu, Acta Phytotax. Sin. 8: 216. 1963.

峨眉翠蓝茶 e mei cui lan cha

Spiraea henryi var. *glabrata* T. T. Yu & L. T. Lu.

Leaf blades subglabrous or sparsely villous abaxially. Inflorescences glabrous.

• Roadside thickets, slopes; 1300–1500 m. C Sichuan (Emei Shan).

10. *Spiraea schochiana* Rehder, J. Arnold Arbor. 1: 259. 1920.

滇中绣线菊 dian zhong xiu xian ju

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. Corymbs 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.

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

11. *Spiraea sargentiana* Rehder in Sargent, Pl. Wilson. 1: 447. 1913.

茂汶绣线菊 mao wen xiu xian ju

Spiraea aemulans Rehder.

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. Corymbs 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.

• Thickets, open slopes, roadsides; 1000–2400 m. Henan, Hubei, Sichuan, Yunnan.

12. *Spiraea wilsonii* Duthie in J. H. Veitch, Hort. Veitch. 379. 1906.

陕西绣线菊 shan xi xiu xian ju

Shrubs 1.5–2.5 m tall. Branchlets spreading, arching, brownish or purplish turning purple-brown or gray-brown when old, terete, pubescent, finally glabrous; buds ovoid, with a few scales, pubescent, apex obtuse. Petiole 2–5 mm, villous; leaf blade abaxially gray-green, oblong, obovate, or elliptic-oblong, 1–3 × 0.5–1 cm, abaxially villous, more densely so on veins, adaxially sparsely villous, base cuneate, margin entire or with a few teeth apically, apex acute, rarely obtuse. Corymbs terminal on lateral branchlets, compound, 3–4.5 cm in diam.; rachis and pedicels villous; pedicels 4–6 mm; bracts elliptic-oblong or ovate-lanceolate, 4–6 × 1.5–3.5 mm, villous on both surfaces, base cuneate, margin entire, apex acute or obtuse. Flowers 6–7 mm in diam. Hypanthium campanulate, villous abaxially. Sepals triangular, 1–2 mm, erect in fruit, apex acute. Petals white, broadly obovate or suborbicular, 2–3 mm, almost as broad as long, apex emarginate or subobtuse. Stamens ca. 20, subequaling petals. Disk annular, 10-lobed; lobes sometimes emarginate at apex. Styles shorter than stamens. Follicles spreading, densely pubescent; styles terminal on abaxial side, slightly divergent. Fl. May–Jul, fr. Aug–Sep.

• Mountain valley forests, rocky slopes, open places, roadsides; 1000–3200 m. Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Yunnan.

13. *Spiraea teretiuscula* C. K. Schneider, Bot. Gaz. 63: 399. 1917.

圆枝绣线菊 yuan zhi xiu xian ju

Shrubs to 2 m tall. Branchlets arched, laxly branched, yellowish or purple-yellowish, grooved, puberulous; young branchlets red-brown or brownish, grayish when old, terete; buds small, ovoid, with several scales, pilose. Petiole 1–2 mm, puberulous; leaf blade abaxially gray-green, adaxially greenish, ovate or ovate-elliptic, 6–11 × 4–7 mm, abaxially gray-green, pilose initially, later glabrous, papillose, adaxially greenish, slightly pubescent when young, later glabrous, lateral veins 3 or 4 on each side of midvein, prominent abaxially, base cuneate, margin entire, apex obtuse, sometimes subemarginate. Corymbs compound, 1–3 × 1.5–2.5 cm, up to 25-flowered; rachis and pedicels densely finely pubescent; pedicels 5–9 mm; bracts lanceolate or linear, 2–3 mm, thinly pubescent. Flowers 5–6 mm in diam. Hypanthium turbinate, thinly pubescent abaxially. Sepals broadly triangular, 1–1.5 mm, about as broad as long, apex acute. Petals white, suborbicular, 1.5–2 mm in diam., glabrous, base shortly clawed. Stamens ca. 20, nearly equaling petals. Disk annular, 10-lobed. Carpels sparsely hairy basally; styles terminal, much shorter than stamens.

- Mountain forests; 2500–3000 m. S Sichuan.

14. *Spiraea ovalis* Rehder in Sargent, Pl. Wilson. 1: 446. 1913.

广椭圆线菊 *guang tuo xiu xian ju*

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 oblong, 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. Corymbs 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.

15. *Spiraea veitchii* Hemsley, Gard. Chron., ser. 3, 33: 258. 1903.

鄂西绣线菊 *e xi xiu xian ju*

Spiraea atemphophylla H. Léveillé.

Shrubs to 4 m tall. Branchlets arching, red-brown to gray-brown, slender, terete, slightly angled, pubescent when young, later glabrous; buds ovoid, small, with several scales, pubescent, apex acute or obtuse. Petiole 2–3 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. Corymbs 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, ovate 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.

- Thickets, grasslands; 2000–3600 m. Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Yunnan.

16. *Spiraea schneideriana* Rehder in Sargent, Pl. Wilson. 1: 449. 1913.

川滇绣线菊 *chuan dian xiu xian ju*

Shrubs 1–2 m tall. Branchlets red-brown, later gray-brown, angled, villous, later glabrescent; buds ovoid, with several brown scales, puberulous, later glabrescent, apex subobtusely or acute. Petiole 1–3 mm, usually glabrous; leaf blade ovate to ovate-oblong, 8–15 × 5–8 mm, glabrous or thinly villous near margin on both surfaces, veins indistinct, sometimes 3-veined basally, base cuneate to rounded, margin entire, rarely with a few teeth apically, apex obtuse or subacute. Corymbs terminal on short, lateral branchlets, compound, 2.5–5 × 3–6 cm, many flowered; rachis and pedicels glabrous to thinly villous; pedicels 4–9 mm; bracts lanceolate, 2–3 mm, puberulous, caducous, base cuneate, margin entire, apex acute. Flowers 5–6 mm in diam. Hypanthium campanulate, ± thinly pubescent. Sepals 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 villous, rarely subglabrous

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

1b. Young branchlets and inflorescences

usually glabrous 16b. var. *amphidoxa*

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 villous, rarely subglabrous.

