

RANUNCULACEAE

毛茛科 mao gen ke

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Herbs perennial or annual, sometimes subshrubs or herbaceous or woody vines. Leaves basal and cauline, alternate, rarely opposite or whorled, simple or variously compound, palmately nerved, rarely penninerved, with or without stipules. Inflorescence a simple or compound monochasium, dichasium, simple or compound raceme, or flowers solitary. Flowers bisexual, sometimes unisexual, actinomorphic, rarely zygomorphic, hypogynous. Sepals 3–6 or more, free, petaloid or sepaloid, imbricate or sometimes valvate in bud. Petals present or absent, 2–8 or more, free, usually with nectaries. Stamens numerous, rarely few, free; filaments linear or filiform; anthers latrorse, introrse, or extrorse; sometimes some sterile stamens becoming staminodes. Carpels numerous or few, rarely 1, free, rarely connate to various degrees; ovary with 1 to many ovules. Fruit follicles or achenes, rarely capsules or berries. Seeds small, with abundant endosperm and minute embryo.

About 60 genera and 2500 species: worldwide, but richly represented in N temperate regions, particularly in E Asia; 38 genera (four endemic) and 921 species (604 endemic) in China.

Nigella damascena Linnaeus and *N. glandulifera* Freyn & Sintenis are cultivated (not native) in China.

Wang Wen-tsai, Wang Shu-hsiou & Hsiao Pei-ken. 1979. Ranunculaceae subfam. Helleboroideae and subfam. Thalictrioideae. *In*: Fl. Reipubl. Popularis Sin. 27: 59–601; Wang Wen-tsai, Chang Mei-chen, Fang Ming-yuan, Ling Ping-ping, Ting Chih-tsun, Wang Shu-hsiou & Liou Liang. 1980. Ranunculaceae subfam. Ranunculoideae. *In*: Wang Wen-tsai, ed., Fl. Reipubl. Popularis Sin. 28: 1–345.

1a. Ovary with 1 ovule; fruit an achene.

2a. Inflorescence with an involucre.

3a. Involucre contiguous with flower, calyxlike 25. *Hepatica*

3b. Involucre separate from flower.

4a. Leaves pinnatisect, penninerved; pollen grains spinulose 26. *Anemoclema*

4b. Leaves 1 to few times palmately or subpinnately divided, palmately nerved; pollen grains not spinulose.

5a. Style strongly elongate and plumose in fruit 27. *Pulsatilla*

5b. Style not as above 24. *Anemone*

2b. Inflorescence without an involucre.

6a. Petals absent.

7a. Sepals valvate in bud; style usually strongly elongate and plumose in fruit; cauline leaves opposite, rarely alternate 29. *Clematis*

7b. Sepals imbricate in bud; style not as above; cauline leaves (if present) alternate.

8a. Achene (1–)3-ribbed on each side; leaves compound, rarely simple 21. *Thalictrum*

8b. Achene not ribbed; leaves simple.

9a. Basal leaves several, palmately lobed or undivided, veins reticulately anastomosing; staminodes absent 28. *Metanemone*

9b. Basal leaf 1, palmatisect, veins dichotomously branched, not anastomosing; staminodes present 31. *Kingdonia*

6b. Petals present.

10a. Vines woody; cauline leaves opposite; style strongly elongate and plumose in fruit 30. *Naravelia*

10b. Herbs perennial or annual; cauline leaves (if present) alternate; style not as above.

11a. Petals without nectaries 33. *Adonis*

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- 35b. Leaves both basal and cauline; inflorescence without an involucre.
 - 36a. Leaves palmatipartite or palmatisect; petals linear 3. *Trollius*
 - 36b. Leaves pedatisect; petals tubular or cupular 8. *Helleborus*
- 34b. Leaves compound.
 - 37a. Leaves all basal, persistent remnants of petioles forming a dense clump; flower solitary, terminal; petals clawless 17. *Paraquilegia*
 - 37b. Leaves both basal and cauline, petioles not forming a clump; flowers few, borne in a monochasium; petals very shortly clawed.
 - 38a. Herbs perennial; carpels 1–5 15. *Isopyrum*
 - 38b. Herbs annual; carpels 6–20 16. *Leptopyrum*

1. CALTHA Linnaeus, Sp. Pl. 1: 558. 1753.

驴蹄草属 *lu ti cao shu*

Li Liangqian (李良千); Michio Tamura

Herbs perennial, glabrous, with fibrous roots. Stems simple or several branched. Leaves basal, or both basal and cauline, sometimes distal cauline ones palmately lobed, orbicular, reniform, or ovate, base cordate, margin dentate or entire; petioles sheathed at base. Flower solitary, terminal, or 2 or more in a simple or complex monochasium opening nearly flat. Sepals 5 or more, petaloid, yellow, rarely white or red, obovate or elliptic, caducous. Petals absent. Stamens numerous; anthers elliptic to oblong; filaments linear. Follicles 5–40, sessile, sometimes stipitate, with branching transverse veins, styles distinct or nearly absent; ovules several to many. Seeds several in a follicle, ellipsoid-globose, smooth.

About 15 species: temperate and cold-temperate regions of N and S hemispheres; four species (one endemic) in China.

- 1a. Stigmas nearly sessile; seeds less than 1 mm; sepals white or pinkish, ca. 3 mm; follicles (10–)20–30 4. *C. natans*
- 1b. Styles distinct; seeds 1–2.5 mm; sepals yellow, rarely red, more than 7 mm; follicles 5–12.
 - 2a. Follicles shortly stipitate 3. *C. scaposa*
 - 2b. Follicles sessile.
 - 3a. Leaves both basal and cauline; flowers usually (2 or)3–5 or more in a complex monochasium 1. *C. palustris*
 - 3b. Leaves all basal; flower solitary, terminal 2. *C. sinogracilis*

1. *Caltha palustris* Linnaeus, Sp. Pl. 1: 558. 1753.

驴蹄草 *lu ti cao*

Plants with numerous fleshy roots. Stems 10–120 cm tall at fruiting, (1.5–)3–12 mm in diam., branched, rarely simple, basal leaves 3–7, long petiolate; petiole (4–)7–24 cm; leaf blade orbicular to orbicular-reniform or cordate, (1.2–)2.5–5 × (2–)3–9 cm, base deeply cordate, margin densely denticulate, apex rounded. Cauline leaves usually diminishing upward, rarely equal to basal leaves in size, orbicular-reniform or triangular-cordate, shortly petiolate or uppermost ones sessile. Monochasium often solitary, (2 or)3–5-flowered; pedicels more than 1.5 cm at fruiting. Flowers 2–3 cm in diam. Sepals 5, yellow, obovate to narrowly obovate, 1–1.8(–2.5) × 0.6–1.2(–1.5) cm, apex rounded. Stamens 4.5–7(–9) mm; anthers sessile, oblong, 1–1.6 mm. Follicles (5–)7–25, ca. 1 cm × 3 mm; persistent style 1–3 mm. Seeds black, rarely pale greenish brown, narrowly ovoid, 1.5–2 mm. Fl. May–Sep. $2n = 16, 32, 55–57, 60, 64, 80$.

Mountain regions, grassy slopes, valleys, marshlands, forests, by streams, in water; 600–4000 m. S and SW Gansu, Guizhou, Hebei, Heilongjiang, W Henan, Jilin, Liaoning, Nei Mongol, Shanxi, Sichuan, Xinjiang, E and SE Xizang, C and NW Yunnan, Zhejiang [most temperate regions of N hemisphere].

- 1a. Uppermost cauline leaves and bracts palmatipartite 1e. var. *umbrosa*

- 1b. Uppermost cauline leaves and bracts undivided.

- 2a. Stems to 120 cm tall, ca. 12 mm in diam. at fruiting; cauline leaves below inflorescence subequal to basal leaves in size 1f. var. *barthei*
- 2b. Stems to 50 cm tall, ca. 6 mm in diam. at fruiting; leaves below inflorescence usually smaller than basal leaves.
 - 3a. Stem decumbent after anthesis; leaf blades broadly triangular-reniform, broadly cordate at base, margin dentate basally, repand or subentire apically 1c. var. *sibirica*
 - 3b. Stem erect; leaf blades orbicular-reniform or suborbicular, rarely triangular-reniform, usually deeply cordate at base, margin dentate throughout.
 - 4a. Styles 2–3 mm 1d. var. *himalaica*
 - 4b. Styles 1(–1.5) mm.
 - 5a. Leaves herbaceous or subpapery; pedicels 2–10 cm 1a. var. *palustris*

- 5b. Leaves thin herbaceous
or membranous; pedicels
to 14 cm . 1b. var. *membranacea*

1a. *Caltha palustris* var. *palustris*

驴蹄草(原变种) lu ti cao (yuan bian zhong)

?*Caltha palustris* var. *orientalisinensis* X. H. Guo.

Stems usually erect, hollow, to 50 cm tall, ca. 6 mm in diam. at fruiting. Leaf blade orbicular-reniform or suborbicular, rarely triangular-reniform, herbaceous or subpapery, base usually deeply cordate, margin dentate. Pedicels more than 2 cm, to 15 cm at fruiting.

Mountain regions, wet places, grassy slopes, valleys, marshlands, forests; 600–4000 m. S Gansu, Guizhou, Hebei, W Henan, Nei Mongol, Shanxi, Sichuan, Xinjiang, E Xizang, NW Yunnan, Zhejiang [temperate to cold regions of northern hemisphere].

1b. *Caltha palustris* var. *membranacea* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 15: 62. 1842.

膜叶驴蹄草 mo ye lu ti cao

Caltha membranacea (Turczaninow) Schipczinsky; *C. membranacea* var. *grandiflora* S. H. Li & Y. H. Huang. Stems erect, hollow, to 50 cm tall, ca. 6 mm in diam. at fruiting. Leaf blade orbicular-reniform or suborbicular, rarely triangular-reniform, thinly herbaceous or membranous, base usually deeply cordate, margin dentate. Pedicels to 5 cm, to 14 cm at fruiting. $2n = 32, 64$.

Wet places in valleys, forests. Heilongjiang, Jilin, Liaoning [Korea, Mongolia, Russia (E Siberia)].

Alexander N. Luferov (pers. comm.) suggests that this taxon should be treated at the rank of species.

1c. *Caltha palustris* var. *sibirica* Regel, Bull. Soc. Imp. Naturalistes Moscou 34: 53. 1861.

三角叶驴蹄草 san jiao ye lu ti cao

Caltha palustris subsp. *sibirica* (Regel) Hultén; *C. sibirica* (Regel) Tolmatchev.

Stems decumbent at anthesis, solid, to 50 cm tall, ca. 6 mm in diam. at fruiting. Leaves below inflorescence usually smaller than basal leaves. Leaf blades broadly triangular-reniform, base broadly cordate, margin dentate basally, repand or subentire apically. $2n = 56–80$.

Marshes, wet places in valleys, in water. Heilongjiang, Jilin, Liaoning, Nei Mongol [Korea, Mongolia, Russia (Far East)].

1d. *Caltha palustris* var. *himalaica* Tamura, Acta Phytotax. Geobot. 19: 76. 1962.

长柱驴蹄草 chang zhu lu ti cao

Stems erect, solid, to 50 cm tall, ca. 6 mm in diam. at fruiting. Leaves below inflorescence usually smaller than basal leaves. Leaf blades orbicular-reniform or suborbicular, rarely triangular-reniform, base usually deeply cordate, margin dentate throughout. Styles 2–3 mm.

Mountain regions, wet places; 2800–3100 m. SE Xizang [Bhutan, Nepal].

1e. *Caltha palustris* var. *umbrosa* Diels, Notes Roy. Bot. Gard. Edinburgh 5: 264. 1912.

掌裂驴蹄草 zhang lie lu ti cao

Caltha palustris var. *sibirica* Regel subvar. *palmata* Takeda.

Stems erect. Uppermost cauline leaves and bracts palmatipartite.

• Grassy valley areas; ca. 2900 m. SW Sichuan, C and NW Yunnan.

1f. *Caltha palustris* var. *barthei* Hance, Ann. Sci. Nat., Bot. Ser. 5, 5: 205. 1866.

空茎驴蹄草 kong jing lu ti cao

Caltha fistulosa Schipczinsky; *C. fistulosa* f. *atrorubra* W. T. Wang; *C. palustris* var. *barthei* f. *atrorubra* (W. T. Wang) W. T. Wang; *C. palustris* var. *multiflora* Komarov ex Schipczinsky.

Stems erect, hollow, to 1.2 m tall, ca. 1.2 cm in diam. at fruiting. Cauline leaves below inflorescence subequal to basal leaves in size. $2n = 32, 60$.

By streams; 1000–3800 m. SW Gansu, S and W Sichuan, E Xizang, NW Yunnan [Japan, Russia (Far East)].

2. *Caltha sinogracilis* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 50. 1965.

细茎驴蹄草 xi jing lu ti cao

Caltha gracilis Handel-Mazzetti (1923), not Nakai (1922); *C. rubriflora* B. L. Burt & Lauener; *C. sinogracilis* f. *rubriflora* (B. L. Burt & Lauener) W. T. Wang.

Plants small, glabrous. Stems more than 4 cm tall, to 10 cm at fruiting, ca. 1 mm in diam., simple to 7-branched. Leaves all basal, long petiolate; petiole 3–5 cm; leaf blade orbicular-reniform or reniform-cordate, 1–1.7 × 1.2–3.5 cm, herbaceous, base deeply cordate, margin crenate or dentate basally, apex rounded. Flower solitary, terminal, ca. 2 cm in diam. Pedicels 3–4 cm. Sepals 5, yellow, rarely red, narrowly elliptic, ca. 1.4 cm × 4.5 mm, apex rounded. Stamens ca. 3 mm; anthers oblong, ca. 1 mm. Follicles 5–10, sessile; persistent style ca. 0.8 mm. Seeds dark brown, narrowly ellipsoid-globose, ca. 1.5 mm.

• Grasslands, by streams; 3200–4100 m. SE Xizang, NW Yunnan.

3. *Caltha scaposa* J. D. Hooker & Thomson, Fl. Ind. 1: 40. 1855.

花葶驴蹄草 hua ting lu ti cao

Caltha palustris Linnaeus var. *scaposa* (J. D. Hooker & Thomson) Maximowicz; *C. scaposa* var. *parnassioides* Ulbrich; *C. scaposa* var. *smithii* Ulbrich.

Plants small. Stems simple or branched, more than 3.5 cm tall, to 24 cm at fruiting, 1–2 mm in diam. Basal leaves 3–10, long petiolate; petiole 2.5–10(–15) cm, base with membranous sheath; leaf blade cordate-ovate or triangular-ovate, sometimes reniform, 1–3(–3.7) × 1.2–2.8(–4) cm, base deeply cordate, margin entire or repand, sometimes sparsely denticulate, apex rounded. Cauline leaves shortly petiolate or sometimes sessile, small. Flower solitary, terminal, or 2 in monochasium. Pedicels more than 3 cm, to 20 cm at fruiting. Sepals 5(–7), yellow, obovate, elliptic or ovate, 0.9–1.5(–1.9) × 0.7–1.4 cm, apex rounded. Stamens 3.5–7(–10) mm; anthers oblong. Follicles (5–)6–8(–11), 1–1.6 cm × 2.5–

3 mm, shortly stipitate; persistent style ca. 1 mm. Seeds black. Fl. Jun–Sep, fr. Jul.

Alpine meadows, wet places in valleys; 2800–4100 m. S Gansu, S Qinghai, W Sichuan, SE Xizang, NW Yunnan [Bhutan, N India, Nepal, Sikkim].

4. *Caltha natans* Pallas, Reise Russ. Reich. 3: 284. 1766.

白花驴蹄草 bai hua lu ti cao

Thacla natans (Pallas) Deyl & Sojak.

Plants submerged or creeping. Stems 20–50 cm tall, 2–4 mm in diam., branched. Cauline leaves long petiolate; petiole 2.5–7 cm, sheathed at base; leaf blade cordate-reniform or cordate, 1–2 × 1.5–2.4 cm, base deeply

cordate-reniform or cordate, margin entire or repand or crenulate below middle, apex rounded. Monochasium terminal, (2- or)3–5-flowered. Pedicels 2–4 cm.

Flowers small, ca. 5 mm in diam. Sepals 5, white or pinkish, obovate, ca. 3 × 2 mm, apex rounded. Stamens ca. 2 mm; anthers elliptic, ca. 0.5 mm. Follicles (10–)20–30, ca. 5 mm, sessile; stigmas nearly sessile. Seeds black, ellipsoid-globose, less than 1 mm. Fl. Jul. 2n = 16, 32.

Wet meadows, marshes, in water. Heilongjiang, NE Nei Mongol [Mongolia, Russia (Siberia); North America].

2. **CALATHODES** J. D. Hooker & Thomson, Fl. Ind. 40. 1855.

鸡爪草属 ji zhua cao shu

Li Liangqian (李良千); Michio Tamura

Herbs perennial, mostly glabrous. Roots fibrous. Leaves simple, basal ones 1–3, cauline ones 4–6, pentagonal or subpentagonal, palmately 3-sect. Flower solitary, terminal, opening nearly flat. Sepals 5, petaloid, yellow, white, or greenish white, caducous. Petals absent. Stamens numerous; filaments narrowly linear; anthers oblong. Follicles 7–60, subleathery, with lateral veins usually parallel except basally, with or without a projection on abaxial suture. Seeds 8–10, black, glossy, ca. 2 mm, obovoid, smooth. 2n = 16*.

Four species: Bhutan, China, Sikkim; four species (three endemic) in China.

1a. Sepals yellow.

2a. Carpels with a projection inserted near base of abaxial suture 3. *C. unciformis*

2b. Carpels without a projection 1. *C. palmata*

1b. Sepals white or greenish white.

3a. Carpels 7–12(–15) 2. *C. oxycarpa*

3b. Carpels 30–60 4. *C. polycarpa*

1. *Calathodes palmata* J. D. Hooker & Thomson, Fl. Ind. 41. 1855.

黄花鸡爪草 huang hua ji zhua cao

Stems 30–45 cm tall, usually simple. Basal and proximal cauline leaves subglabrous; petiole 7–8.5 cm; leaf blade 2.6–4 × 4.4–5.8 cm; central segment rhombic, 3-fid, lobulate, margin serrate; lateral segments obliquely flabellate, unequally 2-parted. Flowers ca. 3 cm in diam. Sepals yellow, subelliptic, ca. 1.5 cm, glabrous. Stamens ca. 1/2 as long as sepals. Follicles ca. 18, flat, obliquely obovate, ca. 9 × 4.5 mm; persistent style ca. 1 mm; projection absent on abaxial suture. Fl. Jun.

Mountain forests; 2500–3500 m. SE Xizang [Bhutan, Nepal, Sikkim].

2. *Calathodes oxycarpa* Sprague, Bull. Misc. Inform. Kew 1919: 403. 1919.

鸡爪草 ji zhua cao

Calathodes palmata J. D. Hooker & Thomson var. *appendiculata* Brühl.

Stems 20–45 cm tall, simple or branched. Basal and proximal cauline leaves 3; petiole 6–10 cm; leaf blade 2–3 × 3.2–5 cm; central segment broadly rhombic, 3-fid, lobulate, margin serrate; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Flowers ca. 1.8 cm in diam. Sepals white, obovate or elliptic, 9–10 × 4–6 mm, glabrous. Stamens 3.5–7.5 mm. Follicles 7–

12(–15), 7–14 × ca. 4.5 mm; persistent style erect, 1–1.7 mm; projection inserted at middle of abaxial suture. Fl. May–Jul, fr. Jul–Aug.

• Mountain forests, grassy slopes; 2400–3200 m. W Hubei, Sichuan, W Yunnan.

The entire plant is used medicinally for treating rheumatism and improving circulation.

3. *Calathodes unciformis* W. T. Wang, Bull. Bot. Res., Harbin 16: 165. 1996.

多果鸡爪草 duo guo ji zhua cao

Stems 30–40 cm tall, glabrous, apically few branched or simple. Petiole 3–10 cm; leaf blade 4–8 × 5–11 cm, abaxially glabrous, adaxially scabrous or minutely strigillose at veins; central segment rhombic, margin incised dentate; lateral segments obliquely flabellate, unequally 2-parted. Flowers ca. 2.5 cm in diam. Sepals yellow, narrowly obovate or elliptic, ca. 1 cm, glabrous, apex rounded. Stamens ca. 6.5 mm. Follicles 35–50, 6.5–8 × 4–5 mm; persistent style ca. 0.8 mm; projection inserted near base of abaxial suture. Fl. Jun–Jul, fr. Jul–Aug.

• Mountain forests, open slopes, valleys; 1800–2000 m. W Guizhou, SW Hubei, NE Yunnan.

4. *Calathodes polycarpa* Ohwi, Acta Phytotax. Geobot. 2: 153. 1933.

台湾鸡爪草 tai wan ji zhua cao

Stems 30–40 cm tall, glabrous. Petiole 7–13.5 cm; leaf blade 4–5.5 × 6.5–9 cm, glabrous on both surfaces; segments serrate at margin, apex acute. Flowers 1.8–3 cm in diam. Sepals white or greenish white, obovate or elliptic, 1.2–1.6 cm × 6–9 mm. Stamens 6–8.5 mm.

Follicles 30–60, 7–10 mm; persistent style 1.5–2 mm; projection present on abaxial suture.

• Open slopes at high elevations. Taiwan.

Records of this species from mainland China (e.g., in FRPS) are referable to *Calathodes unciformis*.

3. TROLLIUS Linnaeus, Sp. Pl. 1: 556. 1753.

金莲花属 jin lian hua shu

Li Liangqian (李良千); Michio Tamura

Herbs perennial, glabrous, with fibrous roots. Leaves all basal, or basal and cauline, simple, palmately parted or sect. Flower solitary, terminal or few in a cyme. Sepals 5 to many, usually yellow, rarely purplish, obovate, petaloid, usually caducous, rarely persistent. Petals 5 to many, linear, shortly clawed and with nectary pit above base. Stamens numerous; anthers ellipsoid or oblong, filaments narrowly linear. Follicles 5 to many, with branching transverse veins and a persistent style. Seeds subglobose, smooth.

About 30 species: temperate to cold regions of the N hemisphere; 16 species (eight endemic) in China.

- 1a. Sepals lilac-blue or pale blue, or white with blue veins, persistent 16. *T. lilacinus*
- 1b. Sepals yellow, usually caducous, or rarely white inside and purplish outside, persistent.
 - 2a. Leaves palmately parted.
 - 3a. Leaves all basal, or 1–3 inserted near base of stem.
 - 4a. Leaf blade 3-parted, lobes indistinct, margin with teeth ovate or broadly ovate 4. *T. pumilus*
 - 4b. Leaf blade deeply 3-sect nearly to base, segments lobed, margin with teeth triangular or narrowly triangular 5. *T. farreri*
 - 3b. Leaves both basal and cauline, cauline leaves 2–4, inserted at middle or above on stem.
 - 5a. Sepals 8–13 3. *T. dschungaricus*
 - 5b. Sepals 5.
 - 6a. Sepals ± green when dried; petals broadly spatulate at apex; persistent style erect 1. *T. yunnanensis*
 - 6b. Sepals not green when dried; petals narrowed at apex; persistent style turning outside 2. *T. buddae*
 - 2b. Leaves palmately sect.
 - 7a. Petals longer than stamens, caducous.
 - 8a. Petals shorter than sepals.
 - 9a. Petals narrowly linear, 1–1.5(–1.8) mm wide, slightly spatulate 12. *T. ledebourii*
 - 9b. Petals spatulate-linear, broadened from base, broadest above middle, 2–3.5 mm wide 13. *T. asiaticus*
 - 8b. Petals equaling or longer than sepals.
 - 10a. Sepals (6–)10–15(–19); petals subequaling sepals; persistent style ca. 1 mm 14. *T. chinensis*
 - 10b. Sepals 5–7; petals usually longer than sepals; persistent style 3.5–4 mm 15. *T. macropetalus*
 - 7b. Petals shorter than or subequaling stamens, usually persistent.
 - 11a. Petals longer than filaments, subequaling stamens; flower solitary and terminal, or 2 or 3 flowers in a cyme.
 - 12a. Sepals 5–7; styles purplish 10. *T. japonicus*
 - 12b. Sepals 15–18; styles dark purple or black 11. *T. altaicus*
 - 11b. Petals equaling filaments; flower solitary, terminal.
 - 13a. Sepals ca. 6 mm, persistent 6. *T. micranthus*
 - 13b. Sepals 10–20 mm, caducous or persistent.
 - 14a. Segments of leaves not separate; sepals ± green when dried 7. *T. ranunculoides*
 - 14b. Segments of leaves separate; sepals not green when dried.
 - 15a. Basal leaves 4–6.5 cm wide; sepals not purplish outside, caducous 9. *T. taihasenzanensis*
 - 15b. Basal leaves 1–2.6(–4.5) cm wide; sepals purplish outside, usually persistent.
 - 16a. Central segment 3-lobed to ± middle; carpels 6–9(–25) 5. *T. farreri*
 - 16b. Central segment 3-parted nearly to base; carpels 4–6 8. *T. vaginatus*

1. *Trollius yunnanensis* (Franchet) Ulbrich, Repert. Spec. Nov. Regni Veg. Beih. 12: 368. 1922.