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

16b. *Spiraea schneideriana* var. *amphidoxa* Rehder in Sargent, Pl. Wilson. 1: 450. 1913.

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.

17. *Spiraea teniana* Rehder, J. Arnold Arbor. 1: 259. 1920.

伏毛绣线菊 *fu mao xiu xian ju*

Shrubs erect, 1–3 m tall. Branchlets brownish red to brown, terete, sparsely pubescent initially, finally glabrous; buds small, with 2 scales, glabrous. Petiole 1–2 mm, subglabrous; leaf blade abaxially glaucescent, adaxially dark green, elliptic or elliptic-ovate, 2–2.8 × 1–1.5 cm, abaxially accumbent 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. Corymbs terminal on short, lateral branchlets, compound,

2–3.5 × 3–4 cm, densely numerous flowered; rachis and pedicels accumbent 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, 1–1.5 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. *mairi* (H. Léveillé) L. T. Lu, based on *S. mairi* H. Léveillé (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. mairi* (1915) has priority over *S. teniana* (1920).

18. *Spiraea hingshanensis* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 13(1): 99. 1975.

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, 5–7.5 × 2.5–3.5 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. Corymbs 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, 3–5 mm, glabrous, apex acute to shortly acuminate. Flowers 3–4 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1–1.5 × 1–1.5 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.

19. *Spiraea morrisonicola* Hayata, J. Coll. Sci. Univ. Tokyo 30(1): 89. 1911.

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 subobtusely. Petiole 1–3 mm, glabrous; leaf blade ovate or rhombic-ovate, 10–20 × 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. Corymbs 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.

20. *Spiraea kweichowensis* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 13(1): 100. 1975.

贵州绣线菊 *gui zhou xiu xian ju*

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).

21. *Spiraea velutina* Franchet, Pl. Delavay. 201. 1889.

绒毛绣线菊 *rong mao xiu xian ju*

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 petioles, with 2 scales, densely tomentose-villous, 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-villous (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 and mixed forests, thickets, slopes, gullies, river banks; 2000–3300 m. Xizang, Yunnan.

- 1a. Leaf blades densely sericeous-villous, especially on veins abaxially 21a. var. *velutina*
1b. Leaf blades glabrescent, subglabrous, or sparsely hairy only on veins abaxially 21b. var. *glabrescens*

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

绒毛绣线菊(原变种) rong mao xiu xian ju (yuan bian zhong)

Leaf blades densely sericeous-villous, especially on veins abaxially.

• Mixed forests, slopes, river banks; 2000–3000 m. Xizang, Yunnan.

21b. *Spiraea velutina* var. *glabrescens* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 18: 491. 1980.

脱毛绣线菊 tuo mao xiu xian ju

Leaf blades glabrescent, subglabrous, or sparsely hairy only on veins abaxially.

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

22. *Spiraea lobulata* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 18: 490. 1980.

裂叶绣线菊 lie ye xiu xian ju

Shrubs 1.5–3 m tall. Branchlets brownish, densely yellow-grayish tomentose, glabrescent when old; buds shortly or long ovoid, with 2 scales, densely tomentose. Petiole 6–10 mm, densely tomentose; leaf blade broadly ovate to rhombic-ovate, 4–7 × 3–5 cm, sericeous-villous on both surfaces, more densely so abaxially, base cuneate to subrounded, margin lobed and incised doubly serrate, apex acute to shortly acuminate. Corymbs borne on lateral branchlets, compound, to 16 cm wide, densely many flowered; rachis and pedicels densely yellow-grayish tomentose; pedicels 4–6 mm; bracts linear-lanceolate or linear, tomentose. Flowers 4–6 mm in diam. Hypanthium campanulate, tomentose abaxially. Sepals triangular, spreading or rarely reflexed in fruit, apex acute. Petals white, suborbicular, 2–3 mm in diam., apex obtuse. Stamens much longer than petals; anthers white. Disk annular; lobes distinct, broad. Carpels densely hairy; styles shorter than stamens. Follicles spreading, softly hairy throughout; styles terminal on abaxial side. Fl. Jun–Aug, fr. Aug–Oct.

• Alpine coniferous forests, mixed forests in river valleys, foothill thickets, river banks; 2000–2500 m. SE Xizang.

23. *Spiraea rosthornii* Pritzl ex Diels, Bot. Jahrb. Syst. 29: 383. 1900.

南川绣线菊 nan chuan xiu xian ju

Spiraea prattii C. K. Schneider.

Shrubs to 2 m tall. Branchlets spreading, yellow-brown turning gray-brown, pubescent when young, later glabrescent; buds long ovoid, nearly equaling petioles, with 2 scales, gla-

brous, apex acuminate. Petiole 5–7 mm, hairy; leaf blade abaxially gray-green, adaxially green, ovate-oblong to ovate-lanceolate, 2.5–5(–8) × 1–2(–3) cm, abaxially pubescent, more densely so on veins, adaxially pilose, base rounded to subtruncate, margin incised doubly serrate, apex acute or shortly acuminate. Corymbs terminal on lateral branchlets, compound, 6–10 × 7–11 cm, many flowered; rachis and pedicels pubescent; pedicels 5–7 mm; bracts ovate-lanceolate to linear-lanceolate, 5–8 mm, pubescent on both surfaces, base cuneate, margin with a few teeth, apex acute. Flowers 5–7 mm in diam. Hypanthium campanulate, ± pubescent abaxially. Sepals triangular, 1–2 mm, reflexed in fruit, apex acute. Petals white, ovate to suborbicular, 2–3.5 × 2–3 mm, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20, longer than petals. Disk annular, 10-lobed; lobes broad, apex sometimes emarginate. Styles shorter than stamens. Follicles spreading, pubescent; styles terminal, divergent.

• Slopes in mixed forests, stream sides; 1000–3500 m. Anhui, Gansu, Hebei, Henan, Qinghai, Shaanxi, Sichuan, Yunnan.

24. *Spiraea longigemmis* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 6: 205. 1879.

长芽绣线菊 chang ya xiu xian ju

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 petioles, 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. Corymbs terminal on lateral branchlets, compound, 4–8 × 4–6(–8) cm, densely many flowered; rachis and pedicels pilose or subglabrous; pedicels 4–6 mm; bracts ovate-lanceolate to linear-lanceolate, 4–6 mm, pubescent on both surfaces when young, eventually glabrescent. 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, equally 10-lobed. Carpels pubescent; styles shorter than stamens. Follicles semispreading, pilose or glabrous; styles terminal on abaxial side, divergent. Fl. May–Jul, fr. Aug–Oct.

• Dry rocky slopes, roadsides; 2500–3400 m. Gansu, Hubei, Shaanxi, Shanxi, Sichuan, Xizang, Yunnan, Zhejiang.

25. *Spiraea arcuata* J. D. Hooker, Fl. Brit. India 2: 325. 1878.

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 3–8-serrate or lobed apically, apex obtuse,

rarely subacute. Corymbs 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.

Forests, thickets on river banks, river valleys, subalpine rocky places; 3000–4200 m. Xizang, Yunnan [Bhutan, India, N Myanmar, Nepal, Sikkim].

26. *Spiraea canescens* D. Don, Prodr. Fl. Nepal. 227. 1825.

楔叶绣线菊 *xie ye xiu xian ju*

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. Corymbs 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 glaucescent green, glabrous, margin entire or inconspicuously 3-lobed apically; follicles glabrous, rarely slightly pilose 26b. var. *glaucophylla*

26a. *Spiraea canescens* var. *canescens*

楔叶绣线菊(原变种) *xie ye xiu xian ju* (yuan bian zhong)

Spiraea rotundifolia Lindley; *S. canescens* D. Don var. *oblanceolata* Rehder.

Leaf blades ovate or obovate to obovate-lanceolate, abaxially pubescent, sometimes subglabrous, margin entire or ob-

tusely 3–5-dentate above middle. Follicles slightly pubescent.

Thickets, river banks, dry places; 3000–4000 m. W Sichuan, S Xizang, NW Yunnan [Bhutan, N India, Nepal, Sikkim].

26b. *Spiraea canescens* var. *glaucophylla* Franchet, Pl. Delavay. 200. 1889.

粉背楔叶绣线菊 *fen bei xie ye xiu xian ju*

Spiraea canescens D. Don var. *myrtifolia* Zabel; *S. canescens* var. *sulphurea* Batalin.

Leaf blades oblong or obovate, abaxially glaucescent green, glabrous, margin entire or inconspicuously 3-lobed apically. Follicles glabrous, rarely slightly pilose.

• Thicket margins, valleys, stream sides; 2300–3000 m. Gansu, W Sichuan, E Xizang, NW Yunnan.

27. *Spiraea trichocarpa* Nakai, J. Coll. Sci. Univ. Tokyo 26(1): 173. 1909.

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 cylindrical, 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 subobtuse. 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 abaxially. 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–Sep.

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

28. *Spiraea uratensis* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 5: 259. 1883.

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-oblancoelate, 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.

• Gullies, slopes, cliffs; 1000–2400 m. Gansu, Henan, Nei Mongol, Shaanxi, Shanxi.

29. *Spiraea nishimurae* Kitagawa, Bot. Mag. (Tokyo) 48: 610. 1934.

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 subobtusate. 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 ovate 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.

30. *Spiraea hirsuta* (Hemsley) C. K. Schneider, Bull. Herb. Boissier, sér. 2, 5: 342. 1905.

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 × 1.5–2 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, diver-

gent. Fl. May–Jun, fr. Jul–Aug.

• Forests, thickets, slopes, stream sides, rocky places; 600–2000 m. Fujian, Gansu, Hebei, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang.

- 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)

Spiraea blumei G. Don var. *hirsuta* Hemsley, J. Linn. Soc., Bot. 23: 224. 1887.

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

• Thickets, slopes, rocky places; 600–1700 m. Fujian, Gansu, Hebei, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang.

30b. *Spiraea hirsuta* var. *rotundifolia* (Hemsley) Rehder in Sargent, Pl. Wilson. 1: 445. 1913.

圆叶疏毛绣线菊 yuan ye shu mao xiu xian ju

Spiraea blumei var. *rotundifolia* Hemsley, J. Linn. Soc., Bot. 23: 224. 1887; *S. blumei* var. *maximowicziana* (C. K. Schneider) Dunn; *S. maximowicziana* C. K. Schneider.

Leaf blades ovate, base broadly cuneate to rounded.

• Forests, thickets, stream sides; 600–2000 m. Henan, Hubei, Shaanxi, Sichuan.

31. *Spiraea chinensis* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 6: 193. 1879.

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, 2–5 mm, nearly as broad as long, apex obtuse or emarginate. Stamens 22–25, shorter than to nearly equaling petals. Disk undulate annular or irregularly lobed. Styles shorter than stamens. Follicles erect or spreading, wholly pubescent; styles terminal, erect or divergent. Fl. Mar–Jun, fr. Jul–Oct.

• Thickets, slopes, open places, roadsides; 300–2000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Nei Mongol, Shaanxi, Shandong, Shanxi,

Sichuan, Yunnan, Zhejiang.

- 1a. Follicles erect, styles erect; pedicels more than 10 mm 31c. var. *erecticarpa*
- 1b. Follicles spreading, styles divergent; pedicels usually not more than 10 mm.
 - 2a. Flowers 3–6 mm in diam.; petals 2–3.5 mm 31a. var. *chinensis*
 - 2b. Flowers 8–10 mm in diam.; petals 4–5 mm 31b. var. *grandiflora*

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, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Nei Mongol, Shaanxi, Shanxi, Sichuan, Yunnan, Zhejiang.

31b. *Spiraea chinensis* var. *grandiflora* T. T. Yu, *Acta Phytotax. Sin.* 8: 216. 1963.

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 (Hefeng Xian).

31c. *Spiraea chinensis* var. *erecticarpa* Y. Q. Zhu & X. W. Li, *Bull. Bot. Res.*, Harbin 15: 437. 1995.

直果绣线菊 *zhi guo xiu xian ju*

Pedicels more than 10 mm. Follicles and styles erect.

• Slopes; ca. 300 m. C Shandong (Tai Shan).

32. *Spiraea dasyantha* Bunge, *Mém. Acad. Imp. Sci. St.-Petersbourg Divers Savans* 2: 97. 1835.