云南金莲花 yun nan jin lian hua

Stems more than 20 cm tall, to 80 cm at fruiting, simple or branched above middle. Basal leaves 2 or 3; petiole

7–20 cm, base narrowly sheathed; leaf blade dark green when dried, pentagonal, 2.6–5.5 × 4.8–11 cm, base deeply cordate, 3-parted; central lobe rhombic-ovate or rhombic, 3-fid, incised-lobulate or dentate at margin; lateral lobes obliquely flabellate, unequally 2-fid.

Proximal cauline leaves similar to basal ones, distal cauline leaves sessile, smaller. Flower solitary, terminal, or 2 or 3 flowers in a cyme, (3.2–)4–5.5 cm in diam. Pedicel ca. 4 cm, to 9.5 cm at fruiting. Sepals 5(–7), yellow, ± green when dried, broadly obovate or obovate, rarely broadly elliptic, 1.7–2.5(–3) × 1.2–2.5(–2.8) cm, apex rounded or truncate. Petals linear, shorter than stamens, 7–7.5(–17) × ca. 1 mm, slightly widened at apex, subspatulate. Stamens ca. 1 cm. Follicles 7–25, 0.9–1.1 cm × ca. 3 mm; persistent style erect, ca. 1 mm. Seeds narrowly ovoid, ca. 1.5 mm, smooth. Fl. Jun–Sep, fr. Sep–Oct.

• Grassy slopes, mountain slopes, wet places; 1900–3900 m. S Gansu, Sichuan, W Yunnan.

1a. Petals longer than stamens, 12–17

mm 1b. var. *eupetalus*

1b. Petals shorter than or subequaling stamens, less than 8 mm.

2a. Leaves distinctly peltate at base 1d. var. *peltatus*

2b. Leaves not peltate at base.

3a. Leaf lobes ± separate from each other, central lobe 3-fid to or beyond middle 1a. var. *yunnanensis*

3b. Leaf lobes overlapping, central lobe 3-lobed, not divided below middle 1c. var. *anemonifolius*

1a. *Trollius yunnanensis* var. *yunnanensis*

云南金莲花(原变种) *yun nan jin lian hua* (*yuan bian zhong*)

Trollius pumilus D. Don var. *yunnanensis* Franchet, Bull. Soc. Bot. France 33: 375. 1886; ?*T. papavereus* Schipczinsky; *T. pumilus* subsp. *normalis* Brühl var. *yunnanensis* (Franchet) Brühl; *T. yunnanensis* f. *ubera* Stapf.

Leaves not peltate at base; leaf lobes ± separate from each other, central lobe 3-fid to or beyond middle. Sepals less than 2.8 cm wide. Petals shorter than or subequaling stamens, less than 8 mm. $2n = 16^*$.

• Grassy slopes, wet grassy places; 2700–3600 m. W Sichuan, W Yunnan.

1b. *Trollius yunnanensis* var. *eupetalus* (Stapf) W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 50. 1965.

长瓣云南金莲花 *chang ban yun nan jin lian hua*

Trollius yunnanensis f. *eupetala* Stapf, Bot. Mag. 152: t. 9134. 1928.

Sepals 1.7–3 cm wide. Petals longer than stamens, 1.2–1.7 cm.

• Grassy slopes; 3300–3900 m. NW Yunnan.

1c. *Trollius yunnanensis* var. *anemonifolius* (Brühl) W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 51. 1965.

复裂云南金莲花 *fu lie yun nan jin lian hua*

Trollius pumilus D. Don subsp. *anemonifolius* Brühl, Ann. Roy. Bot. Gard. (Calcutta) 5: 87. 1896; *T. anemonifolius* (Brühl) Stapf; *T. yunnanensis* subsp. *anemonifolius* (Brühl) Doroszewska.

Leaves not peltate at base; lobes overlapping, central lobe 3-lobed, not divided below middle. Sepals less than 2.8 cm wide. Petals shorter than or subequaling stamens, less than 8 mm.

• Grassy slopes; 3000–3800 m. S Gansu, W Sichuan.

1d. *Trollius yunnanensis* var. *peltatus* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 51. 1965.

盾叶云南金莲花 *dun ye yun nan jin lian hua*

Leaves distinctly peltate at base. Sepals less than 2.8 cm wide. Petals shorter than or subequaling stamens, less than 8 mm.

• Mountain slopes, wet places; ca. 1900 m. Sichuan (Emei Shan).

2. *Trollius buddae* Schipczinsky, Bot. Mater. Gerb. Glavn. Bot. Sada RSFSR 4: 10. 1923.

川陕金莲花 *chuan shan jin lian hua*

Trollius stenopetalus Stapf.

Stems 60–70 cm tall, usually branched at middle or above. Basal leaves 1–3; petiole 11–30 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 5.9–9 × 9.5–18 cm, base deeply cordate, 3-parted; central lobe rhombic or broadly rhombic, 3-lobed, with several lobules and dentate margin; lateral lobes obliquely flabellate, unequally 2-fid. Cauline leaves 3 or 4, proximal ones similar to basal leaves, distal ones diminishing. Inflorescence cymose, 2- or 3-flowered. Sepals 5, yellow, not green when dried, obovate or broadly obovate, rarely elliptic, 1.2–1.6 × 0.9–1.6 cm, caducous. Petals nearly as long as stamens, ca. 8 mm, apex not or slightly widened. Stamens 8–10 mm. Follicles 20–30, 1–1.4 cm × ca. 3 mm; persistent style turning outside, ca. 1 mm. Fl. Jul, fr. Aug.

• Grassy slopes; 1800–2400 m. S Gansu, S Shaanxi, N Sichuan.

3. *Trollius dschungaricus* Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 7: 383. 1880.

准噶尔金莲花 *zhun ga er jin lian hua*

Trollius europaeus Linnaeus var. *songoricus* Regel.

Stems ca. 10 cm tall, to 50 cm at fruiting, simple. Basal leaves 3–7; petiole 6–28 cm, base narrowly sheathed; leaf blade green when dried, 1.5–4.5 × 2–7.5 cm, base cordate, 3-parted; central lobe broadly elliptic or elliptic-obovate, 3-lobed, with lobules and irregularly denticulate margin; lateral lobes obliquely flabellate, unequally 2-fid. Cauline leaves 2 or 3, similar to basal ones. Flower solitary, terminal, sometimes 2 or 3 flowers in a cyme, 3–5.4 cm in diam. Pedicel ca. 5 cm, to 15 cm at fruiting. Sepals 8–13, yellow or orange-yellow, not green when dried, obovate or broadly

obovate, sometimes narrowly obovate, 1.5–2.6 × 0.8–1.6 cm, margin several toothed or subentire at apex, apex rounded. Petals linear, orbicular, or spatulate, shorter than stamens or subequal to filaments, 7–8 × ca. 1 mm. Stamens 0.9–1.4 cm. Follicles 12–18, 1–1.2 cm × ca. 2 mm; persistent style ca. 1.2 mm. Seeds ca. 1.5 mm, ellipsoid-globose, smooth. Fl. Jul–Aug, fr. Sep. $2n = 16$.

Grassy slopes, *Picea* forests; 1800–3100 m. Xinjiang (Tian Shan) [Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan].

4. *Trollius pumilus* D. Don, Prodr. Fl. Nepal. 195. 1825.

小金莲花 xiao jin lian hua

Stems more than 3.5 cm tall, to 25 cm at fruiting, simple. Basal leaves 1–3; petiole 1.5–5 cm, base sheathed; leaf blade green or not when dried, pentagonal or pentagonal-ovate, 0.8–1.5 × 1.2–2.5 cm, base deeply cordate, 3-parted; central lobe obovate or flabellate-obovate, apex rounded, 3-lobed, with 2 or 3 lobules or dentate margin; lateral lobes obliquely flabellate, unequally 2-fid. Cauline leaves 2 or 3, similar to basal ones. Flower solitary, terminal, 1.5–2 cm in diam. Sepals 5, yellow and caducous, or white inside, purplish outside and persistent, green or not when dried, obovate or ovate, 6–10(–17) × 3.5–9 (–15) mm, apex rounded, usually caducous. Petals spatulate-linear, shorter than stamens, 2–3 × ca. 0.5 mm, apex rounded. Stamens 3.5–5 mm. Follicles 6–16, ca. 1 cm; persistent style ca. 1 mm. Seeds ca. 1 mm, ellipsoid-globose, smooth. Fl. Jul, fr. Aug.

Marshes, alpine grasslands; 2300–4800 m. S and SW Gansu, E and S Qinghai, Sichuan, Xizang [Bhutan, N Myanmar, Nepal, Sikkim].

1a. Leaves both basal and cauline 4c. var. *foliosus*

1b. Leaves all basal or subbasal.

2a. Leaf blade and sepals green when dried; sepals to 17 × 15 mm 4b. var. *tanguticus*

2b. Leaf blade and sepals not green when dried; sepals to 6–10 × 3.5–9 mm.

3a. Stems 3.5–9 cm tall; sepals yellow, 6–10 × 3.5–7 mm, caducous 4a. var. *pumilus*

3b. Stems 20–25 cm tall; sepals white inside, dark purple outside, ca. 10 × 8–9 mm, persistent 4d. var. *tehkehensis*

4a. *Trollius pumilus* var. *pumilus*

小金莲花(原变种) xiao jin lian hua (yuan bian zhong)

Trollius pumilus subsp. *normalis* Brühl var. *sikkimensis* Brühl.

Stems 3.5–9 cm tall at anthesis. Leaves all basal or subbasal; leaf blade not green when dried. Sepals yellow, 6–10 × 3.5–7 mm, caducous. $2n = 16$.

Grassy marshes, grasslands; 4100–4800 m. S Xizang [Bhutan, N Myanmar, Nepal, Sikkim].

4b. *Trollius pumilus* var. *tanguticus* Brühl, Ann. Roy. Bot. Gard. (Calcutta) 5: 88. 1896.

青藏金莲花 qing zang jin lian hua

Trollius pumilus var. *alpinus* Ulbrich; *T. tanguticus* (Brühl) W. T. Wang.

Leaves all basal or subbasal, green when dried. Sepals green when dried, to 1.7 × 1.5 cm.

• Mountainous grasslands, marshes; 2300–3700 m. SW Gansu, E and S Qinghai, NW Sichuan, NE Xizang.

4c. *Trollius pumilus* var. *foliosus* (W. T. Wang) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 78. 1979.

显叶金莲花 xian ye jin lian hua

Trollius tanguticus (Brühl) W. T. Wang var. *foliosus* W.

T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 52. 1965.

Leaves both basal and cauline.

• Alpine grasslands; 3000–3400 m. S Gansu.

4d. *Trollius pumilus* var. *tehkehensis* (W. T. Wang) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 78. 1979.

德格金莲花 de ge jin lian hua

Trollius tehkehensis W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 52. 1965.

Stems 20–25 cm tall. Leaves all basal or subbasal, not green when dried. Sepals dark purple outside, white inside, ca. 1 cm × 8–9 mm, persistent.

• Alpine grasslands. Sichuan (Dêgê Xian).

Rudolf V. Kamelin (pers. comm.) believes that this taxon deserves recognition at the rank of species.

5. *Trollius farreri* Stapf, Bot. Mag. 152: t. 9143. 1928.

矮金莲花 ai jin lian hua

Stems more than 5 cm tall, to 19 cm at fruiting, simple.

Leaves 3 or 4, all basal or subbasal, or with 1 or 2 leaves near middle of stem; petiole 1–4 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 0.8–2.1 × 1.4–4.5 cm, base cordate, 3-sect nearly to base; central segment rhombic-obovate or cuneate, 3-lobed, with 2 or 3 irregular triangular teeth; lateral segments unequally 2-fid. Flower solitary, terminal, 1.8–3.4 cm in diam. Sepals 5(or 6), yellow, abaxially usually dark purple, not green when dried, broadly ovate, 1–1.5 × 0.9–1.5 cm, apex rounded or subtruncate, persistent, rarely caducous. Petals spatulate-linear, shorter than stamens, ca. 5 × 0.5–0.8 mm. Stamens ca. 7 mm. Follicles 6–9(–25), 0.9–1.2 cm; persistent style erect, ca. 2 mm. Seeds ellipsoid-globose, ca. 1 mm. Fl. Jun–Jul, fr. Aug.

• Grassy slopes, alpine meadows; 3500–4700 m. S Gansu, E and S Qinghai, S Shaanxi, W Sichuan, NE and SE Xizang, NW Yunnan.

1a. Leaf blade 1.4–2.6 cm wide, leaves basal or subbasal; central segment rhombic-obovate or cuneate, with 2 or 3 irregular triangular teeth 5a. var. *farreri*

1b. Leaf blade 2–4.5 cm wide, leaves all basal or with 1 or 2 cauline leaves near middle of stem; central segment broadly rhombic, densely lobulate 5b. var. *major*

5a. *Trollius farreri* var. *farreri*

矮金莲花(原变种) ai jin lian hua (yuan bian zhong)

Trollius kansuensis (Brühl) Mukerjee; *T. pumilus* D. Don subsp. *normalis* Brühl var. *kansuensis* Brühl.

Leaves basal or subbasal; leaf blade 1.4–2.6 cm wide; central segment rhombic-obovate or cuneate, with 2 or 3 irregular triangular teeth.

• Grassy slopes; 3500–4700 m. S Gansu, E and S Qinghai, S Shaanxi, W Sichuan, NE Xizang, NW Yunnan.

5b. *Trollius farreri* var. *major* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 52. 1965.

大叶矮金莲花 da ye ai jin lian hua

Leaves all basal or with 1 or 2 cauline leaves near middle of stem; leaf blade 2–4.5 cm wide; central segment broadly rhombic, densely lobulate.

• Alpine meadows; 3500–4200 m. SE Xizang (Zayü Xian), NW Yunnan (Dêqên Xian).

6. *Trollius micranthus* Handel-Mazzetti, *Symb. Sin.* 7: 268. 1931.

小花金莲花 xiao hua jin lian hua

Stems more than 5 cm tall, to 24 cm at fruiting, simple or 1-branched at base. Basal leaves 4 or 5; petiole 1.2–3.5 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 0.8–1.5 × 1.3–3.5 cm, base cordate, 3-sect; central segment broadly rhombic or cuneate, 3-lobed, margin with several teeth or entire; lateral segments obliquely flabellate, 2-fid. Subbasal cauline leaves similar to basal ones. Flower solitary, 1.2–1.5 cm in diam. Sepals 5, yellow, tinged with purple when dried, 5–8 mm, narrowly obovate or oblong, apex obtuse, persistent. Petals shorter than stamens, 2–3 mm. Stamens 3.5–5 mm. Follicles ca. 7, subequaling sepals, 5–8 × ca. 2 mm; persistent style erect, ca. 0.7 mm. Seeds ellipsoid-globose, ca. 1 mm, smooth. Fl. Jun, fr. Aug.

• Grassy slopes; 3900–4200 m. E Xizang (Mêdog Xian), NW Yunnan (Dêqên Xian).

7. *Trollius ranunculoides* Hemsley, *J. Linn. Soc., Bot.* 29: 301. 1892.

毛茛状金莲花 mao gen zhuang jin lian hua

Trollius pumilus D. Don subsp. *normalis* Brühl var. *ranunculoides* Brühl.

Stems more than 6 cm tall, to 30 cm at fruiting, simple. Basal leaves with petiole 3–13 cm, base sheathed; leaf blade not green when dried, orbicular-pentagonal or pentagonal, 1–1.5 (–2.5) × 1.4–2.4 (–4.2) cm, base cordate, 3-sect; central segment broadly rhombic or rhombic-obovate, 3-fid, lobules 1- or 2-triangular or ovate-triangular dentate; lateral segments obliquely flabellate, unequally 2-fid nearly to base. Cauline leaves 1–3, smaller than basal leaves. Flower solitary, 2.2–3.2 (–4) cm in diam. Sepals 5 (–8), yellow, ± green when dried, obovate, 1–1.5 × 1–1.8 cm, apex rounded or subtruncate, caducous. Petals spatulate-linear, shorter than stamens, 4.5–6 × ca. 1 mm. Stamens 5–7 mm. Follicles 7–9, ca. 1 cm; persistent style erect, ca. 1 mm. Seeds ellipsoid-globose, ca. 1 mm. Fl. May–Jun, fr. Aug.

• Grassy slopes; 2900–4100 m. S Gansu, E and S Qinghai, W Sichuan, E Xizang, NW Yunnan.

8. *Trollius vaginatus* Handel-Mazzetti, *Symb. Sin.* 7: 267. 1931.

鞘柄金莲花 qiao bing jin lian hua

Stems more than 4 cm tall, to 11 cm at fruiting, simple. Basal leaves 1 or 2 (or 3); petiole 3–4 cm, base sheathed; leaf blade not green when dried, pentagonal-reniform, 1–1.5 × 1.6–2.8 cm, base deeply cordate, 3-sect; central segment broadly rhombic, 3-fid, lobules with 1 or 2 triangular teeth; lateral segments obliquely rhombic, unequally 2-fid nearly to base. Cauline leaves similar to basal ones, long petiolate. Flower solitary, 2.5–3.2 (–3.7) cm in diam. Sepals 5, yellow, abaxially usually purple-brown, not green when dried, obovate or broadly obovate, 1.1–2 cm, apex rounded, persistent. Petals ca. 12, spatulate-linear, subequaling filaments or slightly shorter, 4–5 × 1–1.2 mm. Stamens 5–7 mm. Follicles 4–6, ca. 9 mm; persistent style ca. 1 mm. Fl. Jun, fr. Jun.

• Grassy slopes; 3000–4200 m. SW Sichuan (Muli Zang Zu Zizhixian), NW Yunnan (Zhongdian Xian).

9. *Trollius taihasenzanensis* Masamune, *J. Soc. Trop. Agr.* 6: 570. 1934.

台湾金莲花 tai wan jin lian hua

Stems 20–35 cm tall, simple or 1-branched. Basal leaves ca. 5; petiole 8–13 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 2.3–3 × 4–6.5 cm, base cordate, 3-sect; central segment broadly rhombic, 3-fid, with narrowly triangular teeth; lateral segments obliquely flabellate, unequally 2-fid nearly to base. Cauline leaves similar to basal ones. Flowers 1–5, in terminal branches, 2.5–4 cm in diam. Sepals 5–8, yellow, not green when dried, not purplish outside, broadly obovate to narrowly obovate, or broadly elliptic, 1.2–1.9 × 0.7–1.4 cm, caducous. Petals ca. 12, linear-elliptic, 3–4 × 0.5–1 mm. Stamens 5–7.5 mm. Follicles 4–15, ca. 1 cm × 3 mm; persistent style 2.5–3 mm. Seeds ellipsoid-globose, 1.2–1.5 mm, smooth.

• Scrub forests in valleys, grassy streambanks, open areas in *Abies* forests; 3200–3900 m. Taiwan.

10. *Trollius japonicus* Miquel, *Ann. Mus. Bot. Lugduno-Batavi* 3: 6. 1876.

长白金莲花 chang bai jin lian hua

Stems 20–60 cm tall, simple. Basal leaves 3–5; petiole 5.5–20 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 2.7–10 × 4–10 cm, base cordate, 3-sect; central segment rhombic, 3-fid, with several lobules and small teeth; lateral segments obliquely flabellate, 2-parted nearly to base. Cauline leaves 3, similar to basal ones. Pedicel 2–6 cm. Flower solitary, or 2 or 3 flowers in a terminal cyme, 2.7–4 cm in diam. Sepals 5–7, yellow, green when dried, obovate or orbicular-obovate, 1.4–1.6 × 1–1.4 cm, several denticulate, apex rounded. Petals 9, linear, subequaling stamens, 6–7 × ca. 1 mm. Stamens 5–7.5 mm. Follicles 7–15, to 1.1 cm × ca. 3 mm; persistent style 1.5–4 mm. Seeds ellipsoid-globose, ca. 1.5 mm. Fl. Jul–Aug, fr. Sep. $2n = 16$.

Grassy slopes; 1200–2300 m. E Jilin (Changbai Shan) [Japan].

11. *Trollius altaicus* C. A. Meyer, Verz. Pflanz. Caucas. 200. 1831.

阿尔泰金莲花 a er tai jin lian hua

Stems 26–70 cm tall, simple. Basal leaves 2–5; petiole 7–36 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 3.5–6 × 6.5–11 cm, base cordate, 3-sect; central segment rhombic, 3-lobed, ultimate lobules dentate; lateral segments obliquely flabellate, 2-fid nearly to base. Cauline leaves similar to basal ones. Flower solitary, 3–5 cm in diam. Sepals (10–)15–18, orange, not green when dried, obovate or broadly obovate, 1.6–2.5 × 0.9–2 cm, apex rounded. Petals linear, shorter than or subequaling stamens, 6–13 × ca. 1 mm, narrowed at apex. Stamens 0.7–1.3 cm. Styles dark purple or black. Follicles ca. 16, ca. 1 cm × 3.5 mm; persistent style ca. 1 mm. Seeds ellipsoid-globose, ca. 1.2 mm. Fl. May–Jul, fr. Aug. $2n = 16$.

Grassy slopes, wet places in valleys; 1200–2700 m. W Nei Mongol, N Xinjiang [E Kazakhstan, Kyrgyzstan, Mongolia, Russia (Siberia), Tajikistan, Uzbekistan].

12. *Trollius ledebourii* Reichenbach, Icon. Pl. Crit. 3: 63. 1825.

短瓣金莲花 duan ban jin lian hua

Stems 40–100 cm tall. Basal leaves 2 or 3; petiole 9–29 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 4.5–6.5 × 8.5–12.5 cm, base cordate, 3-sect; central segment rhombic, 3-fid, ultimate lobules triangular-denticulate; lateral segments obliquely flabellate, unequally 2-fid nearly to base. Cauline leaves 3 or 4, similar to basal ones. Pedicel 5.5–15 cm. Flower solitary, or 2 or 3 flowers in a terminal cyme, 3.2–4.8 cm in diam. Sepals 5–8, yellow, not green when dried, elliptic to narrowly elliptic, 1.3–2.8 × 1–1.5 cm, apex rounded. Petals 10–22, linear, longer than stamens but shorter than sepals, 1.3–1.6 cm × ca. 1 mm, narrowed at apex. Stamens to 9 mm. Follicles 20–28, ca. 7 mm; persistent style ca. 1 mm. Fl. Jun–Jul, fr. Jun. $2n = 16$.

Wet grasslands, by streams; 100–900 m. Heilongjiang, Liaoning, NE Nei Mongol [Mongolia, Russia (Far East, Siberia)].

13. *Trollius asiaticus* Linnaeus, Sp. Pl. 1: 557. 1753.

宽瓣金莲花 kuan ban jin lian hua

Stems more than 20 cm tall, to 80 cm at fruiting, simple or branched above middle. Basal leaves ca. 3; petiole 7–31 cm; leaf blade not green when dried, pentagonal, to 4.5 × 8.5 cm, base cordate, 3-sect; central segment rhombic, 3-fid, margin incised-dentate; lateral segments obliquely flabellate, unequally 2-fid nearly to base. Cauline leaves similar to basal ones, shortly petiolate or sessile. Flower solitary, terminal, (2–)3.4–4.5 cm in diam. Sepals 10–15(–20), orange-red or orange, rarely dark yellow, broadly elliptic or obovate, (0.7–)1.5–2.3

× (0.5–)1.2–1.7 cm, margin entire or irregularly dentate at apex. Petals spatulate-linear, longer than stamens but shorter than sepals, (4–)16 × 2–3.5 mm. Stamens ca. 1 cm. Follicles ca. 30; persistent style 0.5–1(–1.5) mm. Fl. Jul. $2n = 16$.

Wet places in grasslands, forests. Heilongjiang (Shangzhi Xian), Xinjiang (Altay Xian, Hami Shi) [E Kazakhstan, Mongolia, Russia (Siberia)].

14. *Trollius chinensis* Bunge, Mém. Acad. Imp. Sci. St.-Pétersbourg, Ser. 6, Sci. Math. 2: 77. 1835.

金莲花 jin lian hua

Trollius asiaticus Linnaeus var. *chinensis* (Bunge) Maximowicz.

Stems more than 20 cm tall, to 80 cm at fruiting, simple. Basal leaves 1–4; petiole 12–30 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 3.8–6.8 × 6.8–12.5 cm, base cordate, 3-sect; central segment rhombic, 3-fid to or beyond middle, margin densely unequally dentate; lateral segments obliquely flabellate, 2-fid nearly to base. Cauline leaves similar to basal ones, shortly petiolate or sessile. Pedicel 5–9 cm. Flower solitary, or 2 or 3 flowers in a terminal cyme, 3.8–5.5 cm in diam. Sepals (6–)10–15(–19), golden yellow, not green when dried, elliptic-obovate or obovate, 1.5–2.8 × 0.7–1.6 cm, apex rounded. Petals 18–21, narrowly linear, subequaling or longer than sepals, rarely shorter than sepals, 1.8–2.2 cm × 1.2–1.5 mm. Stamens 0.5–1.1 cm. Follicles 20–30, 1–1.2 cm × ca. 3 mm; persistent style ca. 1 mm. Seeds subovoid, ca. 1.5 mm, smooth. Fl. Jun–Jul, fr. Aug–Sep. $2n = 16^*$.

• Grassy slopes; 1000–2200 m. Hebei, N Henan, W Jilin, W Liaoning, E Nei Mongol, Shanxi.

15. *Trollius macropetalus* (Regel) F. Schmidt, Mém. Acad. Imp. Sci. St.-Pétersbourg, Ser. 7, 12(2): 88. 1868.

长瓣金莲花 chang ban jin lian hua

Trollius ledebourii Reichenbach var. *macropetalus* Regel, Mém. Acad. Imp. Sci. St.-Pétersbourg, Ser. 7, 4: 4. 1861; *T. chinensis* Bunge subsp. *macropetalus* (Regel) Luferov.

Stems more than 40 cm tall, to 100 cm at fruiting, simple. Basal leaves 2–4; petiole 10–28 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 5.5–9.2 × 11–16 cm, 3-sect; central segment rhombic, 3-fid, ultimate lobules unequally dentate; lateral segments obliquely flabellate, unequally 2-fid. Cauline leaves 3 or 4, similar to basal ones. Flower solitary, 3.5–4.5 cm in diam. Sepals 5–7, golden yellow, orange-yellow when dried, broadly ovate or obovate, 1.5–2 (–2.5) × 1.2–1.5 cm, apex rounded. Petals 14–22, narrowly linear, longer than sepals, sometimes subequaling sepals, 1.8–2.6 cm × ca. 1 mm. Stamens 1–2 cm. Follicles 20–40, ca. 1.3 cm × 4 mm; persistent style 3.5–4 mm. Seeds black, narrowly obovoid-globose, ca. 1.5 mm. Fl. Jul–Sep, fr. Jul.

Wet grasslands; 400–600 m. Heilongjiang, Jilin, Liaoning [N Korea, Russia (Far East)].

16. *Trollius lilacinus* Bunge, Mém. Acad. Imp. Sci. St.-Pétersbourg, Ser. 6, Sci. Math. 2: 33. 1835.

淡紫金莲花 dan zi jin lian hua

Hegemone lilacina (Bunge) Bunge ex Ledebour.
Stems more than 5, to 28 cm tall at fruiting, simple.
Basal leaves 3–6; petiole 4–7 cm, base narrowly sheathed; leaf blade not green when dried, pentagonal, 1.8–2.5 × 2.8–4 cm, base cordate, 3-sect; central segment rhombic, 3-fid to middle or subpinnatifid with several lobules and triangular or broadly lanceolate teeth; lateral segments obliquely flabellate, unequally 2-fid to base. Cauline leaves with sheathlike short petioles or subsessile, smaller than basal ones.

Flower solitary, 2.5–3.5 cm in diam. Sepals 15–18, lilac-blue or pale blue, rarely white with blue veins, obovate, broadly elliptic, elliptic, or rarely ovate, 1.2–1.6 cm × 5.5–14 mm, apex rounded, sometimes acute. Petals ca. 8, broadly linear, shorter than stamens, 5–6 × 1.2–1.5 mm. Stamens 5–7 mm. Follicles 6–11, ca. 1.2 cm × 2 mm; persistent style 2–2.5 mm. Seeds ca. 1 mm, ellipsoid-globose, smooth. Fl. Jul–Aug, fr. Aug–Sep. $2n = 32$.

Grassy slopes, at forest margins; 2600–3500 m. Xinjiang (Altay Xian, Tian Shan) [Kazakhstan, Kyrgyzstan, Mongolia, Russia (W Siberia and C Asia), Uzbekistan].

4. BEESIA I. B. Balfour & W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 9: 63. 1915.

铁破锣属 tie po luo shu

Li Liangqian (李良千); Michio Tamura

Herbs perennial. Rhizome robust, creeping or ascending. Leaves 2–4, basal, long petiolate, simple, cordate or cordate-triangular, dentate. Scape simple, with membranous sheath at base. Cyme compound, with 1–3 sessile fascicled flowers at several nodes. Bracts and bracteoles subulate or lanceolate. Flower actinomorphic, opening flat. Sepals 5, petaloid, white, elliptic. Petals absent. Stamens numerous; filaments subfiliform; anthers subglobose. Follicle solitary, long, narrow, flat, with transverse veins. Seeds several, ovoid-globose, rugose.

Two species: China, Myanmar; two species (one endemic) in China.

The rhizomes are used medicinally to treat rheumatic pain, influenza, and swelling.

- 1a. Leaves reniform, cordate, or orbicular-ovate, margin with 40–50 teeth on each side, teeth relatively small, 2–4 mm wide at base 1. *B. calthifolia*
- 1b. Leaves cordate-triangular, margin with 7–16 teeth on each side, teeth relatively large, 3–8 mm wide at base 2. *B. deltophylla*

1. *Beesia calthifolia* (Maximowicz ex Oliver) Ulbrich, Notizbl. Bot. Gart. Berlin-Dahlem 10: 872. 1929.

铁破锣 tie po luo

Cimicifuga calthifolia Maximowicz ex Oliver, Hooker's Icon. Pl. 18: t. 1746. 1888; *Beesia cordata* I. B. Balfour & W. W. Smith; *B. elongata* Handel-Mazzetti.

Rhizome to 10 cm, 3–7 mm in diam. Scapes more than 14 cm, to 58 cm at fruiting, basally glabrous, apically densely pubescent. Basal leaves 2–4, long petiolate; petiole (5.5–)10–26 cm, slightly widened, glabrous; leaf blade reniform, orbicular-ovate, or deeply cordate at base, (1.5–)4.5–9.5 × (1.8–)5.5–16 cm, both surfaces glabrous, rarely pubescent abaxially at veins, margin dense with 40–50 teeth on each side, apex rounded, shortly acuminate, or acute. Inflorescence cymose, 5.5–9.5 × 1.5–2.5 cm; bracts usually subulate, sometimes lanceolate, rarely spatulate, 1–1.5 mm, glabrous. Pedicel 5–10 mm, densely spreading pubescent. Sepals white or pinkish, narrowly ovate or elliptic, 3–5(–8) × 1.8–2.5(–3) mm, glabrous, apex acute or blunt. Stamens shorter than sepals; anthers ca. 3 mm in diam. Follicle 1.1–1.7 cm, flat, lanceolate-linear, middle part curved, lower part 3–4 mm wide, sparsely pubescent near base, otherwise glabrous, with ca. 8 obliquely transverse veins; persistent style 1–2 mm. Seeds several, ca. 2.5

mm, obliquely corrugate. Fl. May–Aug, fr. Jul–Sep. $2n = 16^*$, 32^* .

Wet places in valleys, forests; 1400–3500 m. S Gansu, N Guangxi, Guizhou, W Hubei, W Hunan, S Shanxi, Sichuan, NW Yunnan [N Myanmar].

2. *Beesia deltophylla* C. Y. Wu, Fl. Reipubl. Popularis Sin. 27: 604. 1979.

角叶铁破锣 jiao ye tie po luo

Rhizome ca. 4 mm in diam. Scapes more than 14 cm, to 34 cm at fruiting, 1–2 mm in diam., basally subglabrous, apically spreading white pubescent. Basal leaves 2 or 3, long petiolate; petiole 5.5–14.5 cm, densely spreading white pubescent; leaf blade ovate-triangular, 4–9 × 2.8–5.9 cm, abaxially pale green, glabrous, adaxially green, base deeply cordate, margin sparsely 7–16-dentate on each side, teeth 3–8 mm wide at base, apex acuminate to long acuminate. Inflorescence paniculate-cymose; bracts subulate, 1–4 mm. Flowers 6–7 mm in diam.; pedicel 5–10 mm, densely spreading pubescent. Sepals white, ovate-elliptic, 4–4.5 × 2–2.5 mm, glabrous, apex acute. Stamens shorter than sepals; anthers yellowish. Follicle yellowish brown, ca. 1 cm, flat, lanceolate-linear, sparsely pubescent, with ca. 4 obliquely transverse veins. Seeds several, ca. 2 mm, obliquely corrugate. Fl. Jul, fr. Jul–Sep. $2n = 16^*$.

• Forests on slopes; ca. 2300 m. SE Xizang (Mêdog Xian).

5. SOULIEA Franchet, J. Bot. (Morot) 12: 69. 1898.

黄三七属 *huang san qi shu*

Li Liangqian (李良千); Michio Tamura

Herbs perennial. Rhizome robust. Stems with membranous scales at base. Leaves petiolate, 2 or 3 × ternately sect. Inflorescence racemose. Flowers actinomorphic. Sepals 5, petaloid, white, obovate or obovate-elliptic. Petals 5, flabellate-obovate, denticulate. Stamens numerous; filaments narrowly linear; anthers broadly ellipsoid. Follicles 1–3, broadly linear, shortly stalked, reticulate; persistent style short. Seeds many, black, narrowly ovoid-globose.

One species: Bhutan, China, Myanmar, Sikkim.

Elsewhere (Compton et al., Taxon 47: 593–634. 1998), *Souliea* has been transferred to *Actaea*. However, for the present account, as in FRPS, the authors have maintained *Souliea* as distinct, and regional advisor Rudolf V. Kamelin (pers. comm.) agrees.

1. *Souliea vaginata* (Maximowicz) Franchet, J. Bot. (Morot) 12: 70. 1898.

黄三七 *huang san qi*

Isopyrum vaginatum Maximowicz, Fl. Tangut. 18. 1889;
Actaea vaginata (Maximowicz) J. Compton; *Coptis ospriocarpa* Brühl.

Rhizome robust, creeping, 4–9 cm in diam., branched, with fibrous roots. Stems more than 15 cm tall, to 75 cm at fruiting, glabrous or subglabrous, with 2–4 membranous broad scales at base. Cauline leaves ca. 2, glabrous, long petiolate; petiole 5–34 cm; leaf blade triangular, to 24 cm; primary segments ovate to broadly so, central secondary segments ovate-triangular,

4–7.5 × 3.5–6.5 cm, central tertiary segments rhomboid, 1- or 2-pinnatifid, unequally dentate at margin, lateral tertiary segments similar to central tertiary ones, oblique. Raceme 4–6-flowered; bracts ovate, membranous. Pedicel 1.2–1.4 cm. Flowers 1.2–1.4 cm in diam. Sepals 8–11 × 4–7 mm, 3-veined, margin irregularly shallowly wavy at apex, apex rounded. Petals 2.5–5.5 mm, multiveined. Stamens 4–7 mm. Follicles 1 or 2 (or 3), 3.5–7 × 0.3–0.7 cm. Seeds 12–16, black when ripe, 3–4 mm. Fl. May–Jun, fr. Jul–Sep. $2n = 16^*$.

Forests, forest margins, grassy slopes; 2800–4000 m. S Gansu, E Qinghai, S Shaanxi, W Sichuan, SE Xizang, NW Yunnan [Bhutan, India, N Myanmar, Sikkim].

6. CIMICIFUGA Wernischeck, Gen. Pl. 298, 321. 1763.

升麻属 *sheng ma shu*

Li Liangqian (李良千); Anthony R. Brach

Herbs perennial. Rhizome robust, creeping, with fibrous roots. Stem terete, apically usually several branched. Leaves 1–3 × ternately sect or subpinnately compound, long petiolate. Inflorescence densely racemose, sometimes spicate, simple or branched; rachis densely glandular pubescent and hairy; bracts subulate to narrowly triangular, small. Flowers dense, small, actinomorphic, hermaphroditic or rarely unisexual and plants dioecious. Sepals 4 or 5, petaloid, white, obovate-orbicular, caducous. Petals elliptic to suborbicular, entire, slightly concave or forked-lobed with 2 empty anthers, rarely with a nectary. Stamens numerous; filaments narrowly linear to filamentous; anthers yellow, broadly ellipsoid to suborbicular. Follicles 1–8, stalked or sessile, oblong-ellipsoid to obovate-ellipsoid, adaxially convex veined, apex beaked. Seeds few, yellowish brown, ellipsoid to narrowly ellipsoid.

About 18 species: N temperate regions; eight species (three endemic) in China.

Elsewhere (Compton et al., Taxon 47: 593–634. 1998), *Cimicifuga* has been transferred to *Actaea*. However, for the present account, as in FRPS, one of us (Li) prefers to maintain *Cimicifuga* as distinct.

1a. Leaves 1 × ternate, subbasal; inflorescence spicate; carpels 1, sometimes 2 1. *C. japonica*

1b. Leaves 2 or 3 × ternately pinnate; inflorescence racemose; carpels 2–8.

2a. Flower unisexual, plants dioecious 8. *C. dahurica*

2b. Flower hermaphroditic.

3a. Inflorescence unbranched or with several short branches at base.

4a. Plants 1–1.5 m; terminal leaflet ovate or rhombic, 4.5–8.5 × 2–5.5 cm, adaxially glabrous; pedicels

5–8 mm 2. *C. simplex*

4b. Plants 40–90(–140) cm; terminal leaflet ovate or broadly rhombic, 2–3.7 × 1.5–3 cm, adaxially

sparsely pubescent; pedicels 1–4 mm 3. *C. yunnanensis*

3b. Inflorescence (2–)4–20-branched.

5a. Carpels densely gray pubescent; follicles densely appressed pubescent 7. *C. foetida*

5b. Carpels or follicles glabrous or subglabrous.

6a. Terminal leaflet rhombic, papery, abaxially pubescent at veins 6. *C. brachycarpa*

6b. Terminal leaflet ovate or obovate, slightly leathery, abaxially glabrous.

7a. Petals entire at apex; terminal leaflet obovate to obovate-elliptic, 4–9 cm wide 4. *C. heracleifolia*

7b. Petals 2-lobed at apex; terminal leaflet ovate, 5.5–14.5 cm wide 5. *C. nanchuanensis*

1. *Cimicifuga japonica* (Thunberg) Sprengel, Syst. Veg. 2: 628. 1825.

小升麻 xiao sheng ma

Actaea japonica Thunberg in Murray, Syst. Veg., ed. 14, 488. 1784; *A. acerina* Prantl, nom. illeg.; *A. purpurea* (P. K. Hsiao) J. Compton; *Cimicifuga acerina* Tanaka, nom. illeg.; *C. acerina* f. *hispidula* P. K. Hsiao; *C. acerina* f. *purpurea* P. K. Hsiao; *C. acerina* f. *strigulosa* P. K. Hsiao; *C. japonica* var. *acerina* Huth; *C. macrophylla* Koidzumi; *C. purpurea* (P. K. Hsiao) C. W. Park & H. W. Lee; *Pityroperma acerinum* Siebold & Zuccarini, nom. illeg. (included *A. japonica*). Rhizome blackish, with numerous fibrous roots. Stems erect, 25–110 cm tall, basally subglabrous or sparsely spreading villous, apically densely gray pubescent. Basal leaves 1 or 2, ternate, long petiolate; petiole to 32 cm, sparsely villous or subglabrous; leaf blade to 35 cm. Leaflet petiolate; petiolules 4–12 cm; terminal leaflet ovate-cordate, 5–20 × 4–18 cm, palmately 7–9-lobed, lobes triangular or obliquely trapezoid, margin serrate; lateral leaflets smaller than terminal one, abaxially white pubescent at veins, adaxially subglabrous except shortly strigose at margin. Inflorescence spicate, terminal, simple or 1–3-branched, 10–25 cm; rachis densely gray pubescent; bracts 3-parted or triangular. Flowers subsessile, small, ca. 4 mm in diam. Sepals white or purple, elliptic to obovate-elliptic, 3–5 mm. Petals orbicular-ovate, 4–4.5 mm, with a nectary at base. Filaments narrowly linear, 4–7 mm; anthers ellipsoid, 1–1.5 mm. Carpels 1, sometimes 2, glabrous. Follicles ca. 1 cm × 3 mm. Seeds 8–12, pale brown, ellipsoid-ovoid to globose, ca. 2.5 mm, adaxially with numerous short scaly wings. Fl. Aug–Sep, fr. Oct. $2n = 16^*$.

Forests, forest margins; 800–2600 m. Anhui, Gansu, N Guangdong, Guizhou, Hainan, SW Hebei, S Henan, Hubei, Hunan, Jiangxi, S Shaanxi, S Shanxi, Sichuan, Yunnan, Zhejiang [Japan, Korea].

2. *Cimicifuga simplex* (de Candolle) Wormskjöld ex Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 15(1): 87. 1842.

单穗升麻 dan sui sheng ma

Actaea cimicifuga Linnaeus var. *simplex* de Candolle, Prodr. 1: 64. 1824; *A. simplex* (de Candolle) Wormskjöld ex Fischer & C. A. Meyer; *Cimicifuga foetida* Linnaeus var. *intermedia* Regel; *C. foetida* var. *racemosa* Regel; *C. foetida* var. *simplex* (de Candolle) Regel; *C. ussuriensis* Oettingen; *Thalictrodes simplex* (de Candolle) Kuntze.

Rhizome robust, blackish. Stem simple, 40–150 cm tall, glabrous, sometimes white pubescent apically. Proximal cauline leaves 2 or 3 × ternately pinnate, long petiolate; petiole to 30 cm; leaf blade ovate-triangular,

to 30 cm; terminal leaflet broadly lanceolate to rhombic, 3–8.5 × 1.5–5.5 cm, usually 3-lobed, margin serrate; lateral leaflets usually sessile, narrowly obliquely ovate, smaller than terminal one, abaxially sparsely white villous at veins, adaxially glabrous. Distal cauline leaves smaller, 1 or 2 × ternately pinnate. Inflorescence racemose, to 35 cm, unbranched or sometimes several branched at base; rachis and pedicels densely white or gray pubescent; bracts subulate, shorter than pedicels. Pedicel (3–)5–10(–15) mm. Sepals broadly elliptic, ca. 4 mm. Petals elliptic to broadly elliptic, membranous at apex, 2-lobed. Filaments narrowly linear, 5–8 mm, glabrous; anthers ellipsoid, ca. 1 mm. Carpels 2–8, densely gray or white pubescent, stalked. Follicles 7–9(–13) × 4–5 mm, appressed pubescent or glabrous, stalk elongate after anthesis. Seeds 4–8, ellipsoid, ca. 3.5 mm, with scaly wings all around. Fl. Aug–Sep, fr. Sep–Oct. $2n = 16^*$.

Forest margins, scrub, grassy slopes, open lands; 300–3200 m. Gansu, Guangdong, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Sichuan, Taiwan, Zhejiang [Japan, Korea, E Mongolia, Russia (Far East, E Siberia)].

3. *Cimicifuga yunnanensis* P. K. Hsiao in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 55. 1965.

云南升麻 yun nan sheng ma

Actaea yunnanensis (P. K. Hsiao) J. Compton.

Rhizome robust, gray-brown, with many fibrous roots. Stems 40–90(–140) cm tall, basally sparsely pubescent, apically densely pubescent. Proximal and middle cauline leaves 3 × ternately pinnate, long petiolate; petiole 5.5–17 cm, pubescent; leaf blade triangular, 12–40 × 12–40 cm, papery; terminal leaflet ovate or broadly rhombic, 2–3.7 × 1.5–3.2 cm, undivided to 3-parted, margin irregularly serrate; lateral leaflets obliquely ovate, adaxially pubescent. Distal cauline leaves 1 or 2 × ternate. Inflorescence racemose, 5–13 cm, usually unbranched, or sometimes 1–3-branched below; rachis and pedicels gray glandular pubescent; bracts linear-lanceolate or linear, 5–14 × 1–2.5 mm. Pedicel 1–4 mm, sometimes nearly absent. Sepals 4 or 5, broadly elliptic or obovate, 3–4.5 × 2.5–3.2 mm. Petals elliptic or suborbicular, 3.7–5 × 3–4 mm, apex white, submembranous, 2-lobed, truncate. Filaments to 8 mm; anthers ovate-orbicular, 0.6–1 mm. Carpels 3–5, densely gray pubescent, shortly stalked. Follicles narrowly obovate, 1.1–1.5 cm × 3–5 mm, stalk 1–3 mm, appressed pubescent. Seeds 4 or 5, ca. 3 mm, with membranous scaly wings all around. Fl. Jul, fr. Sep. $2n = 16^*$.

• Forest margins, grassy slopes; 2900–4100 m. NW Yunnan.

4. *Cimicifuga heracleifolia* Komarov, Trudy Imp. S.-Peterburgsk. Bot. Sada 18: 438. 1901.

大三叶升麻 da san ye sheng ma

Actaea heracleifolia (Komarov) J. Compton.

Rhizome robust, blackish. Stems ca. 1 m tall or more, glabrous. Proximal cauline leaves 2 × ternate, glabrous, long petiolate; petiole to 20 cm, glabrous; leaf blade slightly triangular, to 20 cm wide; terminal leaflet obovate to obovate-elliptic, 6–12 × 4–9 cm, base rounded to subcordate, margin dentate, apex 3-lobed; lateral leaflets usually obliquely ovate, smaller than terminal ones, leathery, glabrous, or abaxially sparsely white pubescent at veins. Distal cauline leaves usually ternate. Inflorescence racemose, 2–9-branched; rachis and pedicels gray glandular pubescent and hairy; bracts subulate, ca. 1 mm. Pedicel 2–4 mm. Flowers small, ca. 5 mm in diam. Sepals yellowish white, obovate-orbicular to broadly elliptic, 3–4 × 2.5–3 mm. Petals elliptic, 2.5–4 × 1.6–2 mm, apex white, submembranous, usually entire. Filaments filarious, 3–6 mm; anthers ellipsoid, ca. 0.8 mm. Carpels 3–5, shortly stalked, glabrous. Follicles 5–6 × 3–4 mm, with slender stalk ca. 1 mm. Seeds usually 2, ca. 3 mm, with membranous scaly wings all around. Fl. Aug–Sep, fr. Sep–Oct.