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, 2–3 × 2–3 mm, glabrous, base shortly clawed, apex emarginate 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 diver-

gent, rarely suberect. Fl. May–Jun, fr. Jul–Aug.

• Forests, open dry slopes, roadsides; 400–1200 m. Gansu, Hebei, Hubei, 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.

34. *Spiraea siccanea* (W. W. Smith) Rehder, *J. Arnold Arbor.* 19: 205. 1933.

干地绣线菊 *gan di xiu xian ju*

Spiraea yunnanensis Franchet var. *siccanea* W. W. Smith, *Notes Roy. Bot. Gard. Edinburgh* 10: 67. 1917.

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, sparsely pubescent or glabrous; leaf blade abaxially gray-green, adaxially dark green, obovate or oblong, 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. Stamens 18–20, shorter than or nearly equaling petals. Disk conspicuous, 10-lobed. Styles shorter than stamens. Follicles spreading, pubescent; styles terminal, slightly divergent, ca. 1 mm. Fl. Jun–

Jul, fr. Sep–Oct.

- Slopes, open rocky places; 2500–2800 m. NW Yunnan.

35. *Spiraea pubescens* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 5: 190. 1832.

土庄绣线菊 tu zhuang xiu xian ju

Shrubs 1–2 m tall. Branchlets spreading, slightly bent, yellow-brown to black-brown, pubescent when young, later glabrous; buds ovoid or subglobose, with several scales, pubescent, apex acute or obtuse. Petiole 2–4 mm, pubescent; leaf blade rhombic-ovate to elliptic, 2–4.5 × 1.3–2.5 cm, abaxially gray-pubescent, adaxially pilose, base broadly cuneate, margin deeply incised serrate, sometimes 3-lobed above middle, apex acute. Umbels pedunculate, 2–4.5 × 2–3.5 cm, 15–20-flowered; pedicels 7–12 mm, glabrous; bracts linear, 2–3 mm, pubescent. Flowers 5–7 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals ovate-triangular or triangular, 1.5–2 mm, erect in fruit, apex acute. Petals white, ovate, broadly obovate, or suborbicular, 2–3.5 × 2–3 mm, apex obtuse or emarginate. Stamens 25–30, nearly equaling petals. Disk annular, 10-lobed; lobes slightly emarginate at apex. Carpels glabrous, or pubescent near base and on adaxial suture; styles shorter than stamens. Follicles spreading, puberulous on adaxial suture or wholly pubescent; 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, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan [Korea, Mongolia, Russia].

- 1a. Follicles puberulous only on adaxial suture 35a. var. *pubescens*
- 1b. Follicles wholly pubescent 35b. var. *lasiocarpa*

35a. *Spiraea pubescens* var. *pubescens*

土庄绣线菊(原变种) tu zhuang xiu xian ju (yuan bian zhong)

Spiraea laucheana Koehne; *S. ouensanensis* 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, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan [Korea, Mongolia, Russia].

35b. *Spiraea pubescens* var. *lasiocarpa* Nakai, Bot. Mag. (Tokyo) 42: 465. 1928.

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.

36. *Spiraea cantoniensis* Loureiro, Fl. Cochinch. 1: 322. 1790.

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, gla-

brous; leaf blade gray-blue abaxially, dark green adaxially, rhombic-lanceolate to rhombic-oblong, 2–8 × 0.7–2 cm, glabrous or abaxially pubescent, 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 36a. var. *cantoniensis*
 - 2b. Inflorescences and hypanthium abaxially pubescent 36b. var. *pilosa*

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].

36b. *Spiraea cantoniensis* var. *pilosa* T. T. Yu, Acta Phytotax. Sin. 8: 216. 1963.

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.

36c. *Spiraea cantoniensis* var. *jiangxiensis* (Z. X. Yu) L. T. Lu, Acta Phytotax. Sin. 38: 276. 2000.

江西绣线菊 jiang xi xiu xian ju

Spiraea jiangxiensis Z. X. Yu, Bull. Bot. Res., Harbin 3(1): 151. 1983.

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. 1876.

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 obovate, 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 only 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].

38b. *Spiraea trilobata* var. *pubescens* T. T. Yu, Acta Phytotax. Sin. 8: 216. 1963.

毛叶三裂绣线菊 mao ye san lie xiu xian ju

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, glabrous 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 abaxially. Sepals triangular or ovate-triangular, 1.5–2.5 mm, erect in fruit, apex acute or shortly acuminate. Petals white, broadly obovate, 2–5 mm, about as broad as long, apex emarginate. 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.

Mixed forests, slopes, limestone mountain valleys, stream sides, roadsides; 500–2000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang [Japan, Korea].

- 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 2–3.5 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.

Mixed forests, sunny slopes, roadsides; 500–2000 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang [Japan, Korea].

39b. *Spiraea blumei* var. *latipetala* Hemsley, J. Linn. Soc., Bot. 23: 224. 1887.

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.

39c. *Spiraea blumei* var. *microphylla* Rehder, J. Arnold Arbor. 9: 55. 1928.

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.

39d. *Spiraea blumei* var. *pubicarpa* Cheng, Contr. Biol. Lab. Chin. Assoc. Advancem. Sci., Sect. Bot. 10: 130. 1936.

毛果绣球绣线菊 mao guo xiu qiu xiu xian ju

Carpels and follicles wholly pubescent.

• Slopes. Henan, Shaanxi, Zhejiang.

Spiraea alaschanica Y. Z. Zhao & T. J. Wang (Bull. Bot. Res., Harbin 20: 362. 2000), described from Ningxia, is related to *S. blumei*. Further study is necessary to determine its identity.

40. *Spiraea sublobata* Handel-Mazzetti, Symb. Sin. 7: 451. 1933.

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, 2–3.5 × 2–2.5 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 subobtusate 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 than stamens. Follicles erect, yellowish pubescent throughout or only at apex; styles terminal, mostly erect. Fl. May–Jun, fr. Aug–Sep.

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

42. *Spiraea anomala* Batalin, Trudy Imp. S.-Peterburgsk. Bot. Sada 13: 92. 1893.

异常绣线菊 yi chang xiu xian ju

Shrubs small. Branchlets slightly angled, glabrous; buds ovoid, glabrous, with several scales, apex subobtusate 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, umbellate, 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. Sepals broadly triangular, 2–2.5 × 2.5–3 mm, margin ciliate, apex acute to shortly acuminate. Petals white, ovate or suborbicular, 5–6 × 4–5 mm, glabrous, base shortly clawed, apex subrounded or obtuse. Stamens ca. 30, longer than petals. Disk annular. Styles shorter than stamens; stigma discoid. Follicles slightly spreading, hirsute; styles terminal. Fl. May–Jun.

• Open places, roadsides. Hubei.

43. *Spiraea laeta* Rehder in Sargent, Pl. Wilson. 1: 442. 1913.

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 × 0.7–3.5 cm, glabrous on both surfaces, some-

times 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, glabrous; bracts linear, 1.5–3 mm, glabrous. Flowers 8–12 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals broadly triangular, 2–3 × 1.5–2.5 mm, usually reflexed in fruit, apex acute. Petals white, broadly ovate or suborbicular, 2.5–5 × 2–4.5 mm, glabrous, base shortly clawed, apex obtuse. Stamens 30–40, slightly longer than petals. Disk annular, shallowly crenate. Styles shorter than stamens. Follicles slightly spreading, glabrous or slightly pubescent adaxially; styles terminal, divergent or suberect. Fl. Apr–Jun, fr. Jul–Oct.

• Mixed forests on slopes, thickets, stream sides, open places, roadsides; below 3200 m. Gansu, Guizhou, Henan, Hubei, Sichuan, Yunnan.

- 1a. Leaf blades sparsely sericeous-pubescent abaxially 43c. var. *subpubescens*
- 1b. Leaf blades glabrous on both surfaces or with tufted hairs in vein axils abaxially.
 - 2a. Leaf blades ovate or elliptic-ovate, 1.5–5.5 × 1.4–3.5 cm, margin irregularly serrate or incised doubly serrate; inflorescences 6–15-flowered 43a. var. *laeta*
 - 2b. Leaf blades ovate to broadly so, 1–2 × 0.7–1.5 cm, margin sparsely shallowly incised crenate; inflorescences 5–10-flowered 43b. var. *tenuis*

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.

43b. *Spiraea laeta* var. *tenuis* Rehder in Sargent, Pl. Wilson. 1: 443. 1913.

细叶华西绣线菊 xi ye hua xi xiu xian ju

Leaf blades ovate to 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.

43c. *Spiraea laeta* var. *subpubescens* Rehder in Sargent, Pl. Wilson. 1: 444. 1913.

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.

44. *Spiraea papillosa* Rehder in Sargent, Pl. Wilson. 1: 443. 1913.

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. Sepals triangular, 1.5–2 × 2–3 mm, reflexed in fruit, apex acute or shortly acuminate. Petals white, suborbicular, 3.5–4.5 mm in diam., glabrous, base shortly clawed, apex obtuse. Stamens 40–50, longer than petals. Disk annular, crenulate. Styles ca. 4 mm, shorter than stamens. Follicles suberect, glabrous or puberulous along adaxial suture; styles terminal. Fl. May–Jun, fr. Jul–Aug.

• Coniferous and broad-leaved mixed forests, thickets on slopes; 1300–3500 m. W Sichuan, NW Yunnan.

- 1a. Branchlets, pedicels, and follicles usually glabrous 44a. var. *papillosa*
- 1b. Branchlets and pedicels pubescent; follicles puberulous on adaxial suture 44b. var. *yunnanensis*

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.

44b. *Spiraea papillosa* var. *yunnanensis* T. T. Yu, Acta Phytotax. Sin. 8: 216. 1963.

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.

45. *Spiraea lichiangensis* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 66. 1915.

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 papillose, veins prominent, base rounded, margin with 3–5 indistinct, obtusely triangular teeth on each side above middle. Racemes pedunculate, umbellate, 2–4 × 1.5–2(–3) cm, 5–

10-flowered; pedicels 1–1.5 cm, glabrous; bracts 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.

• Open *Pinus* forests, thickets; 3500–4000 m. NW Yunnan (Lijiang Xian).

46. *Spiraea sericea* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 16: 591. 1843.

绢毛绣线菊 *juan mao xiu xian ju*

Spiraea confusa Regel & Körnicke var. *sericea* (Turczaninow) Regel; *S. media* Schmidt var. *sericea* (Turczaninow) Maximowicz.

Shrubs erect, to 2 m tall. Branchlets brown turning gray-brown or gray-red when old, subterete, sericeous-villous initially, later glabrescent; buds long ovoid, 3–5 × 1.5–3 mm, with several brown scales, pubescent, apex acuminate. Petiole 1–2 mm, densely sericeous; leaf blade abaxially grayish green, adaxially dark green, ovate-elliptic or elliptic, 1.5–4.5 × 0.7–1.5 cm, abaxially densely accumbent sericeous, adaxially pilose, distinctly pinnately veined, base cuneate, margin entire (or on sterile branchlets 2–5-serrate on each side), apex acute. Racemes pedunculate, umbellate, 3–6 × 2–3(–4) cm, 15–30-flowered; pedicels 6–10 mm, glabrous or pilose; bracts linear, minute, glabrous. Flowers 4–5 mm in diam. Hypanthium subcampanulate, glabrous abaxially. Sepals ovate, 1–2 mm, reflexed in fruit, apex obtuse. Petals white, suborbicular, 2–3 mm, nearly as broad as long, base shortly clawed. Stamens 15–20, unequal, longer ones ca. 2 × as long as petals, shorter ones nearly equaling petals. Disk annular, distinctly 10-lobed. Styles shorter than stamens. Follicles divergent, pubescent; styles terminal. Fl. May–Jun, fr. Jul–Aug.

Mixed forests, grasslands, dry slopes; 500–1100 m. Gansu, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Shaanxi, Shanxi, Sichuan, Yunnan [Japan, Mongolia, Russia].

47. *Spiraea prostrata* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 6: 184. 1879.

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 shortly 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.

48. *Spiraea media* Schmidt, Österr. Allg. Baumz. 1: 53. 1792.