Scrub, grassy slopes; sea level to 1000 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [Korea, Russia (Far East)].

5. *Cimicifuga nanchuanensis* P. K. Hsiao in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 56. 1965.

南川升麻 nan chuan sheng ma

Rhizome unknown. Stems glabrous, smooth. Proximal and middle cauline leaves 2 or 3 × ternate, long petiolate; petiole to 22 cm, subglabrous; leaf blade triangular, to 40 cm wide, both surfaces glabrous; terminal leaflet ovate, 9–15 × 5.5–14.5 cm, slightly leathery, base cordate or subrounded, apex acuminate or acute; lateral leaflets obliquely broadly ovate, smaller than terminal one, 5–9.5 × 4–8.5 cm. Distal cauline leaves ternate. Inflorescence racemose, 4–8-branched, branches 3–14.5 cm; rachis and pedicels densely gray pubescent; bracts subulate, ca. 1 mm. Pedicel 3–4 mm. Flowers small, ca. 4 mm in diam. Sepals 4 or 5, broadly elliptic or obovate-orbicular, 3–4 × 2.5–3.2 mm. Staminodes elliptic, ca. 3.8 × 2.2 mm, 2-lobed at apex. Stamens 4–7 mm; filaments narrowly linear; anthers yellowish, broadly ellipsoid, ca. 0.6 mm. Carpels 3–5 (or 6), ca. 1.5 mm, shortly stalked, smooth, glabrous or subglabrous.

• Mountains. SE Sichuan (Nanchuan Xian).

Compton et al. (Taxon 47: 593–634. 1998) suggested that this taxon might belong to either *Actaea* sect. *Cimicifuga* (Wernischek) de Candolle or sect. *Dichanthera* (P. K. Hsiao) J. Compton.

6. *Cimicifuga brachycarpa* P. K. Hsiao in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 57. 1965.

短果升麻 duan guo sheng ma

Actaea brachycarpa (P. K. Hsiao) J. Compton;
Cimicifuga lancifoliolata X. F. Pu & M. R. Jia.

Rhizome robust, with numerous fibrous roots. Stems ca. 1.5 m tall, basally subglabrous, apically pubescent. Proximal cauline leaves 2 × ternate, long petiolate; petiole 3–15 cm, base sheathed, subglabrous; leaf blade triangular, to 26 cm; terminal leaflet rhombic, ca. 8.5 × 6.3 cm, margin serrate, apex acute; lateral leaflets ovate-elliptic, 5.4–7.6 × 1.5–3 cm, papery, abaxially pubescent at veins, adaxially subglabrous. Distal cauline leaves shortly petiolate; petiole ca. 3 mm, usually ternate. Inflorescence racemose, 4–6-branched; rachis and pedicels densely gray-appressed glandular pubescent; bracts subulate, ca. 1 mm. Pedicel 2–3 mm. Flowers small, ca. 4 mm. Sepals white. Carpels (1 or) 2 or 3 (or 4), glabrous or sparsely pubescent, stalked. Follicles suborbicular, ca. 3 × 3 mm, glabrous; persistent style ca. 1.5 mm, base with slender stalk ca. 1.5 mm, sometimes sparsely pubescent. Seeds 2 or 3, ovate-ellipsoid, 2.5–2.8 × ca. 1.5 mm, without scaly wings. Fr. Sep.

• Forests, moist open slopes; ca. 2000 m. Henan, Hubei, Shanxi, Sichuan, NE Yunnan (Zhenxiong Xian).

7. *Cimicifuga foetida* Linnaeus, Syst. Nat., ed. 12, 2: 659. 1767.

升麻 sheng ma

Rhizome robust, blackish. Stem 1–2 m tall, base to 1.4 cm in diam., branched, pubescent. Leaves 2 or 3 × ternately pinnate. Proximal cauline leaves long petiolate; petiole to 15 cm; leaf blade triangular, to 30 cm wide; terminal leaflet rhombic, 2.5–10 × 1–7 cm, usually lobed, margin serrate; lateral leaflets obliquely ovate; becoming black or not when dried, abaxially sparsely white pubescent at veins, villous, or densely pubescent, adaxially glabrous. Distal cauline leaves shortly petiolate or sessile, small. Inflorescence racemose, to 45 cm, 3–20-branched, proximal branch to 15 cm; rachis densely gray glandular pubescent, intermixed gray pubescent; bracts subulate or linear, 1–15 × 0.5–2 mm, persistent or caducous. Pedicel ca. 2 mm. Flowers small, ca. 4 mm in diam. Sepals white or greenish white, obovate-orbicular, 3–4 mm. Petals broadly elliptic, ca. 3 mm, entire or 2-lobed or 2-parted to middle, nearly membranous. Stamens 4–7 mm; anthers yellow or yellowish white. Carpels 2–5, densely gray pubescent, sessile or very shortly stalked. Follicles oblong, 8–14 × 2.5–5 mm, appressed pubescent, stalk 2–3 mm. Seeds brown, ellipsoid, 2.5–3 mm, with scaly wings all around. Fl. Jul–Sep, fr. Aug–Oct. $2n = 16^*, 32^*$.

Forests, forest margins, grassy slopes, mountains; 1700–3600 m. Gansu, W Henan, Hubei, Qinghai, Shaanxi, Shanxi, Sichuan, Xizang,

Yunnan [Bhutan, India, Kazakhstan, Mongolia, Myanmar, Russia, (Siberia), Sikkim].

This species has long been used medicinally.

- 1a. Leaf blade becoming black when dried; bracts linear, 5–15 × 0.5–2 mm, persistent 7c. var. *longibracteata*
- 1b. Leaf blade not becoming black when dried; bracts subulate, ca. 1 mm, caducous.
 - 2a. Leaflets abaxially densely pubescent 7d. var. *velutina*
 - 2b. Leaflets abaxially sparsely white pubescent or villous at veins.
 - 3a. Leaflets usually 2.5–4 × 1–2.5 cm, abaxially villous at veins 7b. var. *foliolosa*
 - 3b. Leaflets usually 7–10 × 4–7 cm, abaxially white pubescent at veins.
 - 4a. Petals undivided or indistinctly 2-lobed 7a. var. *foetida*
 - 4b. Petals 2-parted nearly to middle 7e. var. *bifida*

7a. *Cimicifuga foetida* var. *foetida*

升麻(原变种) sheng ma (yuan bian zhong)

Actaea cimicifuga Linnaeus, Sp. Pl. 1: 504. 1753; *A. frigida* (Royle) Prantl; *A. mairei* (H. Léveillé) J. Compton; *Actinospora frigida* (Royle) Fischer & C. A. Meyer; *Cimicifuga foetida* var. *mairei* (H. Léveillé) W. T. Wang & Z. Wang; *C. frigida* Royle; *C. mairei* H. Léveillé.

Leaflets not becoming black when dried, usually 7–10 × 4–7 cm, abaxially white pubescent at veins. Bracts subulate, ca. 1 mm, caducous. Petals undivided or indistinctly 2-lobed.

Forests, forest margins, grassy slopes; 1700–2300 m. Gansu, W Henan, Hubei, Qinghai, Shaanxi, Shanxi, Sichuan, Xizang, Yunnan [Bhutan, India, Kazakhstan, Mongolia, Myanmar, Russia (Siberia), Sikkim].

7b. *Cimicifuga foetida* var. *foliolosa* P. K. Hsiao in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 58. 1965.

多小叶升麻 duo xiao ye sheng ma

Actaea mairei (H. Léveillé) J. Compton var. *foliolosa* (P. K. Hsiao) J. Compton; *Cimicifuga mairei* H. Léveillé var. *foliolosa* (P. K. Hsiao) J. Compton & Hedderson.

Leaflets not becoming black when dried, usually 2.5–4 × 1–2.5 cm, abaxially villous at veins. Bracts subulate, ca. 1 mm, caducous.

• Forests; 3000–3600 m. W Sichuan, E Xizang.

7c. *Cimicifuga foetida* var. *longibracteata* P. K. Hsiao in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 58. 1965.

长苞升麻 chang bao sheng ma

Leaf blade becoming black when dried. Bracts linear, 5–15 × 0.5–2 mm, persistent.

• Grassy slopes; ca. 3400 m. NW Yunnan (Dêqên Xian).

7d. *Cimicifuga foetida* var. *velutina* Franchet ex Finet & Gagnepain, Bull. Soc. Bot. France 51: 521. 1904.

毛叶升麻 mao ye sheng ma

Leaflets not becoming black when dried, abaxially densely pubescent. Bracts subulate, ca. 1 mm, caducous.

• Mountains; 3000–3200 m. Sichuan, NW Yunnan.

7e. *Cimicifuga foetida* var. *bifida* W. T. Wang & P. K. Hsiao, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 8: 16. 1980.

两裂升麻 liang lie sheng ma

Leaflets not becoming black when dried, usually 7–10 × 4–7 cm, abaxially white pubescent. Bracts subulate, ca. 1 mm, caducous. Petals 2-parted nearly to middle.

• About 3300 m. Xizang (Mainling Xian).

8. *Cimicifuga dahurica* (Turczaninow ex Fischer & C. A. Meyer) Maximowicz, Prim. Fl. Amur. 28. 1859.

兴安升麻 xing an sheng ma

Actinospora dahurica Turczaninow ex Fischer & C. A. Meyer, Index Sem. Hort. Petrop. 1: 21. 1835; *Actaea dahurica* (Turczaninow ex Fischer & C. A. Meyer) Turczaninow ex Fischer & C. A. Meyer; *A. pterosperma* Turczaninow ex Fischer & C. A. Meyer.

Rhizome robust, blackish. Stems to 1 m tall, glabrous or slightly pubescent. Proximal cauline leaves 2 or 3 × ternate, long petiolate; petiole to 17 cm; leaf blade triangular, to 22 cm wide; terminal leaflet broadly rhombic, 5–10 × 3.5–9 cm, 3-parted, margin serrate; lateral leaflets long elliptic-ovate, slightly oblique, abaxially sparsely pubescent at veins, adaxially glabrous. Distal cauline leaves similar to proximal cauline ones, but smaller, shortly petiolate. Inflorescence compound racemose, 7–20-branched; rachis and pedicels gray glandular pubescent; bracts subulate, apex acuminate. Pedicel 2–8 mm. Flowers unisexual. Sepals broadly elliptic to broadly obovate, 3–3.5 mm. Petals forked, 2-parted, with 2 sterile anthers. Filaments filarious, 4–5 mm; anthers ca. 1 mm. Carpels 4–7, sparsely gray pubescent or subglabrous, sessile or shortly stalked. Follicles 7–8 × ca. 4 mm, appressed white pubescent, apex truncate, stalks 7–8 mm. Seeds 3 or 4, brown, ellipsoid, ca. 3 mm, with membranous scaly wings all around. Fl. Jul–Aug, fr. Aug–Sep. $2n = 16$.

In scrub, forests, grasslands; 300–1200 m. Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Shaanxi, Shanxi [Korea, Mongolia, Russia (Far East and E Siberia)].

7. ACTAEA Linnaeus, Sp. Pl. 1: 504. 1753.

类叶升麻属 lei ye sheng ma shu

Li Liangqian (李良千); Michio Tamura

Herbs perennial. Rhizome robust, creeping, with numerous fibrous roots. Stems simple, erect. Basal leaves scaly; cauline leaves alternate, 2 or 3 × ternate, long petiolate. Inflorescence racemose, simple or branched. Flowers small, actinomorphic. Sepals usually 4, petaloid, white, caducous. Petals 1–6, spatulate, yellow, smaller than sepals, without a nectary. Stamens numerous; filaments narrowly linear-filarious; anthers yellowish white, ovate-orbicular. Carpels 1; ovary ellipsoid, glabrous, stigma sessile, compressed, 2-lobed. Fruit a berry, purple-black, red, or white when ripe, subglobose. Seeds several, ovate, brown or black.

About eight species: N temperate regions; two species in China.

In a recent phylogenetic study (Compton et al., *Taxon* 47: 593–634. 1998), *Actaea* was reclassified to include *Cimicifuga* and *Souliea*. However, for the present account, as in FRPS, the authors have maintained the three genera as distinct.

Further work is needed to determine the placement of *Actaea taiwanensis* J. Compton et al. (*Taxon* 47: 624. 1998; *Cimicifuga taiwanensis* (J. Compton et al.) Luferov).

1a. Pedicels thickened at fruiting, ca. 1 mm in diam.; fruit black 1. *A. asiatica*
1b. Pedicels not thickened at fruiting, ca. 0.6 mm in diam.; fruit red, sometimes white 2. *A. erythrocarpa*

1. *Actaea asiatica* H. Hara, J. Jap. Bot. 15: 313. 1939.

类叶升麻 lei ye sheng ma

Actaea acuminata Wallich subsp. *asiatica* (H. Hara) Luferov; *A. spicata* Linnaeus var. *asiatica* (H. Hara) S. H. Li & Y. H. Huang.

Rhizome black-brown, with numerous slender fibrous roots. Stems 30–80 cm tall, terete, 4–6(–9) mm in diam., unbranched, basally glabrous, apically white pubescent. Leaves 2 or 3, proximal cauline leaves 3 × ternately pinnate, long petiolate; petiole 10–17 cm; leaf blade triangular, to 27 cm wide, abaxially glabrescent, adaxially subglabrous; terminal leaflet ovate to broadly ovate-rhombic, 4–10 × 2–8 cm, 3-fid, margin sharply serrate; lateral leaflets ovate to obliquely ovate. Distal cauline leaves similar to proximal ones, but smaller. Inflorescence racemose, 2.5–4(–6) cm, to 17 cm at fruiting; rachis and pedicels densely white or gray pubescent; bracts linear-lanceolate, ca. 2 mm. Pedicels 5–8 mm. Sepals obovate, 2.5–3 mm. Petals spatulate, 2–2.5 mm. Filaments 3–5 mm; anthers ca. 0.7 mm. Pedicels at fruiting 1–1.5 cm, ca. 1 mm in diam. Fruit solitary, purple-black, ca. 6 mm in diam. Seeds ca. 6, dark brown, ovate, ca. 3 × 2 mm. Fl. May–Jun, fr. Jul–Sep. $2n = 16^*$.

Forests; 300–3100 m. Gansu, Hebei, Heilongjiang, Hubei, Jilin, Liaoning, S Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, E Xizang, Yunnan [Japan, Korea, Russia (Far East)].

2. *Actaea erythrocarpa* Fischer in Fischer & C. A. Meyer, Index Sem. Hort. Petrop. 1: 20. 1835.

红果类叶升麻 hong guo lei ye sheng ma

Actaea spicata Linnaeus var. *erythrocarpa* (Fischer) Turczaninow ex Ledebour.

Rhizome black-brown, with numerous slender fibrous roots. Stems 60–70 cm tall, terete, 4–6 mm in diam., basally glabrous, apically pubescent. Leaves 2 or 3, proximal cauline leaves 3 × ternately pinnate, long petiolate; petiole to 24 cm; leaf blade triangular, to 25 cm wide, abaxially sparsely white pubescent or subglabrous at veins, adaxially subglabrous; terminal leaflet ovate to broadly ovate, 6–10 × 5–8 cm, 3-fid, margin sharply serrate; lateral leaflets obliquely ovate, irregularly 2- or 3-parted. Inflorescence racemose, ca. 6 cm, to 10 cm at fruiting; rachis and pedicels densely pubescent; bracts linear-lanceolate, 2–6 mm. Pedicels 0.5–1.5 cm. Flowers 8–10 mm, crowded. Sepals obovate, ca. 2.5 mm. Petals spatulate, ca. 2.5 mm, proximal part unguiculate, apex rounded. Filaments 4–5 mm; anthers ca. 0.7 mm. Pedicels at fruiting ca. 0.6 mm in diam. Fruit red, rarely white, 5–6 mm in diam., glabrous. Seeds ca. 8, ± black, ca. 3 × 2 mm, glabrous. Fl. May–Jun, fr. Jul–Aug. $2n = 16^*$.

Forests; 700–1500 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi, ?Yunnan [Japan; Mongolia, Russia (Far East, Siberia); Europe].

8. HELLEBORUS Linnaeus, Sp. Pl. 1: 557. 1753.

铁筷子属 tie kuai zi shu

Li Liangqian (李良千); Michio Tamura

Herbs perennial, rhizomatous. Leaves large, pedately sect or parted. Inflorescence terminal, cymose, 1- to several flowered. Sepals 5, petaloid, white, pink-red, or green, usually persistent. Petals small, tubular or cup-shaped, shortly stalked, apex ± bilabiate. Stamens numerous; filaments narrowly linear, 1-veined; anthers ellipsoid. Follicles 2–10, leathery, styles persistent. Seeds several per follicle, ellipsoid-globose.

About 20 species: W Asia, China, C and S Europe; one species (endemic) in China.

1. *Helleborus thibetanus* Franchet, *Nouv. Arch. Mus. Hist. Nat.*, sér. 2, 8: 190. 1886.

铁筷子 tie kuai zi

Helleborus chinensis Maximowicz; *H. viridis* Linnaeus var. *thibetanus* (Franchet) Finet & Gagnepain.

Rhizome ca. 4 mm in diam., with dense succulent long fibrous roots. Stems 30–50 cm tall, glabrous, base with 2 or 3 scales, apically branched. Basal leaves 1(or 2), glabrous, long petiolate; petiole 20–24 cm; leaf blade reniform or pentagonal, 7.5–16 × 14–24 cm, pedately 3-sect; central segment oblanceolate, 1.6–4.5 cm wide, above middle densely serrate; lateral segments shortly stalked, flabellate, unequally 3-sect. Cauline leaves

subsessile, smaller than basal ones, central segment narrowly elliptic, lateral ones unequally 2- or 3-parted. Flower 1(or 2), terminal, 3.5–6 cm in diam., glabrous. Sepals pink-red, green at fruiting, elliptic or narrowly elliptic (1.1–) 1.6–3.3 × (0.5–)1–1.8 cm. Petals 8–10, yellowish green, tubular 5–6 mm, shortly stalked, slightly 2-fid. Stamens (4.5–)7–10 mm; filaments narrowly linear; anthers ellipsoid, 1–1.5 mm. Follicles 2, rarely 3, 1.5–2.8 × 0.9–1.2 cm, basally fused, beak ca. 6 mm. Seeds ellipsoid, 3–5 × ca. 3 mm, lustrous. Fl. Apr, fr. May. $2n = 32^*$.

• Forests, in shade of shrubs; 1100–3700 m. S Gansu, NW Hubei, S Shaanxi, NW Sichuan.

9. ERANTHIS Salisbury, *Trans. Linn. Soc. London* 8: 303. 1807, nom. cons.

菟葵属 tu kui shu

Li Liangqian (李良千); Michio Tamura

Cammarum Hill, nom. rej.

Herbs perennial, with tuberous rhizomes. Basal leaves 1 or 2, or absent, long petiolate, palmately divided. Scape unbranched; bracts several, verticillate, forming an involucre. Flower solitary, terminal, actinomorphic. Sepals 5–8, yellow, white, or pink-red, petaloid, oblong, elliptic, or ovate, caducous. Petals 5–8, tubular, small, shortly stalked, slightly concave or 2-fid, sometimes with sterile anthers. Stamens 10 or numerous; filaments narrowly linear, 1-veined; anthers ellipsoid or orbicular. Follicles 4–9, rarely more, usually stalked. Seeds many in a follicle, compressed globose, smooth or reticulate.

About eight species: Asia, Europe; three species (two endemic) in China.

- 1a. Bracts lobed; lobes ovate 1. *E. lobulata*
 1b. Bracts parted; lobes linear or lanceolate.
 2a. Pedicel glabrous; sepals white; carpels 4 or 5, sessile, glabrous 2. *E. albiflora*
 2b. Pedicel pubescent; sepals yellow; carpels 6–9, shortly stalked, pubescent 3. *E. stellata*

1. *Eranthis lobulata* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 53. 1965.

浅裂菟葵 qian lie tu kui

Rhizome globose, ca. 6 mm in diam., with fibrous roots. Basal leaf 1 or absent, small; petiole ca. 8 cm; leaf blade pentagonal, ca. 4.5 × 9 mm, glabrous, base cordate, 3-lobed; central lobe broadly ovate; lateral ones subcuneate, unequally 2-lobed. Scape more than 8.5 cm, to 29 cm at fruiting, slender, ca. 1 mm in diam., glabrous. Bracts 6, sessile, obovate, rarely oblanceolate, 1.1–2.8 × 0.5–1.9 cm, glabrous, base cuneate, 3-lobed above to near middle, rarely undivided; central lobe ovate subobtrapezoid, apex acute, usually undivided, rarely 3-lobed; lateral ones ovate, smaller, undivided, margin entire. Pedicel 0.8–1.3 cm at fruiting. Sepals and petals unknown. Carpels 4–9, 6–8 mm, glabrous, shortly stalked, stalk ca. 1 mm; persistent style ca. 0.5–

1 mm. Seeds pale brown, ellipsoid-globose, slightly flat, 1.2–1.5 × 1–1.2 mm, smooth. Fr. May.

• Grassy slopes; 2800–3100 m. NC and W Sichuan.

- 1a. Scape 8.5–14.5 cm; bracts 1.1–1.9 × 0.5–1.1 cm; carpels 5, persistent style ca. 0.5 mm at fruiting 1a. var. *lobulata*
 1b. Scape 20–29 cm; bracts 1.4–2.8 × 1.2–1.9 cm; carpels 4–9, persistent style ca. 1 mm at fruiting 1b. var. *elator*

1a. *Eranthis lobulata* var. *lobulata*

浅裂菟葵(原变种) qian lie tu kui (yuan bian zhong)

Scape 8.5–14.5 cm; bracts 1.1–1.9 × 0.5–1.1 cm. Carpels 5, persistent style ca. 0.5 mm at fruiting.

•Grassy slopes; ca. 3100 m. NC Sichuan (Wenchuan Xian).

1b. *Eranthis lobulata* var. *elatior* W. T. Wang, Acta Phytotax. Sin. 29: 456. 1991.

高浅裂菟葵 gao qian lie tu kui

Scape 20–29 cm; bracts 1.4–2.8 × 1.2–1.9 cm. Carpels 4–9, persistent style 1 mm at fruiting.

•About 2800 m. W Sichuan (Gongga Shan).

2. *Eranthis albiflora* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 191. 1886.

白花菟葵 bai hua tu kui

Plants glabrous. Rhizome globose, ca. 8 mm. Basal leaves unknown. Scape 8–10 cm tall. Bracts 5 or 6, 3-sect; segments obovate-cuneate, parted to middle, unequally lobed; lobes linear, apex acute or obtuse. Flower 1.2–1.5 cm in diam., shortly stalked. Sepals white, elliptic or oblong, obtuse at apex. Petals 4 or 5 obcordate-funnelform, emarginate outside, 2-lobed inside; stalks long, subequalling blade. Stamens ca. 10; filaments linear; anthers orbicular. Follicles 4 or 5, sessile, narrowly oblong, 8–10 × 2.5–3 mm; persistent style 3–5 mm, glabrous. Seeds 3 or 4, flat-globose, 1.8–2 mm in diam., slightly lucid. Fl. Mar.

•Forest margins; 1700–2100 m. W Sichuan (Baoping Xian, Tianquan Xian).