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, subterete, 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 2–5-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 obtuse or acute. Petals white, suborbicular, 3–4.5 mm, about as broad as long, glabrous, base shortly clawed, apex obtuse or emarginate. Stamens ca. 45, longer than petals. Disk undulate annular or irregularly lobed. Styles shorter than stamens. Follicles straightly spreading, pubescent; styles terminal, divergent. Fl. May–Jun, fr. Jun–Aug.

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].

49. *Spiraea tarokoensis* Hayata, Icon. Pl. Formos. 9: 38. 1920.

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-obovate, 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 subobtusely. 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.

50. *Spiraea alpina* Pallas, Fl. Ross. 1: 35. 1784.

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 glaucous bloomed abaxially, linear-lanceolate to oblong-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 semispreading in fruit, apex acute. Petals white, obovate 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.

Thickets, valleys, open slopes, roadsides; 2000–4000 m. Gansu, Henan, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang [Mongolia, Russia, Sikkim].

51. *Spiraea xizangensis* L. T. Lu, Acta Phytotax. Sin. 38: 276. 2000.

西藏绣线菊 xi zang xiu xian ju

Spiraea tibetica T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 18: 491. 1980, not *S. tibetica* Bureau & Franchet (1891).

Shrubs to 1.5 m tall. Branchlets red-brown or gray-brown, terete or sparsely angled, pubescent, glabrous when old; buds ovoid, small, with several scales, pubescent. Leaves fascicled; petiole almost absent; leaf blade glaucous bloomed abaxially, oblong-obovate or narrowly elliptic-lanceolate, 7–15 × 2–5 mm, pubescent on both surfaces, base cuneate, margin entire, apex subobtuse or acute. Racemes pedunculate, umbellate, 15–30-flowered; pedicels 3–6 mm, glabrous; bracts linear, glabrous. Flowers 5–7 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular or triangular-ovate, erect in fruit, apex obtuse or acute. Petals pinkish to purple-red, suborbicular or obovate, base shortly clawed, apex obtuse. Stamens 15–20, nearly equaling petals; anthers yellowish. Disk 10-lobed. Carpels glabrous or puberulous. Follicles spreading, glabrous or pilose on adaxial suture; styles on abaxial side, suberect. Fl. May–Jun, fr. Aug–Sep.

• Thickets on slopes, river banks; 4200–4300 m. Xizang.

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 to ovate-oblong or obovate-oblong, 6–15 × 4–7 mm, abaxially sparsely pubescent or glabrous, adaxially glabrous, inconspicuously pinnately veined, 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 straightly 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.

Follicles glabrous or puberulous only on adaxial suture.

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

52b. *Spiraea myrtilloides* var. *pubicarpa* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 13(1): 101. 1975.

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.

53. *Spiraea ningshiaensis* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 13(1): 100. 1975.

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 petioles, 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, 1–1.5 cm; rachis and pedicels glabrous; pedicels 4–5 mm, to 8 mm in fruit; bracts lanceolate to elliptic, 2–4 mm, glabrous, apex acute to shortly acuminate. Hypanthium campanulate, glabrous abaxially. Sepals triangular or ovate-triangular, 1–1.5 mm, about as broad as long, erect in fruit, apex acute. Follicles erect-spreading, 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).

54. *Spiraea dahurica* (Ruprecht) Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 6: 190. 1879.

窄叶绣线菊 *zhai ye xiu xian ju*

Spiraea alpina Pallas var. *dahurica* Ruprecht, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 15: 362. 1857.

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 subobtusate 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].

55. *Spiraea flexuosa* Fischer ex Cambessèdes, Ann. Sci. Nat. (Paris) 1: 365. 1824.

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 pilose; leaf blade abaxially glaucous, 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, Shaanxi, Shanxi, Xinjiang [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*

曲萼绣线菊(原变种) *qu e xiu xian ju (yuan 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, Shaanxi, Shanxi, Xinjiang [Korea, Mongolia, Russia].

55b. *Spiraea flexuosa* var. *pubescens* Liou, Ill. Fl. Lign. Pl. N. E. China, 288, 563. 1955.

柔毛曲萼绣线菊 *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.

56. *Spiraea chamaedryfolia* Linnaeus, Sp. Pl. 1: 489. 1753.

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, tufted pubescent in vein axils abaxially, glabrous adaxially, base rounded or broadly cuneate, margin minutely sharply serrate and doubly serrate (or on 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].

57. *Spiraea mongolica* Maximowicz, Bull. Acad. Imp. Sci. St.-Petersbourg 27: 467. 1881.

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, pinnately 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. Petals 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 annular, 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, mountain summits, rocky valleys, stream sides; 1500–4700 m. Gansu, Hebei, Henan, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang.

- 1a. Branchlets, buds, and petioles glabrous; follicles glabrous or puberulous only on adaxial suture 57a. var. *mongolica*
- 1b. Branchlets, buds, and petioles densely shortly tomentose; follicles wholly pubescent 57b. var. *tomentulosa*

57a. *Spiraea mongolica* var. *mongolica*

蒙古绣线菊(原变种) meng gu xiu xian ju (yuan bian zhong)

Spiraea crenifolia C. A. Meyer var. *mongolica* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 6: 181. 1879; *S. gemmata* Zabel.

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

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

57b. *Spiraea mongolica* var. *tomentulosa* T. T. Yu, Acta Phytotax. Sin. 8: 216. 1963.

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.

58. *Spiraea mollifolia* Rehder in Sargent, Pl. Wilson. 1: 441. 1913.

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.

- 1a. Leaf blades abaxially, inflorescences, and hypanthium abaxially villous 58a. var. *mollifolia*
- 1b. Leaf blades abaxially glabrous or subglabrous; inflorescences pilose; hypanthium abaxially glabrous, or pilose only on tube 58b. var. *glabrata*

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.

58b. *Spiraea mollifolia* var. *glabrata* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 18: 492. 1980.

光秃绣线菊 guang tu xiu xian ju

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.

59. *Spiraea prunifolia* Siebold & Zuccarini, Fl. Jap. 1: 131. 1840.

笑靥花 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 base or above middle to apex, or 1–4-serrate on each side near apex, apex acute. Umbels sessile, 2–3 × 1.5–3 cm, 3–6-flowered, with a few clustered leaves at base; pedicels 10–24 mm, pubescent; bracts leaflike, 4–7 × 3–5 mm, puberulous on both surfaces initially, finally glabrescent, apex indistinctly minutely serrate. Flowers single in wild plants, double in cultivated plants (var. *prunifolia*), to 1.2 cm in diam. Hypanthium campanulate, short-

er than sepals, pubescent or glabrous abaxially. Sepals triangular or ovate-triangular, 1.5–2 mm, shorter than petals, apex acute. Petals white, obovate or suborbicular, longer than sepals, glabrous. Follicles glabrous, or pubescent along adaxial suture. Fl. Mar–May.

Thickets, slopes, rocks, steep dry cliffs, sunny places; also commonly cultivated (var. *prunifolia*); near sea level to 1500 m. Anhui, Fujian, Guizhou, Guangdong, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Xizang, Zhejiang [Japan, Korea].

- 1a. Flowers double, 1–1.2 cm in diam. 59a. var. *prunifolia*
- 1b. Flowers single, to 1 cm in diam.
 - 2a. Leaf blades glabrous abaxially, margin 1–4-serrate on each side near apex; hypanthium often glabrous abaxially 59d. var. *hupehensis*
 - 2b. Leaf blades densely or sparsely pubescent abaxially, margin mostly minutely sharply serrate from near base or above middle to apex; hypanthium pubescent abaxially.
 - 3a. Leaf blades sparsely thinly pubescent abaxially, glabrescent when old; follicles pubescent on adaxial suture 59b. var. *simpliciflora*
 - 3b. Leaf blades densely persistently appressed pubescent abaxially; follicles glabrous 59c. var. *pseudoprunifolia*

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].

59b. *Spiraea prunifolia* var. *simpliciflora* (Nakai) Nakai, Fl. Sylv. Kor. 4: 18. 1916.

单瓣笑靥花 dan ban xiao yan hua

Spiraea prunifolia f. *simpliciflora* Nakai, J. Coll. Sci. Imp. Univ. Tokyo 26: 172. 1908; *Spiraea simpliciflora* (Nakai) Nakai.

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.

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

假笑靥花 jia xiao yan hua

Spiraea pseudoprunifolia Hayata ex Nakai, Bot. Mag.

(Tokyo) 29: 75. 1915.

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.

59d. *Spiraea prunifolia* var. *hupehensis* (Rehder) Rehder, J. Arnold Arbor. 1: 258. 1920.

光笑靥花 guang xiao yan hua

Spiraea hypericifolia Linnaeus var. *hupehensis* Rehder in Sargent, Pl. Wilson. 1: 439. 1913.

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.

60. *Spiraea thunbergii* Siebold ex Blume, Bijdr. Fl. Ned. Ind. 17: 1115. 1826.

珍珠绣线菊 zhen zhu xiu xian ju

Shrubs to 1.5 m. Branches spreading, arching, slender; branchlets brown to red-brown, angled, pubescent at first, finally glabrous; buds ovoid, very small, with several scales, glabrous 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 abaxially. 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 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].

61. *Spiraea martini* H. Léveillé, Repert. Spec. Nov. Regni Veg. 9: 321. 1911.

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 subobtusate. 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.

- 1a. Leaf blades densely yellow tomentose on both surfaces 61c. var. *tomentosa*
1b. Leaf blades pubescent on both surfaces.
2a. Pedicels 5–9 mm, glabrous; follicles glabrous or puberulous only on adaxial suture 61a. var. *martini*
2b. Pedicels 8–15 mm, pubescent; follicles pilose 61b. var. *pubescens*

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, roadsides; 1400–2100 m. Guangxi, Guizhou, Sichuan, Yunnan.

61b. *Spiraea martini* var. *pubescens* T. T. Yu, Acta Phytotax. Sin. 8: 217. 1963.

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).

61c. *Spiraea martini* var. *tomentosa* T. T. Yu, Acta Phytotax. Sin. 8: 217. 1963.

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).

62. *Spiraea cavaleriei* H. Léveillé, Repert. Spec. Nov. Regni Veg. 9: 321. 1911.

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 subobtusely. 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 promi-

nently 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 acuminate. 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).

63. *Spiraea daochengensis* L. T. Lu, Bull. Bot. Res., Harbin 9(2): 49. 1989.

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).

64. *Spiraea muliensis* T. T. Yu & L. T. Lu, Acta Phytotax. Sin. 13(1): 101. 1975.

木里绣线菊 mu li xiu xian ju

Shrubs 1–2 m tall. Branchlets dark brown-red, prominently angled, densely pubescent; buds ovoid, with several scales, pubescent, apex obtuse. Petiole very short or almost absent, softly hairy; leaf blade elliptic or oblong, 1.5–2 × 0.5–0.8 cm, appressed villous on both surfaces, base cuneate, margin deeply 3–7-serrate above middle, rarely entire, apex acute. Umbels sessile, 0.8–1.2 × 1–1.5 cm; pedicels 4–8 mm, pubescent; bracts linear, shorter than pedicels, hairy. Flowers unknown. Hypanthium campanulate, pubescent abaxially. Sepals triangular, reflexed or rarely erect in fruit, apex acute or sub-obtusely. Follicles erect-spreading, pubescent, more densely so on adaxial suture; styles terminal on abaxial side, divergent. Fl. May–Jun, fr. Jul–Sep.

• Mountain summits; ca. 2700 m. SW Sichuan (Muli Xian).

65. *Spiraea kwangsiensis* T. T. Yu, Acta Phytotax. Sin. 8: 216. 1963.