3. *Eranthis stellata* Maximowicz, Prim. Fl. Amur. 22. 1859. 菟葵 tu kui

Eranthis uncinata Turczaninow var. *puberula* Regel & Maack; *Shibateranthis stellata* (Maximowicz) Nakai. Rhizome globose, 8–11 mm in diam. Basal leaf 1 or absent, small, glabrous, long petiolate; petiole ca. 17 cm; leaf blade orbicular-reniform, ca. 6 × 10 mm, 3-sect; central segment broadly ovate, lateral segments subflabellate. Scape to 20 cm tall, glabrous. Bracts to 2.5–3.5 cm, 3-parted; lobes lanceolate or linear-lanceolate, glabrous. Pedicel 4–10 mm, to 2.5 cm at fruiting, usually spreading pubescent, sometimes glandular pubescent. Flower 1.6–2 cm in diam. Sepals 5–8, yellow, narrowly ovate, elliptic, or oblong, 7–10 × 2.2–5 mm, apex acuminate or slightly obtuse, glabrous. Petals ca. 10, funnelform, 3.5–5 mm, shortly stalked, distally bifurcate. Stamens 5–7 mm, glabrous; anthers ca. 1.2 mm. Follicles 6–9, glandular pubescent, stalk ca. 2 mm; persistent style ca. 3 mm. Seeds dark purple, subglobose, ca. 1.6 mm in diam. Fl. Mar–Apr, fr. May. Forests, grasslands. Jilin, Liaoning [N Korea, Russia (Far East)].

10. ACONITUM Linnaeus, Sp. Pl. 1: 532. 1753.

乌头属 wu tou shu

Li Liangqian (李良千); Yuichi Kadota

Herbs perennial or pseudoannual, rarely annual, with taproots or 2 to several caudices. Stem erect or twining. Leaves simple or compound, cauline ones alternate, sometimes all basal, palmately divided, rarely undivided. Inflorescence usually racemose. Pedicel with 2 bracteoles. Flowers bisexual, zygomorphic. Sepals 5, petaloid, purple, blue, or yellow; lower sepals 2, narrowly lanceolate or oblong, small; lateral sepals 2, suborbicular; upper sepal falcate, navicular, galeate to cylindric. Petals 2, clawed; limb usually with lip and spur, secretory tissue usually at limb apex, rarely abaxial. Staminodes usually absent. Stamens numerous; anthers ellipsoid-globose. Carpels 3–5(–13); style short, persistent.

About 400 species: temperate regions of the N hemisphere; 211 species (166 endemic) in China.

Key 1

1a. Herbs annual, with taproots; sepals clawed; petaline lip flabellate (3. *A.* subgen. *Gymnaconitum*) 211. *A. gymnandrum*

1b. Herbs perennial, with rhizomes or pseudoannual with caudices; sepals not or nearly clawless; petaline lip not flabellate.

2a. Herbs perennial, with rhizomes (1. *A.* subgen. *Lycocotnum*) Key 2

2b. Herbs pseudoannual, with caudices (2. *A.* subgen. *Aconitum*) Key 3

Key 2

1a. Inflorescence a 1-flowered scape; upper sepal navicular, petaline limb very small, lip and spur indistinct; carpels 6–8 22. *A. fletcherianum*

1b. Inflorescence usually racemose, many flowered; upper sepal cylindric or high galeate; petals with distinct lip and spur; carpels 3.

2a. Stem twining.

3a. Inflorescence rachis retrorse and appressed pubescent 11. *A. finetianum*

3b. Inflorescence rachis spreading pubescent 12. *A. alboviolaceum*

2b. Stem erect.

4a. Upper sepal high galeate or subcylindric, 6–10 mm high, broader than high.

- 5a. Stem retrorse and spreading hispid, to 65 cm tall, ca. 4 mm in diam.; sepals blue-purple, upper sepal subcylindric 1. *A. chrysotrichum*
- 5b. Stem retrorse pubescent or subglabrous, 100–200 cm tall, more than 8 mm in diam.; upper sepal galeate or high galeate.
- 6a. Stem to 200 cm tall, ca. 1.5 cm in diam.; leaf blade to 25 cm wide; petals not spurred; sepals yellowish or white 3. *A. apetalum*
- 6b. Stem to 100 cm tall, ca. 1 cm in diam.; leaf blade to 10 cm wide; petals shortly spurred; sepals pale purple 2. *A. novoluridum*
- 4b. Upper sepal cylindrical, more than 13 mm high, higher than broad.
- 7a. Leaf blade ternate 21. *A. barbatum*
- 7b. Leaf blade deeply to medially 3-lobed.
- 8a. Stem scapose to subscapose; pedicel with 2 bracteoles at base.
- 9a. Pedicels (except lowermost pedicels of inflorescence) 1.5–7 mm.
- 10a. Upper sepal 1.3–1.5 cm high; petaline spur ca. 1 mm 4. *A. brevicealcaratum*
- 10b. Upper sepal ca. 1.1 cm high; petaline spur ca. 4 mm 5. *A. kialaense*
- 9b. Pedicels of basal part of inflorescence 5–20 mm or longer.
- 11a. Distal pedicels 5–12 mm; bracteoles linear; petaline spur nearly equal to lip in length.
- 12a. Pedicels spreading pubescent; flowers dark purplish blue to violet or pink, sometimes yellowish white; petaline spur circinate 8. *A. crassiflorum*
- 12b. Pedicels appressed pubescent; flowers dull yellow; petaline spur gently incurved 10. *A. rilongense*
- 11b. Distal pedicels 14–20 mm; bracteoles narrowly ovate; petaline spur 2–3 × longer than lip.
- 13a. Pedicels appressed pubescent; leaf blade 3-parted nearly to base 7. *A. cavaleriei*
- 13b. Pedicels spreading pubescent; leaf blade 3-parted to or slightly beyond middle 6. *A. scaposum*
- 8b. Stem leafy; pedicel with 2 bracteoles above base.
- 14a. Lower pedicels less than 1 cm 9. *A. longecassidatum*
- 14b. Lower pedicels more than 1.2 cm.
- 15a. Sepals yellow.
- 16a. Inflorescence spreading pubescent 17. *A. monticola*
- 16b. Inflorescence appressed pubescent.
- 17a. Stem sparsely retrorse pubescent basally; petaline spur subspirally incurved or circinate 18. *A. umbrosum*
- 17b. Stem and petioles spreading pubescent, sometimes with intermixed retrorse hairs; petaline spur erect, slightly curved or spirally curved.
- 18a. Upper sepal 1–1.3 cm high; petaline spur spirally incurved 19. *A. ranunculoides*
- 18b. Upper sepal 1.5–2 cm high; petaline spur erect or slightly incurved 20. *A. kirinense*
- 15b. Sepals blue-purple.
- 19a. Inflorescence usually retrorse and appressed pubescent 14. *A. sinomontanum*
- 19b. Inflorescence spreading pubescent.
- 20a. Leaf blade abaxially with straight hairs, hairs 0.8–1.2 mm 16. *A. septentrionale*
- 20b. Leaf blade abaxially with slightly crisped hairs, hairs 0.2–0.5 mm.
- 21a. Leaf lobes shallowly divided, acute or shortly acuminate at apex, ultimate lobules triangular, acute at apex 13. *A. wardii*
- 21b. Leaf lobes deeply divided, long acuminate at apex, ultimate lobules narrowly triangular, sharp at apex 15. *A. leucostomum*

Key 3

- 1a. Petaline limb obscure, with a hammer-shaped spur and minute lip; carpels 7–9 210. *A. polycarpum*
- 1b. Petaline limb distinct, with a short or long spur and distinct lip; carpels usually 3–5.
- 2a. Stem erect, ascending, reclining, or trailing, not twining.
- 3a. Stem leafy, not scapose.
- 4a. Leaf blade palmately divided Key 4
- 4b. Leaf blade undivided 105. *A. rhombifolium*
- 3b. Stem scapose to subscapose.
- 5a. Leaf blade larger, 7–20(–30) cm wide.

- 6a. Leaf lobes subdivided, ultimate lobules narrowly lanceolate to linear 39. *A. duclouxii*
 6b. Leaf lobes less divided, ultimate lobules triangular to lanceolate or broadly lanceolate.
 7a. Pedicels spreading pubescent; leaf lobes contiguous or slightly overlapping 37. *A. coriophyllum*
 7b. Pedicels appressed pubescent; leaf lobes separate 38. *A. nagarum*
 5b. Leaf blade smaller, less than 7 cm wide.
 8a. Leaf blade deeply 3-lobed near to base.
 9a. Stem, pedicels, and sepals abaxially glabrous; upper sepal galeate, with a long beak 149. *A. monanthum*
 9b. Stem, pedicels, and sepals abaxially pubescent; upper sepal navicular or falcate-navicular.
 10a. Cauline leaves 6–9; upper sepal falcate-navicular.
 11a. Inflorescence 3–10-flowered; pedicels to 5 cm; carpels glabrous 36. *A. sinchiangense*
 11b. Inflorescence ca. 20-flowered; pedicels to 3 cm; carpels pubescent 178. *A. handelianum*
 10b. Cauline leaves 1 or 2; upper sepal navicular.
 12a. Petaline limb with both lip and spur 34. *A. pulchellum*
 12b. Petaline limb strongly reduced to a small hooklike structure, without lip and spur 35. *A. hamatipetalum*
 8b. Leaf blade medially 3-lobed.
 13a. Petaline lip divided into 2 linear lobes 28. *A. rotundifolium*
 13b. Petaline lip divided into 2 ± orbicular lobes.
 14a. Petaline spur erect.
 15a. Bracteoles linear, undivided 26. *A. naviculare*
 15b. Bracteoles 3-fid 27. *A. creagromorphum*
 14b. Petaline spur slightly incurved.
 16a. Inflorescence retrorse pubescent.
 17a. Bracts leaflike; bracteoles 3-fid; petals pubescent, distinctly spurred, lip tongue-like, distinct 30. *A. longipetiolatum*
 17b. Bracts linear; bracteoles linear, entire; petals glabrous, with slightly incurved or cup-shaped spur, lip distinct or not.
 18a. Petaline spur slightly incurved, lip indistinct, claw straight at spur apex 23. *A. tanguticum*
 18b. Petaline spur cup-shaped, lip short but distinct, claw straight or coiled at spur apex.
 19a. Petaline claw strongly coiled at apex, lip entire, projecting forward 25. *A. spiripetalum*
 19b. Petaline claw slightly incurved at apex, lip 2-lobed, reflexed 24. *A. qinghaiense*
 16b. Inflorescence spreading pubescent.
 20a. Inflorescence racemose, 2–5-flowered; leaf blade to 5 cm wide; upper sepal navicular-conical to conical 29. *A. changianum*
 20b. Inflorescence corymbose, 1–3-flowered; leaf blade usually to 3 cm wide (*A. ichangense* to 5.4 cm); upper sepal navicular to navicular-conical.
 21a. Bracteoles narrowly elliptic; carpels 3 31. *A. ichangense*
 21b. Bracteoles subulate; carpels 5.
 22a. Sepals yellow to greenish white; leaf lobes shallowly lobed 32. *A. iochanicum*
 22b. Sepals blue-purple; leaf lobes deeply lobed.
 23a. Flowers larger, upper sepal 2–2.5 cm from base to beak 33. *A. alpinonepalense*
 23b. Flowers smaller, upper sepal to 1.5 cm from base to beak 34. *A. pulchellum*
 2b. Stem twining.
 24a. Pedicels spreading pubescent.
 25a. Leaf blade deeply 3-lobed to 2–3.3 mm from base, lobes ± dissected, lobules narrowly lanceolate to linear-lanceolate.
 26a. Sepals white, upper sepal galeate, ca. 1.5 cm high; bracteoles villous; carpels 3 108. *A. weixiense*
 26b. Sepals blue-purple, upper sepal high galeate, 1.7–1.8 cm high; bracteoles glabrous; carpels 5 121. *A. episcopale*
 25b. Leaf blade medially to shallowly 3-lobed; segment undivided or lobed, rarely dissected (*A. volubile*).
 27a. Leaf central segment undivided or indistinctly 3-lobed, margin coarsely dentate . 126. *A. cannabifolium*
 27b. Leaf central segment 3-lobed or pinnatisect.
 28a. Stem spreading pilose; petals pubescent; carpels glabrous 125. *A. shensiense*
 28b. Stem glabrous or sparsely retrorse pubescent; petals glabrous; ovary pubescent.
 29a. Rhizome connecting caudices shorter than 5 mm; central leaf segment 3-lobed, ultimate lobules triangular 128. *A. sczukinii*
 29b. Rhizome connecting caudices up to 6 cm; central leaf segment subpinnately parted, ultimate lobules lanceolate to linear 129. *A. volubile*

- 24b. Pedicels retrorse and appressed pubescent or glabrous.
- 30a. Bracteoles elliptic, obovate, spatulate, to leaflike and palmately lobed.
- 31a. Stem bulbiferous; bracteoles palmately lobed; petaline spur ca. 10 mm 111. *A. bulbiferum*
- 31b. Stem not bulbiferous; bracteoles entire; petaline spur 1.5–3 mm.
- 32a. Leaf blade deeply 3-lobed less than 5 mm from base 90. *A. contortum*
- 32b. Leaf blade medially 3-lobed more than 5 mm from base.
- 33a. Leaf blade 3-parted to more than 1 cm from base, central lobe 3-lobed 107. *A. refractocarpum*
- 33b. Leaf blade 3-parted to 5–7 mm from base, central lobe pinnatisect 110. *A. tsaii*
- 30b. Bracteoles linear to subulate, entire.
- 34a. Leaf blade deeply 3-lobed less than 5 mm from base.
- 35a. Leaf central segment undivided, bluntly dentate at margin, lanceolate or rhombic-lanceolate 127. *A. henryi*
- 35b. Leaf central segment lobed or parted, rhombic or broadly rhombic.
- 36a. Leaf central segment broadly rhombic, acute at apex 117. *A. vilmorinianum*
- 36b. Leaf central segment rhombic, acuminate or long acuminate at apex.
- 37a. Leaf segments dissected; ultimate lobules lanceolate to linear 129. *A. volubile*
- 37b. Leaf segments lobed; ultimate lobules ovate or triangular.
- 38a. Upper sepal galeate, with a distinct beak; petals and carpels pubescent 123. *A. lioui*
- 38b. Upper sepal high galeate, with an indistinct beak; petals and carpels glabrous 124. *A. sunpanense*
- 34b. Leaf blade medially 3-lobed more than 5 mm from base.
- 39a. Leaf blade parted to more than 6 mm above base.
- 40a. Upper sepal high galeate.
- 41a. Leaf blade 3-parted slightly beyond middle, central lobe ovate-rhombic or trapezoid-rhombic, indistinctly 3-lobed; pedicels appressed pubescent or glabrous 106. *A. hemsleyanum*
- 41b. Leaf blade 3-parted nearly to base, central lobe rhombic, 3-parted or subpinnately divided; pedicels densely retrorse pubescent 116. *A. austroyunnanense*
- 40b. Upper sepal galeate.
- 42a. Leaf central lobe ovate-rhombic or trapezoid, nearly undivided, several dentate above middle 109. *A. crassicaule*
- 42b. Leaf central lobe broadly ovate-rhombic, pinnately divided.
- 43a. Inflorescence rachis sparsely retrorse pubescent; petals sparsely pubescent; leaf blade leathery 119. *A. validinerve*
- 43b. Inflorescence rachis glabrous; petals glabrous; leaf blade membranous.
- 44a. Leaf central lobe cuneate-rhombic, narrowly cuneate at base; petaline claw geniculate at apex 115. *A. longilobum*
- 44b. Leaf central lobe rhombic, broadly cuneate at base; petaline claw not geniculate 118. *A. pseudostapfianum*
- 39b. Leaf blade parted to 1.5–5 mm from base.
- 45a. Upper sepal high galeate.
- 46a. Leaf lobes lobed, ultimate lobules triangular or narrowly triangular 116. *A. austroyunnanense*
- 46b. Leaf lobes parted, ultimate lobules sublinear.
- 47a. Carpels glabrous; inflorescence 2–4-flowered 114. *A. elwesii*
- 47b. Carpels sparsely appressed pubescent; inflorescence 10–16-flowered 122. *A. campylorrhynchum*
- 45b. Upper sepal galeate to conical or hemispheric.
- 48a. Pedicels and sepals abaxially glabrous 120. *A. stapfianum*
- 48b. Pedicels and sepals abaxially pubescent.
- 49a. Upper sepal with a beak ca. 5 mm, usually curved upward 122. *A. campylorrhynchum*
- 49b. Upper sepal with a beak ca. 0.5 mm, straight or curved downward.
- 50a. Petaline claw not geniculate at apex; pedicels 7–26 mm; leaf central lobe 3-lobed below middle 113. *A. chuanum*
- 50b. Petaline claw geniculate at apex; pedicels 22–70 mm; leaf central lobe 3-parted beyond middle 112. *A. habaense*

Key 4

- 1a. Leaf blade medially to shallowly 3-lobed, lobes usually dissected.
- 2a. Central lobe of middle cauline leaves undivided or indistinctly 3-lobed, lateral lobes undivided or unequally 2-lobed, distal leaves undivided, rhombic-ovate; upper sepal subcylindric 104. *A. racemosum*
- 2b. Central and lateral lobes of cauline leaves distinctly divided; upper sepal high galeate or galeate to falcate.
- 3a. Lateral sepals 6.5–8.5 mm in diam.

- 4a. Flower solitary, axillary; bracteoles leaflike, 1.5–1.8 cm; upper sepal navicular-conical . 46. *A. sinoaxillare*
- 4b. Flowers in an inflorescence; bracteoles linear to lanceolate-linear, or subulate, 1.5–4 mm; upper sepal falcate-navicular or conical.
- 5a. Inflorescence ca. 5 cm, 4-flowered; petals shortly spurred, claw geniculate at apex; leaf central lobe rhombic 48. *A. milinense*
- 5b. Inflorescence 14–50 cm, 15–30-flowered; petals not spurred, claw not geniculate at apex; leaf central lobe rhombic-obovate to truncate-rhombic.
- 6a. Stem ca. 50 cm tall; leaf blade 3.2–3.5 × 5–7 cm; upper sepal navicular, not contracted 49. *A. brunneum*
- 6b. Stem 85–100 cm tall; leaf blade 3.8–6 × 6.5–11 cm; upper sepal galeate, contracted 50. *A. pseudobrunneum*
- 3b. Lateral sepals more than 10 cm.
- 7a. Inflorescence rachis, and pedicels glabrous or only rachis retrorse pubescent.
- 8a. Inflorescence rachis retrorse pubescent; pedicels and carpels glabrous 59. *A. shimianense*
- 8b. Inflorescence rachis, pedicels, and carpels glabrous or pedicels nearly glabrous in *A. fanjingshanicum*, slightly spreading pubescent at apex.
- 9a. Bracteoles leaflike, 3-lobed 58. *A. pukeense*
- 9b. Bracteoles entire.
- 10a. Bracteoles narrowly obovate or spatulate 52. *A. spathulatum*
- 10b. Bracteoles linear, elliptic, or subulate.
- 11a. Stem trailing distally, distally S-curved; inflorescence unequally bifurcate-branched 130. *A. fischeri*
- 11b. Stem erect, distally not S-curved; inflorescence not bifurcate-branched.
- 12a. Bracteoles adaxially pubescent and ciliate; pedicels nearly glabrous 92. *A. fanjingshanicum*
- 12b. Bracteoles and pedicels glabrous.
- 13a. Petaline claw geniculate at apex.
- 14a. Bracteoles at middle of pedicels, linear, 3.5–4.5 mm 53. *A. geniculatum*
- 14b. Bracteoles contiguous with flower, leaflike, 1–3.5 cm 55. *A. magnibracteolatum*
- 13b. Petaline claw not geniculate at apex.
- 15a. Upper sepal navicular, 2.5–3 cm from base to beak 70. *A. yunlingense*
- 15b. Upper sepal galeate to high galeate, less than 2.1 cm from base to beak.
- 16a. Leaf blade adaxially appressed pubescent, abaxially sparsely pubescent at veins, petioles sparsely spreading pubescent 54. *A. luningense*
- 16b. Leaf blade adaxially sparsely pubescent, glabrous, or sparsely retrorse pubescent, abaxially and petioles glabrous.
- 17a. Upper sepal high galeate, lower margin straight 91. *A. lonchodontum*
- 17b. Upper sepal galeate to conical, lower margin oblique.
- 18a. Leaf blade leathery; lobes usually slightly overlapping; carpels 3 . 68. *A. coriaceifolium*
- 18b. Leaf blade membranous; lobes separate; carpels 5.
- 19a. Leaf blade 9–11 × 13–18 cm; petaline spur incurved, ca. 1.8 mm; carpels 5 51. *A. bulleyanum*
- 19b. Leaf blade ca. 2.7 × 4.5 cm; petaline spur circinate, ca. 7 mm; carpels 4 79. *A. namlaense*
- 7b. Inflorescence rachis and pedicels pubescent, in *A. shimianense* pedicels glabrous and in *A. lihsienense* rachis glabrous.
- 20a. Inflorescence rachis and pedicels retrorse pubescent, in *A. shimianense* pedicels glabrous.
- 21a. Pedicels glabrous 59. *A. shimianense*
- 21b. Pedicels retrorse pubescent.
- 22a. Upper sepal high galeate or subcylindric.
- 23a. Bracteoles of lower pedicels leaflike; petaline spur sparsely pubescent 152. *A. julongense*
- 23b. Bracteoles not leaflike; petaline spur usually glabrous.
- 24a. Leaf central lobe narrowly rhombic, narrowly cuneate at base; upper sepal subcylindric; filaments puberulous 130. *A. fischeri*
- 24b. Leaf central lobe rhombic, broadly cuneate at base; upper sepal high galeate; filaments glabrous.
- 25a. Bracteoles sparsely pubescent; carpels 3, densely appressed pubescent 56. *A. yangii*
- 25b. Bracteoles glabrous; carpels 3(–5), pubescent.

- 26a. Leaf lobules slightly obtuse at apex; inflorescence loosely ca. 10-flowered; upper sepal with beak to 7 mm 57. *A. georgei*
- 26b. Leaf lobules acute at apex; inflorescence densely many flowered; upper sepal with indistinct beak 1–2 mm 135. *A. carmichaelii*
- 22b. Upper sepal navicular to galeate.
- 27a. Upper sepal navicular.
- 28a. Pedicels ascending at an obtuse angle; upper sepal broadest above middle, ca. 2.5 cm from base to beak, lower margin straight 77. *A. brevilimbium*
- 28b. Pedicels erect or ascending at an acute angle; upper sepal broadest at middle, ca. 1.9 cm from base to beak, lower margin concave 96. *A. longipedicellatum*
- 27b. Upper sepal galeate.
- 29a. Inflorescence corymbose, 2–4-flowered 93. *A. taipeicum*
- 29b. Inflorescence racemose or paniculate, usually many flowered.
- 30a. Pedicels incurved above 87. *A. pendulicarpum*
- 30b. Pedicels ascending at an obtuse angle.
- 31a. Sepals yellowish; bracteoles pubescent; petaline spur circinate 85. *A. alboflavidum*
- 31b. Sepals blue; bracteoles glabrous; petaline spur not circinate.
- 32a. Stem 40–50 cm tall; central leaf lobe slightly obtuse at apex; inflorescence 4- or 5-flowered; upper sepal ca. 1.4 cm from base to beak 78. *A. chiachaense*
- 32b. Stem 100–120 cm tall; central leaf lobe acuminate or long acuminate at apex; inflorescence 2–10-flowered; upper sepal 1.9–2.3 cm from base to beak.
- 33a. Upper sepal abaxially and carpels pubescent 94. *A. transsectum*
- 33b. Upper sepal abaxially and carpels glabrous.
- 34a. Leaf blade nearly glabrous or sparsely pubescent on both surfaces; bracteoles of lower pedicels 3-lobed; petals glabrous 64. *A. franchetii*
- 34b. Leaf blade adaxially sparsely appressed puberulous, abaxially retrorse puberulous at veins; bracteoles linear; petals sparsely pubescent 83. *A. lobulatum*
- 20b. Pedicels spreading pubescent.
- 35a. Upper sepal yellow or green-tinged.
- 36a. Inflorescence rachis glabrous; pedicels spreading white pubescent 84. *A. stramineiflorum*
- 36b. Inflorescence rachis densely spreading yellow pubescent.
- 37a. Bracteoles proximally on pedicels; upper sepal navicular-galeate or galeate; carpels densely pubescent; stem 25–70 cm tall 80. *A. souliei*
- 37b. Bracteoles distally on pedicels; upper sepal navicular; carpels glabrous; stem ca. 30 cm tall 82. *A. phyllostegium*
- 35b. Upper sepal blue-purple, rarely white.
- 38a. Upper sepal navicular or navicular-galeate.
- 39a. Bracteoles leaflike, 3-parted.
- 40a. Petals and carpels glabrous; petaline claw geniculate at apex 60. *A. pomeense*
- 40b. Petals and carpels pubescent; petaline claw not geniculate at apex.
- 41a. Lower pedicels 6–12 cm; upper sepal abaxially nearly glabrous, with a beak, lateral sepals 1.7–2.3 cm 69. *A. stylosum*
- 41b. Lower pedicels 2.5–6.5 cm; upper sepal abaxially densely pubescent; lateral sepals 1.5–1.7 cm with blunt beak 63. *A. nielamuense*
- 39b. Bracteoles undivided, oblong, oblanceolate, linear, or subulate.
- 42a. Pedicels incurved; sepals abaxially and carpels both glabrous.
- 43a. Stem erect, long branched; branches to 18 cm; central leaf lobe acuminate; petals glabrous, claw geniculate at apex 86. *A. nutantiflorum*
- 43b. Stem trailing, branched; branches to 35 cm; central leaf lobe caudate-acuminate; petals pubescent, claw not geniculate at apex 103. *A. longiramum*
- 42b. Pedicels straight; sepals abaxially or at margin and carpels all pubescent.
- 44a. Stem 30–35 cm tall; leaf blade adaxially glabrous, abaxially pubescent at veins 81. *A. parcifolium*
- 44b. Stem taller than 70 cm; leaf blade pubescent on both surfaces or abaxially subglabrous.