广西绣线菊 guang xi xiu xian ju

Shrubs erect or spreading, to 1 m tall. Branchlets slender, terete, dark red-brown and pubescent when young, subglabrous and grayish-brown when old; buds ovoid, with several brown scales. Petiole 2–4 mm, usually glabrous; leaf blades unequal, obovate, elliptic, or suborbicular, larger ones 10–18 × 8–14 mm, smaller ones 7–10 × 4–5 mm, glabrous on both surfaces, lateral veins 3 or 4 on each side of midvein, base cuneate to rounded, margin obtusely dentate above middle or near apex, sometimes slightly 3-lobed (entire or subentire on leaves on flowering branchlets), apex obtuse. Umbels sessile or shortly pedunculate, 3–8-flowered, with several clustered, unequal leaves at base; pedicels 5–9 mm, glabrous; bracts linear, glabrous. Flowers 5–7 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, erect and persistent in fruit, apex acute. Petals white, broadly obovate, 2–3 mm, about as broad as long, base shortly clawed, apex emarginate or obtuse. Stamens ca. 20, shorter than petals. Disk annular, densely toothed, sometimes 10-lobed. Styles shorter than stamens. Follicles spreading, pubescent on adaxial suture; styles terminal on abaxial side, slightly divergent or suberect. Fl. Mar–Apr, fr. Apr–Jun.

- Bare cliffs, rocky roadsides, sunny places; ca. 600 m. Guangxi.

66. *Spiraea calcicola* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 8: 131. 1913.

石灰岩绣线菊 shi hui yan xiu xian ju

Shrubs low, to 1.5 m tall. Branches spreading, arching; branchlets purple-brown, turning gray-brown to gray-black when old, distinctly angled; buds ovoid, small, with several scales, glabrous or puberulous on scale margin, apex subobtusely or acute. Leaves fascicled on short branchlets, alternate on long branchlets; petiole very short or absent, glabrous; leaf blade obovate, rarely elliptic, 5–9 × 2–6 mm, glabrous on both surfaces, base cuneate and 3-veined, margin entire, apex obtuse. Umbels sessile, 8–12 mm, 6–10-flowered, with small, clustered leaves at base; pedicels 3–7 mm, glabrous; bracts linear-lanceolate, glabrous, caducous. Flowers 4–6 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1–1.5 × 1.5 mm, erect in fruit, apex acute. Petals pinkish, obovate, 2–3 × 2–2.5 mm, glabrous, base shortly clawed, apex emarginate or obtuse. Stamens ca. 20, slightly shorter than to subequaling petals; disk undulate annular. Carpels puberulous; styles shorter than stamens. Follicles spreading, glabrous; styles terminal on abaxial side, somewhat divergent.

- Limestone mountain slopes; 2700–2800 m. NW Yunnan.

Spiraea tibetica Bureau & Franchet (J. Bot. (Morot) 5: 25. 1891, not *S. tibetica* T. T. Yu & L. T. Lu, 1980), described from Xizang, requires further study. We are unable to treat it in this account because we have seen no specimens.

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

金丝桃叶绣线菊 jin si tao ye xiu xian ju

Shrubs to 1.5 m. Branches erect, spreading; branchlets brownish to gray-brown, slender, terete, glabrous or puberulous when young; buds ovoid, small, with several brownish scales, glabrous or subglabrous, apex acute. Petiole 1–4 mm, glabrous;

leaf blade oblong-obovate or obovate-lanceolate, 1.5–2 × 0.5–0.7 cm, usually glabrous, rarely pubescent on both surfaces, base cuneate, indistinctly 3-veined or pinnately veined, margin entire (or on sterile branchlets obtusely 2- or 3-dentate apically), apex obtuse or acute. Umbels sessile, 1–2.5 cm, 5–11-flowered, with several small, clustered leaves at base; pedicels 0.8–1.8 cm, glabrous or puberulous; bracts very small, caducous. Flowers 5–7 mm in diam. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1.5–2 mm, erect in fruit, apex acute. Petals white, suborbicular or obovate, 3–3.5 × 3–4 mm, glabrous, base shortly clawed, apex obtuse. Stamens ca. 20, slightly shorter than to subequaling petals. Disk annular, 10-lobed. Carpels pubescent or subglabrous; styles somewhat shorter than stamens. Follicles straightly spreading, glabrous; styles terminal on abaxial side, divergent. Fl. May–Jun, fr. Jun–Sep.

Sparse forests, thickets, dry sunny slopes. Gansu, Heilongjiang, Henan, Nei Mongol, Shaanxi, Shanxi, Xinjiang [Mongolia, Russia (Siberia)]; C and SW Asia, SE Europe].

68. *Spiraea hailarensis* Liou, Ill. Fl. Lign. Pl. N. E. China, 281, 563. 1955.

海拉尔绣线菊 hai la er xin xian ju

Spiraea arenaria Y. Z. Zhao & T. J. Wang.

Shrubs 0.5–1 m tall. Branchlets brownish to purple-brown, terete, densely pubescent when young; buds ovoid, with several brown scales, apex obtuse or acute. Petiole very short or almost 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 emarginate. Styles shorter than stamens. Follicles slightly spreading, pubescent; styles terminal on abaxial side, erect or somewhat divergent. Fl. May–Jun, fr. Jun–Jul.

- Hills; ca. 600 m. Gansu, Nei Mongol.

69. *Spiraea compsophylla* Handel-Mazzetti, Symb. Sin. 7: 450. 1933.

粉叶绣线菊 fen ye xiu xian ju

Shrubs to 1.5 m. Branchlets purple-brown when young, dark gray when old, angled, glabrous when young; buds ovoid, small, with several scales, apex subobtusely. Petiole 1–4 mm, glabrous; leaf blades unequal: those on flowering branchlets usually oblong-obovate, 4–8 × 2–4 mm, base cuneate, margin entire or 3-lobed apically, apex obtuse; those on sterile branchlets blue-gray and glaucous pruinose abaxially, flabellate, 7–10 × 8–12 mm, usually glabrous on both surfaces, base cuneate to subrounded, often 3-veined, margin deeply 3–5-lobed. Umbels sessile or shortly pedunculate, ca. 1 cm, 3–13-flowered, with

several small, clustered leaves at base; pedicels 5–8 mm, glabrous; bracts linear, 1–2 mm, glabrous. Hypanthium campanulate, glabrous abaxially. Sepals triangular, 1–1.5 mm, erect in fruit, apex acute. Petals suborbicular, nearly equaling sepals, glabrous. Stamens 15–20, slightly longer than petals. Disk un-

dulate annular. Carpels puberulous. Follicles glabrous, or puberulous only on adaxial suture; styles terminal on abaxial side, divergent. Fl. Jul–Sep, fr. Sep–Oct.

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

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

耧斗菜叶绣线菊 lou dou cai ye xiu xian ju

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