- 45a. Stem and inflorescence rachis glabrous 95. *A. lihsienense*
 45b. Stem and inflorescence rachis pubescent.
 46a. Inflorescence ca. 7-flowered, rachis white pubescent; upper sepal ca. 2.5 cm
 from base to beak 71. *A. stylosoides*
 46b. Inflorescence densely many flowered, rachis yellow pubescent; upper sepal
 1.2–2.1 cm.
 47a. Petals glabrous; carpels 5; petioles 3–7 cm; upper sepal ca. 1.2 cm from base
 to beak 73. *A. kungshanense*
 47b. Petals sparsely pubescent; carpels 3; petioles 7–15 cm; upper sepal ca. 2.1 cm
 from base to beak 66. *A. lycoctonifolium*
 38b. Upper sepal galeate or high galeate.
 48a. Upper sepal high galeate 151. *A. piepunense*
 48b. Upper sepal galeate.
 49a. Middle cauline leaf shortly petiolate, upper ones sessile 67. *A. forrestii*
 49b. Middle cauline leaf with petioles nearly as long as leaf blade.
 50a. Filaments pubescent.
 51a. Leaf central lobe rhombic or broadly rhombic, lobed, acute or shortly acuminate at
 apex;
 petaline claw sparsely puberulous 76. *A. spicatum*
 51b. Leaf central lobe narrowly rhombic or rhombic, parted, acuminate or long acuminate
 at
 apex; petaline claw densely pubescent.
 52a. Bracteoles proximally on pedicels, linear or linear-subulate; stem 60–170 cm tall,
 inflorescence 7–30-flowered 74. *A. tatsienense*
 52b. Bracteoles contiguous with flower, leaflike or narrowly elliptic; stem 32–42 cm
 tall; inflorescence 3–5-flowered 65. *A. secundiflorum*
 50b. Filaments glabrous.
 53a. Carpels densely glabrous.
 54a. Inflorescence rachis apically and pedicels densely spreading white pubescent 89. *A. dolichorhynchum*
 54b. Inflorescence rachis and pedicels spreading yellowish or spreading yellow
 pubescent (in *A. rockii* appressed pubescent).
 55a. Inflorescence rachis and pedicels spreading pubescent; upper sepal 2.5–3 cm
 from
 base to beak 75. *A. elliotii*
 55b. Inflorescence rachis and pedicels both spreading and appressed pubescent; upper
 sepal to 2 cm from base to beak 88. *A. rockii*
 53b. Carpels densely pubescent.
 56a. Bracteoles leaflike.
 57a. Stem and inflorescence rachis and pedicels densely yellowish pubescent; leaf
 central lobe rhombic, acuminate at apex; leaf blade pubescent on both surfaces;
 sepals white 61. *A. yachiangense*
 57b. Stem apically and inflorescence rachis glabrous, pedicels whitish pubescent; leaf
 central lobe broadly rhombic, acute at apex; leaf blade adaxially glabrous; sepals
 brown-purple 62. *A. chayuense*
 56b. Bracteoles linear (in *A. taronense* bracteoles of lowermost pedicels 3-fid).
 58a. Leaf central lobe rhombic-obovate, 3-lobed, obtuse at apex, lobules obtuse at
 apex;
 upper sepal abaxially pubescent 72. *A. taronense*
 58b. Leaf central lobe rhombic, subpinnately parted, acuminate at apex, lobules
 slightly
 acute at apex; upper sepal abaxially glabrous 88. *A. rockii*
 1b. Leaf blade ternate to deeply 3-lobed.
 59a. Leaf lobe serrate to shallowly divided, ultimate lobules ovate or narrowly ovate.
 60a. Stem trailing, long branched, glabrous; inflorescence unequally dichotomous branching, glabrous;
 bracteoles leaflike, 3-lobed 131. *A. raddeanum*
 60b. Stem erect or sometimes ascending, usually shortly branched; inflorescence rachis straight (in
A. dunhuaense slightly dichotomously branched); bracteoles narrowly oblong or linear, entire.
 61a. Caudices several, in a chain Key 6

- 89b. Sepals yellowish 206. *A. chilienshanicum*
- 88b. Inflorescence and sepals abaxially pubescent.
- 90a. Inflorescence spreading pubescent; upper sepal falcate-navicular.
- 91a. Sepals yellowish or blue-purple 205. *A. pendulum*
- 91b. Sepals blue-purple 207. *A. ludlowii*
- 90b. Inflorescence appressed pubescent; upper sepal navicular, low galeate, or hemispheric.
- 92a. Bracteoles contiguous with flower, leaflike or narrowly oblong 200. *A. sessiliflorum*
- 92b. Bracteoles remote from flower, linear or subulate, rarely leaflike or broadly linear.
- 93a. Carpels 3.
- 94a. Lower pedicels ascending, to 3 cm; upper sepal navicular or low galeate, 1.5–1.7 cm from base to beak 202. *A. polyschistum*
- 94b. Lower pedicels erect, ca. 3 mm; upper sepal hemispheric, ca. 2 cm from base to beak 199. *A. brachypodum*
- 93b. Carpels 5.
- 95a. Bracteoles usually 3-lobed, broadly linear, 5–9 × ca. 1.5 mm; carpels ± spreading densely yellowish villous 199. *A. brachypodum*
- 95b. Bracteoles undivided, subulate, 3–6 × ca. 0.5 mm; carpels sparsely appressed puberulous.
- 96a. Leaf blade glabrous; sepals yellowish green or dark purple, abaxially pubescent; petals sparsely pubescent 203. *A. flavum*
- 96b. Leaf blade adaxially retrorse pubescent; sepals blue-purple, abaxially retrorse pubescent; petals glabrous 204. *A. yinschanicum*
- 86b. Middle and distal leaves sparsely arranged, middle cauline leaves petiolate, petioles subequaling leaf blades, upper petioles becoming short.
- 97a. Inflorescence rachis and pedicels pubescent (in *A. fusungense* and *A. laevicaule* rachis glabrous).
- 98a. Lateral sepals broadly triangular apically, acute or slightly acute at apex.
- 99a. Sepals greenish white, upper sepal ca. 1.4 cm from base to beak; petals ca. 6 mm, not spurred; carpels 3, glabrous 177. *A. brevipetalum*
- 99b. Sepals blue-purple, upper sepal 1.6–1.8 cm from base to beak; petals 15–19 cm, spur incurved; carpels 5, ovary pubescent.
- 100a. Stem 75–120 cm tall; leaf blade 8–12 cm wide; inflorescence many flowered; bracteoles linear 172. *A. acutiusculum*
- 100b. Stem ca. 30 cm tall; leaf blade to 4.5 cm wide; inflorescence ca. 10-flowered; bracteoles narrowly triangular 188. *A. falciforme*
- 98b. Lateral sepals orbicular-obovate, rounded or truncate at apex.
- 101a. Leaf lobules acute or acuminate at apex (in *A. smithii* slightly obtuse at apex); petaline spur incurved.
- 102a. Bracteoles broadly ovate or orbicular 42. *A. bracteolatum*
- 102b. Bracteoles linear or subulate (in *A. incisofidum* leaflike).
- 103a. Caudices 2 (if several, then not forming a chain) Key 5
- 103b. Caudices to 10 forming a chain Key 6
- 101b. Leaf lobules rounded, obtuse, or slightly acute at apex; petaline spur not incurved.
- 104a. Ovary glabrous 47. *A. jinyangense*
- 104b. Ovary densely appressed or spreading pubescent.
- 105a. Inflorescence 2- or 3-flowered; bracteoles lanceolate-linear or narrowly linear; petaline limb ca. 4 mm, lip ca. 1.8 mm 44. *A. wolongense*
- 105b. Inflorescence 8–12-flowered; bracteoles obovate or broadly elliptic or narrowly elliptic; petaline limb 6–8 mm, lip 4–5 mm.
- 106a. Inflorescence retrorse pubescent; bracteoles obovate or broadly elliptic; filaments puberulous 45. *A. pseudohuilense*
- 106b. Inflorescence spreading pubescent; bracteoles narrowly elliptic; filaments glabrous 43. *A. huiliense*
- 97b. Inflorescence rachis and pedicels glabrous throughout.
- 107a. Upper sepal navicular or navicular-galeate.
- 108a. Bracteoles lobed or at least those of lower pedicels leaflike.

- 109a. Stem basally pubescent; upper sepal navicular-galeate; petaline limb pubescent, claw not geniculate at apex 167. *A. gammiei*
 109b. Stem glabrous; upper sepal falcate-navicular; petals glabrous, claw geniculate at apex 181. *A. tangense*
 108b. Bracteoles undivided, linear or subulate; upper sepal navicular.
 110a. Bracteoles near base of pedicels; filaments sparsely puberulous at apex 189. *A. maowenense*
 110b. Bracteoles at middle or distal part of pedicels; filaments glabrous.
 111a. Stem ca. 70 cm tall; leaf lobules narrowly lanceolate or lanceolate-linear; inflorescence ca. 30-flowered; petaline claw geniculate at apex; carpels 3–5 182. *A. fangianum*
 111b. Stem 20–50 cm tall; leaf lobules linear or narrowly linear; inflorescence 2–7-flowered; petaline claw not geniculate; carpels 3 195. *A. jeholense*
 107b. Upper sepal galeate.
 112a. Petaline limb ca. 1 mm wide 159. *A. ambiguum*
 112b. Petaline limb more than 2 mm wide.
 113a. Inflorescence 1- or 2- to several flowered, corymbose 149. *A. monanthum*
 113b. Inflorescence racemose, more than 7-flowered.
 114a. Sepals abaxially sparsely pubescent 144. *A. ningwuense*
 114b. Sepal abaxially glabrous.
 115a. Upper sepal 1.2–1.4 cm high; petaline claw geniculate at apex.
 116a. Stem glabrous; terminal inflorescence ca. 35 cm, ca. 40-flowered; petals glabrous, spur ca. 1 mm, subglobose 164. *A. leiostachyum*
 116b. Stem pubescent; terminal inflorescence ca. 7 cm, 7-flowered; petaline lip puberulous, spur ca. 5 mm, subcylindric 165. *A. pseudogeniculatum*
 115b. Upper sepal 1.8–2 cm high; petaline claw not geniculate at apex.
 117a. Leaf ultimate lobules triangular to lanceolate; carpels 5 136. *A. kusnezoffii*
 117b. Leaf ultimate lobules lanceolate to linear; carpels 3 194. *A. soongoricum*

Key 5

- 1a. Pedicels and inflorescence rachis retrorse pubescent.
 2a. Upper sepal high galeate; petaline limb inflated.
 3a. Bracteoles usually leaflike 153. *A. ramulosum*
 3b. Bracteoles not leaflike.
 4a. Petals pubescent; carpels 3, glabrous 156. *A. chienningense*
 4b. Petals glabrous; carpels 5 pubescent 147. *A. macrorhynchum*
 2b. Upper sepal galeate, navicular, or falcate; petaline limb not inflated.
 5a. Upper sepal navicular, navicular-galeate, or falcate.
 6a. Carpels pubescent.
 7a. Upper sepal falcate-navicular or falcate; petals pubescent, claw usually geniculate at apex 186. *A. tongolense*
 7b. Upper sepal navicular; petals glabrous, claw not geniculate at apex 166. *A. richardsonianum*
 6b. Carpels glabrous.
 8a. Stem glabrous; upper sepal falcate-navicular or subfalcate 192. *A. leiwuqiense*
 8b. Stem apically sparsely retrorse pubescent; upper sepal navicular or navicular-galeate.
 9a. Stem to 70 cm tall, not branched; inflorescence 8–17 cm, several flowered; sepals abaxially glabrous or subglabrous 175. *A. sinonapelloides*
 9b. Stem ca. 150 cm tall, apically branched; inflorescence elongate, up to 50 cm, 30-flowered; sepals abaxially pubescent 173. *A. refractum*
 5b. Upper sepal galeate.
 10a. Sepals yellow, frontal margin of upper sepal contracted; carpels 3 208. *A. coreanum*
 10b. Sepals blue-purple, frontal margin of upper sepal not contracted; carpels 3 or 5.
 11a. Sepals abaxially densely pubescent; petals pubescent.
 12a. Inflorescence to 8 cm, 3–6-flowered; leaf central lobe broadly rhombic, acute at apex 180. *A. liangshanicum*
 12b. Inflorescence to 60 cm, many flowered; leaf central lobe rhombic or rhombic-ovate, acuminate at apex 160. *A. kongboense*
 11b. Sepals abaxially glabrous or subglabrous; petals glabrous.
 13a. Stamens sparsely pubescent 162. *A. pseudokongboense*
 13b. Stamens glabrous.
 14a. Carpels 3, densely pubescent 176. *A. diqingense*
 14b. Carpels 3 or 4, glabrous.
 15a. Stem 36–40 cm tall; leaf blade 4.2–5.2 cm; lateral sepals adaxially yellow sericeous 187. *A. kagerpuense*

- 15b. Stem more than 100 cm tall; leaf blade 6–12 × 9–16 cm; lateral sepals adaxially glabrous or not yellow sericeous.
- 16a. Stem ca. 120 cm tall, not branched or 1-branched below inflorescence; leaf central lobe pinnatisect, ultimate lobules narrowly triangular to narrowly lanceolate; inflorescence ca. 10-flowered; upper sepal ca. 1.8 cm high 150. *A. incisofidum*
- 16b. Stem ca. 200 cm tall, multibranched; leaf central lobe bipinnatisect, ultimate lobules linear or narrowly linear; inflorescence ca. 50-flowered; upper sepal to 1.4 cm high 163. *A. polyanthum*
- 1b. Pedicels and inflorescence rachis spreading pubescent, or in *A. abietetorum* and pedicels spreading and appressed pubescent; in *A. tchangbaischanense* and in *A. daxinganlinense* retrorse and appressed pubescent; in *A. fusungense* rachis glabrous and in *A. dolichostachyum* pedicels glabrous.
- 17a. Upper sepal navicular or falcate.
- 18a. Upper sepal falcate.
- 19a. Pedicels 3–7 mm, erect 190. *A. chasmanthum*
- 19b. Pedicels 10–30 mm, ascending.
- 20a. Petaline limb glabrous; carpels 3 191. *A. prominens*
- 20b. Petaline limb pubescent; carpels 5 183. *A. liljestrandii*
- 18b. Upper sepal navicular.
- 21a. Sepals abaxially pubescent.
- 22a. Stem branched, branches 10–20 cm, flagelliform; petaline claw sparsely brown-yellow pubescent, geniculate at apex 170. *A. gezaense*
- 22b. Stem usually simple; petaline claw glabrous, not geniculate at apex.
- 23a. Inflorescence white, not glandular pubescent; upper sepal ca. 1.4 cm from base to beak; petaline spur ca. 1 mm, saccate 179. *A. smirnovii*
- 23b. Inflorescence yellowish and glandular pubescent; upper sepal 1.7–2 cm from base to beak; petaline spur more than 3 mm, incurved.
- 24a. Leaf central lobe pinnatisect to bipinnatisect; inflorescence to 50 cm, usually ca. 20-flowered; carpels 5, densely yellowish pubescent 166. *A. richardsonianum*
- 24b. Leaf central lobe shallowly divided; inflorescence to 18 cm, 3–7-flowered; carpels 3 or 4, glabrous or sparsely pubescent 193. *A. smithii*
- 21b. Sepals abaxially glabrous.
- 25a. Carpels sparsely spreading pubescent.
- 26a. Stem 85–100 cm tall; leaf blade 4.7–7 × 7–10 cm; inflorescence 25–35 cm, 15–20-flowered; pedicels 2–9 cm; bracteoles remote from flower 168. *A. ouvrardianum*
- 26b. Stem 7–21 cm tall; leaf blade 1.7–2.2 × 1.7–4 cm; inflorescence 1–4 cm, 3–7-flowered; pedicels 0.5–1.1 cm; bracteoles contiguous with flower 171. *A. tenuicaule*
- 25b. Carpels glabrous.
- 27a. Inflorescence rachis and pedicels densely spreading yellowish pubescent, not yellow glandular pubescent; bracteoles pubescent; carpels 5.
- 28a. Stem apically densely retrorse and appressed pubescent; leaf sparsely appressed pubescent at veins; petaline claw geniculate at apex 184. *A. pycnanthum*
- 28b. Stem, spreading pubescent; leaf blade spreading pubescent at veins; petaline claw not geniculate at apex 169. *A. pilopetalum*
- 27b. Inflorescence rachis and pedicels spreading white pubescent and yellow glandular pubescent (in *A. bracteolosum* mixed with appressed hairs) or rachis sparsely hairy; bracteoles glabrous; carpels 3 or 4.
- 29a. Inflorescence rachis densely pubescent; bracteoles narrowly linear; upper sepal 1.5–1.7 cm from base to beak; petaline claw glabrous or sparsely pubescent, not geniculate at apex 183. *A. liljestrandii*
- 29b. Inflorescence rachis sparsely pubescent; bracteoles of lower pedicels leaflike; upper sepal ca. 2.2 cm from base to beak; petaline claw densely pubescent, geniculate at apex 185. *A. bracteolosum*
- 17b. Upper sepal high galeate or galeate.
- 30a. Upper sepal galeate.

- 31a. Sepals yellow, abaxially pubescent, anterior margin of upper sepal at middle contracted; petaline claw geniculate at apex 209. *A. anthoroideum*
- 31b. Sepals blue-purple, abaxially glabrous or pubescent, anterior margin of upper sepal not contracted;
petaline claw not geniculate at apex or in *A. abietetorum* slightly geniculate.
- 32a. Sepals abaxially glabrous.
- 33a. Bracteoles linear; petals pubescent, claw not geniculate at apex, lip slightly emarginate; carpels 3 157. *A. potaninii*
- 33b. Bracteoles of lower pedicels leaflike, those of distal pedicels linear; petals glabrous, slightly geniculate at apex, lip 2-lobed at apex; carpels 5 161. *A. abietetorum*
- 32b. Sepals abaxially pubescent.
- 34a. Stem glabrous; leaf blade adaxially sparsely appressed pubescent, abaxially glabrous; inflorescence rachis glabrous; petaline spur circinate; filaments 2-denticulate 97. *A. laevicaule*
- 34b. Stem spreading pubescent apically; leaf blade glabrous; inflorescence rachis densely spreading yellowish pubescent; petaline spur incurved; filaments entire 193. *A. smithii*
- 30b. Upper sepal high galeate.
- 35a. Inflorescence rachis and pedicels glabrous 158. *A. dolichostachyum*
- 35b. Inflorescence rachis and pedicels spreading or retrorse pubescent, or in *A. fusungense* inflorescence rachis glabrous.
- 36a. Leaf blade adaxially appressed retrorse pubescent, with intermixed sparsely spreading hairs, abaxially spreading villous 146. *A. daxinganlinense*
- 36b. Leaf blade adaxially pubescent or pubescent only at veins, abaxially glabrous.
- 37a. Inflorescence rachis glabrous or retrorse pubescent.
- 38a. Leaf lobules narrowly lanceolate to linear-lanceolate; inflorescence rachis glabrous; pedicels 3–8 cm 143. *A. fusungense*
- 38b. Leaf lobules linear; inflorescence rachis retrorse pubescent or glabrous; pedicels 2–5 cm 148. *A. tschangbaischanense*
- 37b. Inflorescence rachis spreading pubescent.
- 39a. Ultimate leaf lobules ovate to lanceolate-linear, 4–6 mm wide; upper sepal usually with a long beak 141. *A. paniculigerum*
- 39b. Ultimate lobules linear or lanceolate; upper sepal with a short beak or not beaked
- 40a. Stem 40–70 cm tall, twining at least apically; leaf lobe deeply dissected, ultimate lobules linear, 1.8–3 mm wide; petaline limb inflated.
- 41a. Petaline spur circinate, 5–7 mm 155. *A. delavayi*
- 41b. Petaline spur saccate, less than 3 mm 145. *A. villosum*
- 40b. Stem more than 100 cm tall, erect; leaf lobe shallowly divided ultimate lobules lanceolate to broadly lanceolate; petaline limb not inflated.
- 42a. Sepals abaxially, petals, and carpels all glabrous; leaf ultimate lobules 2–5 mm wide; stem 110–180 cm tall 151. *A. piepunense*
- 42b. Sepals abaxially, petals, and carpels pubescent; leaf ultimate lobules 3–6 mm wide; stem ca. 100 cm tall 156. *A. chienningense*

Key 6

- 1a. Stem erect, usually robust; cauline leaves ternate, deeply dissected into fine ultimate lobules.
- 2a. Inflorescence rachis and pedicels glabrous 194. *A. soongoricum*
- 2b. Inflorescence rachis and pedicels appressed pubescent 196. *A. karakolicum*
- 1b. Stem ascending, slender; cauline leaves deeply 3-lobed, ultimate lobules lanceolate to broadly lanceolate.
- 3a. Inflorescence rachis and pedicels sparsely appressed pubescent 197. *A. talassicum*
- 3b. Inflorescence rachis and pedicels spreading pubescent 198. *A. nemorum*

1. *Aconitum* subgen. *Lycocotnum* (de Candolle) Petermann, Deutsch. Fl. 15. 1846.

牛扁亚属 *niu bian ya shu*

Aconitum sect. *Lycocotnum* de Candolle, Syst. Nat. 1: 367. 1817.

Herbs perennial, rhizomatous. Sepals not clawed; upper sepal cylindrical or high galeate, rarely navicular. Petaline limb with secretory tissue at apex, with a saccate or incurved spur; lip usually linear, or very short. Carpels 3(–8).

About 40 species: Asia, Europe, North America; 22 species (nine endemic) in China.

1. *Aconitum chrysotrichum* W. T. Wang, Fl. Reipubl. Popul. Sin. 27: 604. 1979.

黄毛乌头 *huang mao wu tou*

Rhizome unknown. Stem 35–65 cm tall, simple, retrorse and spreading yellow hispid, basally with longer spreading hairs. Basal leaves long petiolate; petiole 3–7.5 cm, ± spreading yellow hispid; leaf blade suborbicular or orbicular-reniform, 1.2–3.2 × 2.4–5.4 cm, both surfaces hispid, base deeply cordate, 3-parted; central lobe cuneate-obtrapezoid, 3-lobed, margin dentate; lateral lobes unequally 2-lobed. Cauline leaves 2–4, proximal ones similar to basal leaves, uppermost shortly petiolate. Inflorescence terminal, ca. 11 cm, ca. 12-flowered; rachis and pedicels densely spreading yellow hispid; proximally bracts leaflike, others linear. Pedicels 2–5 mm, each with 2 bracteoles at middle; bracteoles narrowly linear, 2–5 × ca. 0.4 mm. Sepals blue-purple, abaxially spreading yellow pubescent; lower sepals ca. 7 mm; lateral sepals ca. 7.5 mm; upper sepal cylindrical-galeate, 9–10 mm high, ca. 3.5 mm in diam., external margin slightly contracted below middle, long beaked, lower margin 8–9 mm. Petals ca. 8 mm, glabrous, ecalcarate; limb ca. 5 mm; lip linear, ca. 3.5 mm. Stamens glabrous; filaments entire. Carpels 3; ovary yellowish villous. Fl. Aug.

• Scrub; 4300–4700 m. SW Sichuan (Daocheng Xian).

2. *Aconitum novoloridum* Munz, Gentes Herb. 6: 472. 1945.

展喙乌头 *zhan hui wu tou*

Aconitum luridum J. D. Hooker & Thomson (1855), not Salisbury (1796, nom. illeg., included *A. variegatum* Linnaeus).

Rhizome ca. 15 cm. Stem to 80 cm, simple, retrorse pubescent. Basal leaves ca. 2, and proximal cauline leaves long petiolate; petiole 19–23 cm; leaf blade reniform, ca. 6 × 10 cm, both surfaces sparsely appressed pubescent, 3-parted; central lobe cuneate-rhombic, 3-fid, each lobe 2- or 3-lobulate, with several ovate teeth; lateral lobes obliquely flabellate, unequally 2-lobed. Inflorescence terminal, ca. 30 cm, many flowered; rachis and pedicels densely spreading yellowish pubescent; proximal bracts 3-fid, others narrowly lanceolate to linear, 5–7 mm. Proximal pedicels 1–4 cm, others 1–7 mm, with 2 bracteoles at base; bracteoles ovate to linear, 0.6–4 mm. Sepals purplish, densely spreading pubescent; lower sepals 0.7–0.9 cm; lateral sepals 1–1.3 cm; upper sepal high galeate, 7–9 mm high, long beaked, lower margin 1.1–1.5 cm. Petaline lip linear, conspicuous. Stamens

glabrous; filaments entire. Carpels 3(–5), base and abaxial suture sparsely pubescent. Follicles 1–1.2 cm. Seeds ellipsoid, to 3 mm. Fl. Jul–Aug, fr. Sep. $2n = 16$. Forest margins; 3800–4500 m. SE Xizang [Bhutan, Nepal, Sikkim].

3. *Aconitum apetalum* (Huth) B. Fedtschenko in Komarov, Fl. URSS 7: 200. 1937.

空茎乌头 *kong jing wu tou*

Delphinium apetalum Huth, Bot. Jahrb. Syst. 20: 398. 1895.

Rhizome unknown. Stem to 200 cm tall, ca. 1.5 cm in diam., shortly branched, glabrous or basally retrorse pubescent. Basal leaves and proximal cauline ones long petiolate; petiole 30–40 cm, pubescent; leaf blade orbicular-reniform, to 15 × 25 cm, 3-parted, abaxially pubescent at veins, adaxially glabrous; central lobe rhombic, 3-fid, margin lobulate and dentate; lateral lobes obliquely flabellate, unequally 2-lobed. Inflorescence terminal, to 60 cm, many flowered; rachis and pedicels densely spreading pubescent; bracts linear, 4–5.5 mm. Pedicels 2–5 mm, with 2 bracteoles at base; bracteoles similar to bracts, but slightly shorter. Sepals white or yellowish, abaxially sparsely pubescent; lower sepals ca. 7.2 mm; lateral sepals ca. 7.8 mm; upper sepal high galeate, 6–8 mm high, 3.2–3.6 mm in diam., erect, subbase of external margin slightly contracted or not, long beaked, lower margin 8–10 mm. Petals shorter than sepals, ca. 6 mm, glabrous; limb ca. 1/2 as long as claw; lip linear, conspicuous; spur absent. Stamens glabrous; filaments entire, rarely 1-denticulate. Carpels 3; ovary pubescent. Fr. Aug.

Picea forests, grassy slopes in valleys; 1700–1900 m. Xinjiang (Tian Shan) [Kazakhstan].

4. *Aconitum brevicaratum* (Finet & Gagnepain) Diels, Notes Roy. Bot. Gard. Edinburg 5: 267. 1912.

弯短距乌头 *wan duan ju wu tou*

Rhizome oblique, terete, ca. 1.1 cm in diam. Stem 50–100 cm tall, basally densely retrorse and appressed pubescent. Basal leaves 3 or 4, and proximal cauline leaves long petiolate; petiole 14–20(–28) cm, retrorse pubescent; leaf blade reniform, 4.8–9.2 × 7.5–13 cm, both surfaces appressed pubescent, 3-parted; central lobe cuneate-obtrapezoid, 3-fid, margin dentate; lateral lobes flabellate, unequally 2-parted. Inflorescence 20–40 cm, densely flowered; rachis and pedicels densely spreading yellowish pubescent; basal bracts ± 3-sect, to

1.6 cm; lobes lanceolate or oblong to linear-oblong, 6–12 mm. Proximal pedicels to 1–2 cm, others 1.5–5 mm, with 2 bracteoles at base; bracteoles linear, 4–6 mm. Sepals blue or blue-purple, spreading pubescent; lower sepals ca. 9 mm; lateral sepals ca. 1 cm; upper sepal cylindrical, 1.3–1.5 cm high, middle ca. 4.5 mm in diam., lower margin erect, 1–1.3 cm. Petals glabrous; limb short, apex rounded; lip linear, conspicuous; spur incurved, 4–5 mm, nearly ecalcarate, or spur short. Stamens glabrous; filaments entire. Carpels 3; ovary sericeous-pubescent. Follicles ca. 1.4 cm, pubescent. Seeds ca. 2 mm. Fl. Aug–Oct. $2n = 32^*$.

• Grassy slopes; 2800–3800 m. SW Sichuan, Yunnan.

- 1a. Petaline spur 4–5 mm, incurved 4a. var. *brevicalcaratum*
- 1b. Petal nearly ecalcarate or shortly spurred 4b. var. *parviflorum*

4a. *Aconitum brevicalcaratum* var. *brevicalcaratum*

弯短距乌头(原变种) wan duan ju wu tou (yuan bian zhong)

Aconitum lycoctonum Linnaeus var. *brevicalcaratum* Finet & Gagnepain, Bull. Soc. Bot. France 51: 502. 1904; *A. brevicalcaratum* var. *lauenerianum* (H. R. Fletcher) W. T. Wang; *A. lauenerianum* H. R. Fletcher; *A. lycoctonum* var. *vulparium* (Reichenbach) Regel. Petaline spur incurved, 4–5 mm.

• Grassy slopes; ca. 3500 m. SW Sichuan (Muli Zang Zu Zizhixian), NW Yunnan.

4b. *Aconitum brevicalcaratum* var. *parviflorum* Chen & Liu, Bull. Fan Mem. Inst. Biol., Bot. 11: 43. 1941.

短距乌头 duan ju wu tou

Aconitum brevicalcaratum f. *bracteatum* (Finet & Gagnepain) Handel-Mazzetti; *A. lycoctonum* var. *brevicalcaratum* f. *bracteatum* Finet & Gagnepain.

Petal nearly ecalcarate or shortly spurred.

• Grassy slopes; 2800–3800 m. SW Sichuan (Muli Zang Zu Zizhixian), Yunnan.

5. *Aconitum kialaense* W. T. Wang, Acta Bot. Yunnan. 15: 347. 1993.

卡拉乌头 ka la wu tou

Rhizome unknown. Stem ca. 80 cm tall, simple, sparsely retrorse strigose, ca. 5-leaved. Proximal and middle cauline leaves long petiolate or nearly so; petiole 3–8.5 cm; leaf blade pentagonal, 4.5–5.6 × 7.8–8.6 cm, both surfaces strigose, base deeply cordate, 3-parted; central lobe rhombic, apex acute, 3-lobed; ultimate lobes 1- or 2-dentate; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence: axillary ones ca. 3, 9–13 cm; terminal one ca. 24 cm, ca. 27-flowered; rachis and pedicels spreading white villous, and yellowish glandular pubescent, or densely retrorse and appressed white pubescent; proximal bracts leaflike; others lanceolate-linear, 5–6 mm, pubescent. Pedicels usually 2–7 mm, proximal ones to 1.2 cm, with 2 bracteoles at base; bracteoles linear, 4–6 mm, spreading

pubescent. Sepals abaxially spreading pubescent; lower sepals narrowly obovate or oblanceolate-linear, ca. 6.5 mm; lateral sepals oblong-obovate, ca. 6 mm; upper sepal slightly cylindrical, ca. 11 cm high, middle ca. 3 mm in diam., ca. 8 mm from base to beak. Petals glabrous; claw ca. 1 cm; lip linear, ca. 3.6 mm, slightly concave at apex; spur circinate, ca. 4 mm. Stamens glabrous. Carpels 3; ovary sparsely pilose. Fl. Aug.

• Sichuan (Kangding Xian).

6. *Aconitum scaposum* Franchet in Morot, J. Bot. 8: 277. 1894.

花葶乌头 hua ting wu tou

Rhizome terete, ca. 10 cm, ca. 8 mm in diam. Stem 35–67 cm tall, simple or branched, retrorse (rarely spreading) yellowish pubescent. Basal leaves 1–4, long petiolate; petiole 13–40 cm, base sheathed; leaf blade reniform-pentagonal; 5.5–1.1 × 8.5–22 cm, both surfaces appressed puberulous, base cordate, 3-fid; central lobe obtrapezoid-rhombic, 3-lobed, margin dentate, apex acute, rarely acuminate; lateral lobes obliquely flabellate, unequally 2-lobed. Cauline leaves 2–4, smaller than basal ones, equally arranged along stem or mostly near stem base or below inflorescence, sometimes absent; petiole sheathed. Inflorescence (20–)25–40 cm, 15–40-flowered; rachis and pedicels densely spreading yellowish pubescent; bracts lanceolate or oblong. Pedicels 1.4–3.4 cm, spreading yellowish pubescent, with 2 bracteoles at base; bracteoles similar to but shorter than bracts. Sepals blue-purple, abaxially sparsely spreading hispid; upper sepal cylindrical, 1.3–1.8 cm high, external margin ± erect, with a beak. Petaline lip linear, conspicuous; spur circinate, 2–3 × as long as limb, sparsely pubescent or glabrous. Stamens glabrous; filaments entire. Carpels 3; ovary sparsely villous. Follicles unequal in size, 7.5–13 mm. Seeds white, obovate, ca. 1.5 mm. Fr. Aug–Sep. $2n = 16^*$.

Forests, forest margins, grassy slopes, valleys; 1200–3900 m. S Gansu, Guizhou, SW Henan, Hubei, N Hunan, Jiangxi, S Shaanxi, Sichuan, N and NE Yunnan [Bhutan, N Myanmar, Nepal].

- 1a. Basal leaves 1 or 2, wilting at anthesis; cauline leaves 3 or 4, equally arranged along stem 6b. var. *hupehanum*
- 1b. Basal leaves 3 or 4, not wilting at anthesis, cauline leaves 2–5, not equally arranged along stem.
 - 2a. Cauline leaves 2–4, near stem base, petioles of cauline ones sheathed; sepals blue-purple 6a. var. *scaposum*
 - 2b. Cauline leaves 3–5, lowermost separate, 6–20 cm, distal ones crowded below inflorescence,

petioles of cauline ones sheathed;
sepals purple, rarely yellow 6c. var. *vaginatum*

6a. *Aconitum scaposum* var. *scaposum*

花葶乌头(原变种) hua ting wu tou (yuan bian zhong)

Aconitum lycoctonum Linnaeus var. *efoliatum* Rapaics;
A. lycoctonum var. *ranunculoides* Finet & Gagnepain;
A. scaposum var. *patentipilum* W. T. Wang; *A.*
scaposum var. *pyramidale* Franchet.

Basal leaves 3 or 4, not wilting at anthesis. Cauline leaves 2–4, near stem base, petioles of cauline ones sheathed. Sepals blue-purple.

• Valleys, forests; 1200–2000 m. N Guizhou, SW Henan, Hubei, E Jiangxi, S Shaanxi, Sichuan.

6b. *Aconitum scaposum* var. *hupehanum* Rapaics, Növényt. Közlem. 6: 168. 1907.

等叶花葶乌头 deng ye hua ting wu tou

Aconitum chloranthum Handel-Mazzetti; *A. jucundum* Diels; *A. jucundum* var. *chloranthum* (Handel-Mazzetti) Handel-Mazzetti; *A. lycoctonum* var. *circinatum* H. Léveillé; *A. scaposum* var. *chloranthum* (Handel-Mazzetti) Lauener & Tamura.

Basal leaves 1 or 2, wilting at anthesis; cauline leaves 3 or 4, equally arranged along stem and all normally developed.

Forests, forest margins, grassy slopes; 1300–3900 m. S Gansu, Hubei, N Hunan, NW Jiangxi, S Shaanxi, Sichuan, N Yunnan [Bhutan, N Myanmar, Nepal].

6c. *Aconitum scaposum* var. *vaginatum* (E. Pritzel ex Diels) Rapaics, Növényt. Közlem. 6: 168. 1907.

聚叶花葶乌头 ju ye hua ting wu tou

Aconitum vaginatum E. Pritzel in Diels, Bot. Jahrb. Syst. 29: 328. 1900; *A. scaposum* var. *pseudovaginatum* Rapaics; *A. vaginatum* var. *xanthanthum* Handel-Mazzetti.

Basal leaves 3 or 4, not wilting at anthesis. Cauline leaves 3–5, lowermost separate, 6–20 cm, distal ones crowded below inflorescence, petioles of cauline ones sheathed. Sepals purple, rarely yellow. $2n = 16^*$.

• Forests, forest margins; 1800–2000 m. Gansu, Guizhou, W Hubei, N Hunan, S Shaanxi, Sichuan, NE Yunnan.

7. *Aconitum cavaleriei* H. Léveillé & Vaniot, Bull. Soc. Agric. Sarthe 60: 78. 1905.

黔川乌头 qian chuan wu tou

Rhizome terete, to 12 cm in diam. Stem ca. 40 cm tall, shortly 1-branched below inflorescence, glabrous. Basal leaves ca. 3, long petiolate; petiole 12–24 cm, glabrous, base sheathed; leaf blade pentagonal, 4.8–1.2 × 6–15 cm, both surfaces glabrous, base subtruncate or truncate-cordate, apex acute or long acuminate, 3-

parted; central lobe narrowly rhombic, 3-lobed; lateral lobes obliquely rhombic, unequally 2-fid beyond middle. Cauline leaves 1–4, similar to basal ones, or cauline leaves 6–11 and crowded below inflorescence. Inflorescence ca. 20 cm, sparsely ca. 20-flowered, basal bracts subspatulate, distal part 2-denticulate, others linear-lanceolate to lanceolate-triangular; rachis and pedicels appressed or ± spreading yellow puberulous. Pedicel 1–4.2 cm, with 2 bracteoles at base; bracteoles narrowly ovate, 8–11 mm. Sepals purple, abaxially sparsely puberulous; lower sepals ca. 0.7 mm; lateral sepals ca. 0.9 cm; upper sepal cylindric, 1.6–2 cm high, middle 3–5 mm in diam., external margin erect, lower margin 1.1–1.5 cm. Petals ca. 9 mm; claw upper part and limb sparsely pubescent; lip linear, conspicuous; spur rarely incurved, slightly longer than limb, glabrous. Stamens glabrous; filaments entire. Carpels 3; ovary sparsely appressed pubescent. Fl. May.

• Wet places on mountains, by streams, forests; 1400–2200 m. Guizhou, Hunan, N and W Sichuan.

1a. Cauline leaves 1–4, lobes acute at apex 7a. var. *cavaleriei*

1b. Cauline leaves 6–11, crowded below inflorescence, lobes usually long acuminate at apex 7b. var. *aggregatifolium*

7a. *Aconitum cavaleriei* var. *cavaleriei*

黔川乌头(原变种) qian chuan wu tou (yuan bian zhong)

Cauline leaves 1–4; lobes acute at apex.

• Wet places on mountains. Guizhou, Hunan, W Sichuan.

7b. *Aconitum cavaleriei* var. *aggregatifolium* (Chang ex W. T. Wang) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 165. 1979.

聚叶黔川乌头 ju ye qian chuan wu tou

Aconitum aggregatifolium Chang ex W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 60. 1965.

Cauline leaves 6–11, crowded below inflorescence; lobes usually long acuminate at apex.

• By streams, forests; 1400–2200 m. N Sichuan.

8. *Aconitum crassiflorum* Handel-Mazzetti, Symb. Sin. 7: 283. 1931.

粗花乌头 cu hua wu tou

Rhizome terete, to 7 cm. ca. 1 cm in diam. Stem 48–70 (–110) cm tall, 1-branched below inflorescence, basally sparsely retrorse yellowish scabrous pubescent. Basal leaves 2 or 3, long petiolate; petiole 15–30 cm; leaf blade orbicular-reniform or reniform, 3.6–7 × 7.6–12 cm, both surfaces sparsely shortly strigose, 3-parted beyond middle; central lobe cuneate-obtrapezoid, 2-fid; lateral lobes obliquely flabellate, unequally 2- or 3-fid. Cauline leaves 2 or 3(–5), similar to basal ones. Inflorescence 14–20(–36) cm, ca. 10-flowered; rachis

and pedicels densely spreading pubescent; basal bracts 3-fid, others linear, smaller, 3.5–5 mm, unlobed. Proximal pedicels 1.2–3.5(–5.5) cm, others 5–12 mm, with 2 bracteoles at base of pedicels, rarely at middle, bracteoles linear, 2.5–3.5 mm. Sepals blue-purple, sparsely pubescent; lower sepals 0.8–1.1 cm; lateral sepals 9–1.2 cm; upper sepal cylindrical, 1.6–2(–2.3) cm high, middle 4–7 mm in diam., apex rounded, with a beak, lower margin 0.9–1.2 cm. Petals glabrous; lip linear, conspicuous; spur slightly circinate, usually slightly longer than lip. Stamens glabrous; filaments entire. Carpels 3; ovary sparsely pubescent. Fl. Jul–Aug. $2n = 32^*$.

• Forests, scrub, grassy slopes; 3200–4200 m. SW Sichuan, NW Yunnan.

9. *Aconitum rilongense* Kadota, J. Jap. Bot. 74: 283. 1999.

邛崃山乌头 qiong lai shan wu tou

Rhizome terete, to 10 cm, ca. 1 cm in diam. Stem 50–100 cm tall, sparsely pubescent with flexuous hairs. Basal leaves withered at anthesis. Proximal cauline leaves long petiolate, petiole 15–30 cm; leaf blade reniform, 14–20 × 14–23 cm, both surfaces sparsely shortly strigose, (5–)7–9-lobed to 2–4 cm from base; central lobe obovate-rhombic; lateral lobes obliquely flabellate, unequally 2- or 3-fid. Inflorescence 14–16(–30) cm, 14–45-flowered; rachis and pedicels densely retrorse pubescent; basal bracts 3-lobed, others linear, smaller, 3.5–5 mm, unlobed. Proximal pedicels 1–1.5 cm, with 2 bracteoles at base of pedicels, bracteoles linear, 5–8 mm. Sepals dull yellow, sparsely retrorse pubescent; lower sepals 0.6–0.9 cm; lateral sepals 0.8–0.9 cm; upper sepal cylindrical, 1.3–2.2 cm high, 8–10 mm in diam., apex rounded, with a beak, lower margin 0.9–1.2 cm. Petals glabrous; lip linear, conspicuous; spur slightly incurved, usually slightly longer than lip. Stamens glabrous; filaments entire. Carpels 3, glabrous or spreading pubescent. Fl. Aug–Sep.

• Forests, scrub; 3000–3300 m. C Sichuan (Xiaojin Xian).

10. *Aconitum longecassidatum* Nakai, J. Coll. Sci. Imp. Univ. Tokyo 26: 27. 1909.

高帽乌头 gao mao wu tou

Rhizome unknown. Stem ca. 65 cm tall, apically shortly branched, retrorse yellowish pubescent. Basal leaves unknown; cauline leaves ca. 6, proximal ones long petiolate, distal ones shortly petiolate; petiole 5–20 cm; leaf blade pentagonal-reniform, ca. 7 × 12 cm, both surfaces yellowish pubescent, 3-fid beyond middle; central lobe obtuse-trapezoid-rhombic, below middle 3-lobed; lateral lobes obliquely flabellate, unequally 2-fid ± to middle. Inflorescence ca. 10 cm, 6- or 7-flowered, rachis and pedicels densely retrorse and appressed yellow pubescent, bracts ovate or narrowly ovate, 0.9–1.4 cm. Pedicels 7–10 mm, with 2 bracteoles at middle; bracteoles spatulate-linear, 6–7.5 mm. Sepals purple, abaxially densely yellowish pubescent; lower sepals ca. 1.1 cm; lateral sepals ca. 1 cm; upper sepal cylindrical, ca.

2.2 cm high, middle ca. 4.5 mm in diam., apex rounded, shortly beaked, lower margin ca. 1.2 cm. Petals glabrous; lip linear, conspicuous; spur curved, ca. 2.5 × as long as lip. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3; ovary glabrous. Fl. Sep.

Mountains. S Liaoning, E Shandong (Qingdao) [Korea].

11. *Aconitum finetianum* Handel-Mazzetti, Acta Horti Gothob. 13: 80. 1939.

赣皖乌头 gan wan wu tou

Aconitum sioseanum Migo.

Rhizome terete, ca. 8 cm, 3–4 mm in diam. Stem twining, ca. 1 m tall, sparsely retrorse pubescent. Proximal cauline leaves long petiolate; petiole to 30 cm, nearly glabrous; leaf blade pentagonal-reniform, 6–10 × 10–18 cm, both surfaces sparsely appressed pubescent; distal leaves smaller above, petioles slightly shorter than or subequaling leaf blade. Inflorescence 8–14 cm, 4–9-flowered; rachis and pedicels densely yellowish retrorse pubescent; bracts leaflike to ovate to linear, 2–5 mm. Pedicels 3.5–8 mm, with 2 bracteoles at middle or near base; bracteoles linear. Sepals white or purplish, abaxially appressed pubescent; lower sepals narrowly elliptic; lateral sepals obovate; upper sepal cylindrical, 1.3–1.5 cm high, middle 2.5–3(–5) mm in diam., erect or slightly curved, external margin with a beak, lower margin ca. 1 cm. Petals 1.3–1.5 cm, glabrous; lip linear, conspicuous; spur slightly circinate at apex, subequaling or slightly longer than lip. Stamens glabrous; filaments entire. Carpels 3; ovary sparsely appressed yellowish pubescent. Follicles 0.8–1.1 cm. Seeds ca. 1.5 mm. Fl. Aug–Sep, fr. Oct.

• Wet places on mountains; 800–1600 m. S Anhui, Fujian, Hunan (Anhua Xian), Jiangxi, Zhejiang.

12. *Aconitum alboviolaceum* Komarov, Trudy Imp. S.-Peterburgsk. Bot. Sada 18: 439. 1901.

两色乌头 liang se wu tou

Rhizome terete, 10–15 cm. Stem twining or erect, 0.3–2.5 m tall, sparsely retrorse pubescent or becoming glabrous. Basal leaf 1, and proximal cauline leaves long petiolate, distal ones shortly petiolate, smaller above; petiole 3–35 cm; leaf blade pentagonal-reniform, 6.5–9.5(–18) × 9.5–17(–25) cm, both surfaces sparsely appressed pubescent; base cordate, 3-parted beyond ± middle; central lobe rhombic-obtrapezoid, broadly rhombic or rhombic, 3-lobed, margin dentate above middle; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence 6–14 cm, 3–8-flowered; rachis and pedicels densely spreading pubescent; bracts linear, 3–3.5 mm. Pedicels 5–9 mm, with 2 bracteoles at base or middle; bracteoles similar to bracts. Sepals purplish or ± white, abaxially spreading pubescent; lower sepals 0.8–1.2 cm; lateral sepals 1–1.5 cm; upper sepal cylindrical, 1.3–2 cm high, middle 2.8–5 mm in diam., shortly beaked, lower margin 1.3–2 cm. Petals glabrous; lip linear, conspicuous; spur circinate, longer than lip. Stamens glabrous; filaments entire. Carpels 3; ovary sparsely spreading pubescent or glabrous. Follicles

erect, ca. 1.2 cm. Seeds ca. 2.5 mm. Fl. Aug–Sep. $2n = 16^*$.

Forests, scrub in valleys, mountains; 300–1400 m. N Hebei, S Heilongjiang, Jilin, Liaoning [Korea, Russia (Far East)].

- 1a. Stem twining, 100–250 cm tall; carpels sparsely spreading pubescent or glabrous 12a. var. *alboviolaceum*
1b. Stem erect, ca. 30 cm tall; carpels glabrous 12b. var. *erectum*

12a. *Aconitum alboviolaceum* var. *alboviolaceum*

两色乌头(原变种) *liang se wu tou* (yuan bian zhong)
Aconitum alboviolaceum f. *albiflorum* S. H. Li & Y. H. Huang; *A. alboviolaceum* var. *albiflorum* (S. H. Li & Y. H. Huang) S. H. Li; *A. alboviolaceum* var. *purpurascens* Nakai.

Stem twining, 1–2.5 m tall. Carpels sparsely spreading pubescent or glabrous.

Forests, scrub in valleys; 300–1400 m. N Hebei, S Heilongjiang, Jilin, Liaoning [Korea, Russia (Far East)].

12b. *Aconitum alboviolaceum* var. *erectum* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 62. 1965.

直立两色乌头 *zhi li liang se wu tou*

Stem erect, ca. 30 cm tall. Carpels glabrous.

• Mountains, ca. 1000 m. Beijing (Miyun Xian).

13. *Aconitum wardii* H. R. Fletcher & Lauener, *Notes Roy. Bot. Gard. Edinburgh* 20: 188. 1950.

滇川乌头 *dian chuan wu tou*

Rhizome unknown. Stem 60–75 cm tall, usually simple, pilose. Basal leaves and proximal cauline leaves long petiolate; petiole to 24 cm; leaf blade reniform-pentagonal, 7–15 × 10–20 cm, palmately 5–7-parted or 3-sect; segment rhombic, 3-fid, sharply dentate, abaxially sparsely pubescent at veins, adaxially appressed pubescent. Inflorescence to 25 cm, many flowered; rachis and pedicels spreading pubescent; proximal bracts leaflike, others linear. Pedicels 1–4 cm, with 2 bracteoles below middle of pedicels. Sepals violet, sometimes yellow-white, abaxially sparsely pubescent; lower sepals 8–10 cm; lateral sepals obliquely broadly obovate, 1–1.2 cm; upper sepal cylindrical, 2–2.5 cm high, ca. 3.5 mm in diam. at middle, with a beak, lower margin ca. 1.2 cm. Petals glabrous; lip linear, ca. 5 mm; spur circinate, longer than lip. Stamens glabrous; filaments entire. Carpels 3, glabrous or ovary pilose.

• Mountains, *Abies* forests; 3700–4500 m. W Sichuan, NW Yunnan (Dêqên Xian, Zhongdian Xian).

- 1a. Leaf blade palmately 5–7-parted .. 13a. var. *wardii*
1b. Leaf blade 3-sect 13b. var. *trisectum*

13a. *Aconitum wardii* var. *wardii*

滇川乌头(原变种) *dian chuan wu tou* (yuan bian zhong)

Aconitum wardii f. *flavidum* H. R. Fletcher & Lauener.

Leaf blade palmately 5–7-parted.

• Mountains; ca. 4500 m. W Sichuan, NW Yunnan (Dêqên Xian, Zhongdian Xian).

13b. *Aconitum wardii* var. *trisectum* W. T. Wang & L. Q. Li, *Acta Phytotax. Sin.* 25: 24. 1987.

全裂滇川乌头 *quan lie dian chuan wu tou*

Leaf blade 3-sect.

• *Abies* forests; 3700–4000 m. W Sichuan (Yajiang Xian).

14. *Aconitum sinomontanum* Nakai, *Rep. Exped. Manchoukuo*, Sect. 4, 2: 146. 1935.

高乌头 *gao wu tou*

Rhizome terete, ca. 20 cm, to 2 cm in diam. Stem (60–) 95–150 cm tall, simple or branched, below inflorescence retrorse pubescent, basally nearly glabrous. Basal leaf 1, and proximal cauline leaves long petiolate; petiole 30–50 cm, nearly glabrous; leaf blade reniform or orbicular-reniform, 12–14.5 × 20–28 cm, both surfaces sparsely pubescent or glabrescent, base cordate, 3-parted; central lobe narrowly cuneate-rhombic, 3-fid with irregular triangular teeth at margin, apex acuminate; lateral lobes obliquely flabellate, unequally 3-fid slightly beyond middle. Inflorescence (20–)30–50 cm, many flowered; rachis and pedicels ± appressed pubescent; proximal bracts leaflike, others linear, 0.7–1.8 cm. Pedicels 0.7–5(–5.5) cm, with 2 bracteoles usually at middle; bracteoles narrowly linear, 3–9 mm. Sepals blue-purple or pale blue, abaxially densely retrorse pubescent; lower sepals 1.1–1.2 cm; lateral sepals 1–1.2 cm; upper sepal cylindrical, 1.6–2(–3) cm high, 4–7(–9) mm in diam., lower margin 1.1–1.5 cm. Petals to 2 cm, glabrous; limb liguliform, ca. 3.5 mm; lip linear, conspicuous; spur circinate, ca. 6.5 mm. Stamens glabrous; filaments usually 1- or 2-denticulate, rarely entire. Carpels 3; ovary glabrous. Follicles 1.1–1.7 cm. Seeds obovate, ca. 3 mm. Fl. Jun–Sep. $2n = 16^*$, 32^* .

• Grassy slopes, forests, wet places in valleys; 1000–3700 m. S Gansu, NE Guangxi, Guizhou, Hebei, W Hubei, C and E Hunan, N and W Jiangxi, E Qinghai, Shaanxi, Shanxi, Sichuan, ?Yunnan.

Yang (*Acta Phytotax. Sin.* 37: 86. 1999) treated *Aconitum jin-chengense* L. C. Wang & J. Silba (*Phytologia* 71: 307. 1991) as a synonym of *A. sinomontanum*. One of us (Kadota) agrees with that treatment.

- 1a. Ovary appressed pubescent; filaments usually entire 14b. var. *pilocarpum*
1b. Ovary glabrous; filaments usually 1- or 2-denticulate.
2a. Leaves 3-parted to 6/7 blade length; central lobe narrowly cuneate-rhombic; pedicels 0.7–5 cm; upper sepal

4–7(–9) mm in diam. at middle 14a. var. *sinomontanum*

- 2b. Leaves 3-parted to 3/4 blade length; central lobe wider, usually rhombic; pedicels 0.4–1 cm; upper sepal 2.5–4 mm in diam. at middle 14c. var. *angustus*

14a. *Aconitum sinomontanum* var. *sinomontanum*

高乌头(原变种) gao wu tou (yuan bian zhong)

Aconitum moldavicum Hacquet var. *sinomontanum* (Nakai) Tamura & Lauener; *Lycocotnum shansiense* Nakai; *L. sinomontanum* (Nakai) Nakai.

Leaves 3-parted to 6/7 blade length; central lobe narrowly cuneate-rhombic. Pedicel 0.7–5 cm. Upper sepal 4–7(–9) mm in diam. at middle. Filaments usually 1- or 2-denticulate. Ovary glabrous. $2n = 16^*, 32^*$.

• Grassy slopes, forests; 1000–3700 m. S Gansu, Guizhou, Hebei, W Hubei, E Qinghai, Shaanxi, Shanxi, Sichuan.

14b. *Aconitum sinomontanum* var. *pilocarpum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 62. 1965.

毛果高乌头 mao guo gao wu tou

Aconitum moldavicum Hacquet f. *pilocarpum* (W. T. Wang) Tamura & Lauener.

Filaments usually entire. Ovary appressed pubescent.

• Forests; 3100–3600 m. NW Sichuan (Barkam Xian).

14c. *Aconitum sinomontanum* var. *angustus* W. T. Wang in B. J. Chen, Observ. Fl. Hwangshan. 114. 1965.

狭盔高乌头 xia kui gao wu tou

Aconitum angustus (W. T. Wang) W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 62. 1965.

Leaves 3-parted to 3/4 blade length; central lobe wider, usually rhombic. Pedicel 0.4–1 cm. Upper sepal 2.5–4 mm in diam. at middle. Filaments usually 1- or 2-denticulate. Ovary glabrous. $2n = 32^*$.

• Wet places in valleys; 1400–1600 m. S Anhui, NE Guangxi, C and E Hunan, N and W Jiangxi.

15. *Aconitum leucostomum* Voroschilov, Bull. Princ. Bot. Gard. Acad. Sci. URSS 11: 62. 1952.

白喉乌头 bai hou wu tou

Rhizome unknown. Stem ca. 1 m tall, basally sparsely retrorse pubescent or nearly glabrous, apically spreading glandular pubescent. Basal leaf ca. 1, and proximal cauline leaves long petiolate; petiole 20–30 cm; leaf blade reniform or orbicular-reniform, ca. 14 × 18 cm, abaxially sparsely retrorse pubescent (hairs 0.5–0.8 mm), adaxially glabrous or nearly so, 3-parted; central lobe broadly rhombic, 3-fid; lateral lobes obliquely flabellate, unequally 3-fid. Inflorescence 20–45 cm, many flowered; rachis and pedicels densely spreading yellowish shortly glandular pubescent; basal bracts 3-fid, others linear, subequaling or longer than pedicels, to 3 cm. Pedicels 1–3 cm, with 2 bracteoles at middle or below; bracteoles narrowly linear or filiform, 3–8 mm. Sepals pale blue-purple, lower part white,

abaxially pubescent; lower sepals ca. 1.1 cm; lateral sepals ca. 1.2 cm; upper sepal cylindrical, 1.5–2.4 cm high, middle 4–5 mm in diam., beaked, lower margin 0.9–1.5 cm. Petals glabrous; lip linear, conspicuous; spur slightly circinate, longer than lip. Stamens glabrous; filaments entire. Carpels 3; ovary glabrous. Follicles 1–1.2 cm. Seeds obovate. Fl. Jul–Aug. $2n = 16$.

Grassy mountain slopes, valleys, forests, forest margins; 900–2600 m. NW Gansu (Shandan Xian), N Hebei, Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia (W Siberia)].

1a. Pedicels ± erect upward below middle; sepals pale blue-purple, upper sepal exterior margin contracted . 15a. var. *leucostomum*

1b. Pedicels obtusely oblique upward; sepals purple, upper sepal exterior margin indistinctly contracted . 15b. var. *hopeiense*

15a. *Aconitum leucostomum* var. *leucostomum*

白喉乌头(原变种) bai hou wu tou (yuan bian zhong)

Pedicels ± erect upward below middle. Sepals pale blue-purple; upper sepal exterior margin contracted.

Grassy mountain slopes, valleys; 1400–2600 m. NW Gansu (Shandan Xian), Xinjiang [Kazakhstan].

15b. *Aconitum leucostomum* var. *hopeiense* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 62. 1965.

河北白喉乌头 he bei bai hou wu tou

Aconitum hopeiense (W. T. Wang) Voroschilov; *A. wardii* H. R. Fletcher & Lauener var. *hopeiense* (W. T. Wang) Tamura & Lauener.

Pedicels and rachis obtusely oblique upward. Sepals purple; upper sepal exterior margin indistinctly contracted.

• Forest margins, forests, 900–1600 m. Beijing, N Hebei (Xinglong Xian).

Alexander N. Luferov (pers. comm.) believes that this taxon should be treated at the rank of species.

16. *Aconitum septentrionale* Koelle, Spic. Observ. Aconit. 22. 1787.

紫花高乌头 zi hua gao wu tou

Aconitum excelsum Reichenbach, Monogr. Acon. t. 53. 1820.

Rhizome unknown. Stem ca. 85 cm tall, basally becoming glabrous, middle sparsely downward pubescent, apically with few glandular hairs. Basal leaf 1, withered at anthesis, and proximal cauline leaves long petiolate; petiole to 32 cm, leaf blade reniform or orbicular-reniform, to 10 × 20 cm, abaxially with erect yellowish hairs 0.8–1.2 mm at veins, adaxially sparsely appressed pubescent. Inflorescence ca. 12 cm; rachis and pedicels densely spreading and retrorse yellowish glandular pubescent. Pedicels 1.7–3 cm, below middle pedicel and rachis obtusely oblique upward; bracts leaflike, distal ones linear, distally with 2 bracteoles; bracteoles subulate, 3–7 mm. Sepals purple, adaxially sparsely yellowish glandular pubescent; lower sepals ca. 1 cm; lateral sepals ca. 1.1 cm; upper sepal cylindrical, ca. 2.4 cm high, middle ca. 4

mm in diam., lower margin ca. 1.3 cm. Petals glabrous; lip linear, conspicuous; spur circinate, ca. 1 cm, ca. 3 × as long as lip. Stamens glabrous; filaments entire. Carpels 3; ovary glabrous or pubescent. Follicles 1–1.4 cm. Fl. Jul. $2n = 16$.

Betula forests, ca. 1700 m. Heilongjiang, NW Liaoning [Mongolia, Russia (Siberia); Europe].

17. *Aconitum monticola* Steinberg in Komarov, Fl. URSS 7: 730. 1937.

山地乌头 shan di wu tou

Rhizome unknown. Stem ca. 1.2 m tall, ca. 8 mm in diam., basally nearly glabrous, apically sparsely spreading yellowish pubescent. Basal leaves withered at anthesis, and proximal cauline leaves long petiolate; petiole 17–20 cm, sparsely retrorse pubescent; leaf blade orbicular-reniform, ca. 14 × 22 cm, abaxially sparsely pubescent at veins, adaxially glabrous, 3-parted; central lobe rhombic, 3-fid at middle, apex acute, several lobulate and irregularly triangular-dentate at margin; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence ca. 25 cm, many flowered; rachis and pedicels densely spreading yellowish pubescent; basal bracts 3-fid, others linear-lanceolate to linear. Pedicels 0.8–2 cm, with 2 bracteoles at middle or basal part; bracteoles linear, 4–6 mm. Sepals yellow, abaxially sparsely pubescent; lower sepals ca. 1.1 cm; lateral sepals ca. 1 cm; upper sepal cylindrical, ca. 1.5 cm high, ca. 4 mm in diam., shortly beaked, lower margin 1–1.3 cm. Petals subequaling upper sepals, glabrous; lip linear, conspicuous; spur slightly curved, subequaling lip. Stamens glabrous; filaments entire. Carpels 3; ovary glabrous. Fl. Aug.

Wet places in valleys; ca. 2300 m. Xinjiang [Kazakhstan].

Further study is necessary to determine the identity of *Aconitum wangyedianense* Y. Z. Zhao (Bull. Bot. Res., Harbin 3(1): 159. 1983), which may be synonymous with this taxon.

18. *Aconitum umbrosum* (Korshinsky) Komarov, Trudy Imp. S.-Peterburgsk. Bot. Sada 22: 250. 1903.

草地乌头 cao di wu tou

Aconitum lycoctonum f. *umbrosum* Korshinsky, Trudy Imp. S.-Peterburgsk. Bot. Sada 12: 299. 1892; *A. paishanense* Kitagawa.

Rhizome terete, more than 10 cm, ca. 1 cm in diam. Stem 70–100 cm tall, below inflorescence few branched, sparsely retrorse pubescent. Basal leaves ca. 3, and proximal cauline leaves long petiolate; petiole 28–50 cm, nearly glabrous; leaf blade reniform-pentagonal, 7–12 × 10–20 cm, base cordate, 3-parted; central lobe cuneate-rhombic or rhombic; lateral lobes obliquely flabellate, unequally 2- or 3-fid, both surfaces sparsely appressed pubescent, abaxially usually glabrous. Inflorescence 10–30 cm, 7–20-flowered; rachis and pedicels densely retrorse pubescent; basal bracts 3-fid, others linear, 4–7.5 mm. Pedicels 0.8–2.5 cm, with 2 bracteoles above base; bracteoles linear-subulate, 1.5–

2.5 mm. Sepals yellow or yellowish, abaxially pubescent; lower sepals ca. 0.9 cm; lateral sepals ca. 0.8 cm; upper sepal subcylindric, 1.5–1.9 cm high, 3.5–6 mm in diam., shortly beaked, lower margin suberect, 0.8–1 cm. Petals glabrous; lip linear, ca. 3 mm; spur circinate, longer than lip. Stamens glabrous; filaments entire. Carpels 3; ovary glabrous. Fl. Jul.

Wet places of forests. N Hebei, Heilongjiang, Jilin [N Korea, Russia (Far East)].

19. *Aconitum ranunculoides* Turczaninow ex Ledebour, Fl. Ross. 1: 67. 1841.

毛茛叶乌头 mao gen ye wu tou

Rhizome unknown. Stem to 70 cm tall, erect, simple, glabrous or apically retrorse pubescent. Basal leaves several, long petiolate; petiole to 15 cm, cauline leaves with petiole ca. 3.5 cm; leaf blade suborbicular, ca. 5 × 8 cm, abaxially glabrous or sparsely pubescent at veins, adaxially sparsely appressed pubescent, densely pubescent at veins, palmately 3–5-parted; central lobe rhombic or broadly rhombic, margin with orbicular teeth; lateral lobes obliquely flabellate, unequally 2- or 3-parted. Inflorescence terminal, 4–10-flowered; rachis and pedicels retrorse pubescent; bracts leaflike to lanceolate. Pedicels 4–8 mm, with 2 bracteoles at middle or above; bracteoles lanceolate to linear. Sepals yellow, abaxially retrorse pubescent; lower sepals oblong, 6–7 × 2–3 mm; lateral sepals suborbicular, 7–10 × 7–10 mm, adaxially middle and margin yellow villous; upper sepal cylindrical, 1–1.3 cm high, middle 4–5 mm in diam., beaked, lower margin ca. 1 cm. Petals glabrous; lip linear, conspicuous; spur circinate, slightly longer than lip. Carpels 3, glabrous. Fl. Jul–Aug.

Grasslands. Nei Mongol (Ergun Zuoqi) [Russia (Far East, Siberia)].

20. *Aconitum kirinense* Nakai, Rep. Exped. Manchoukuo, Sect. 4, 2: 147. 1935.

吉林乌头 ji lin wu tou

Rhizome unknown. Stem 80–120 cm tall, 3–5.5 mm in diam., branched, basally sparsely spreading yellow villous, apically retrorse yellow pubescent. Basal leaves ca. 2, and proximal cauline leaves long petiolate; petiole 20–30 cm, sparsely spreading pilose or nearly glabrous. Cauline leaves 2–6; leaf blade reniform-pentagonal, 12–17 × 20–24 cm, abaxially sparsely pilose at veins or nearly glabrous, adaxially appressed and retrorse pubescent, 3-parted. Inflorescence 18–22 cm, many flowered; rachis and pedicels retrorse and appressed pubescent; proximal bracts leaflike, others linear. Pedicels 0.8–1.2 cm, with 2 bracteoles at middle or below; bracteoles subulate, 1.2–4 mm. Sepals yellow, abaxially densely pubescent; lower sepals narrowly elliptic; lateral sepals broadly obovate, ca. 8 mm; upper sepal cylindrical, 1.4–1.8 cm high, 4–5 mm in diam., shortly beaked, lower margin 9–10 mm, slightly concave. Petals glabrous; lip liguliform, ca. 3 mm; spur erect or incurved, slightly shorter than or subequaling

lip. Stamens glabrous or sparsely ciliate; filaments entire. Carpels 3; ovary glabrous. Follicles 1–1.2 cm, glabrous. Seeds perigynous, ca. 2.5 mm. Fl. Jul–Sep, fr. Sep.

Grassy or mountain slopes, forest margins, forests. E Heilongjiang, W Henan, NW Hubei, Jilin, Liaoning, SE Shaanxi, S Shanxi [Russia (Far East)].

- 1a. Leaf blade deeply cordate at base, 3-parted slightly beyond middle, lobes with rounded teeth 20c. var. *heterophyllum*
1b. Leaf blade broadly cordate at base, 3-parted nearly to base, lobes incised-lobed, sharply dentate.
2a. Leaves abaxially sparsely villous at veins or nearly glabrous; ovary glabrous 20a. var. *kirinense*
2b. Leaves abaxially densely pubescent; ovary usually sparsely yellow pubescent 20b. var. *australe*

20a. *Aconitum kirinense* var. *kirinense*

吉林乌头(原变种) *ji lin wu tou* (*yuan bian zhong*)

Lycotonom kirinense (Nakai) Nakai; *L. kirinense* var. *villipes* Nakai.

Leaf blade broadly cordate at base, abaxially sparsely villous at veins or nearly glabrous, 3-parted nearly to base, lobes incised-lobed, sharply dentate. Ovary glabrous.

Grassy slopes, forest margins, forests. E Heilongjiang, Jilin, Liaoning [Russia (Far East)].

20b. *Aconitum kirinense* var. *australe* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 63. 1965.

毛果吉林乌头 *mao guo ji lin wu tou*

Leaf blade broadly cordate at base, abaxially densely pubescent, 3-parted nearly to base, lobes incised-lobed, sharply dentate. Ovary usually sparsely yellow pubescent.

• Forests, mountain slopes; 800–2000 m. W Henan, NW Hubei, SE Shaanxi, S Shanxi.

20c. *Aconitum kirinense* var. *heterophyllum* W. T. Wang, *Act Bot. Yunnan.* 15(4): 349. 1993.

异裂吉林乌头 *yi lie ji lin wu tou*

Leaf blade deeply cordate at base, 3-parted slightly beyond middle, lobes with rounded teeth. Carpels appressed yellowish pilose.

• Henan (Lushi Xian).

21. *Aconitum barbatum* Patrín ex Persoon, *Syn. Pl.* 2: 83. 1806.

细叶黄乌头 *xi ye huang wu tou*

Rhizome suberect, terete, to 15 cm, ca. 8 mm in diam. Stem 55–90 cm tall, below inflorescence branched, basally sparsely spreading pubescent, apically retrorse and appressed pubescent, 2–4-leaved. Basal leaves and proximal cauline leaves long petiolate; petiole 13–30 cm, spreading pubescent, base sheathed; leaf blade reniform or orbicular-reniform, 4–8.5 × 7–20 cm,

abaxially villous, adaxially sparsely pubescent, 3-sect; central segment broadly rhombic, 3-parted nearly to midvein; lateral segments obliquely flabellate, unequally 2-fid. Inflorescence terminal, 13–20 cm, densely flowered; rachis and pedicels densely appressed pubescent; proximal bracts narrowly linear, 4.5–7.5 mm, middle ones lanceolate-subulate, ca. 2.5 mm, distal ones triangular, 1–1.5 mm, pubescent. Pedicels 0.2–1 cm, with 2 bracteoles near middle; bracteoles narrowly triangular, 1.2–1.5 mm. Sepals yellow, abaxially densely pubescent; lower sepals ca. 6 mm; lateral sepals ca. 7 mm; upper sepal erect, cylindric, 1.3–1.7 cm high, ca. 3.8 mm in diam., lower margin suberect, 1–1.2 cm. Petals glabrous; lip linear, ca. 2.5 mm; spur erect or slightly curved, slightly shorter than lip. Stamens glabrous or pubescent; filaments entire. Carpels 3. Follicles ca. 1 cm, sparsely appressed pubescent. Seeds brown, obovate, ca. 2.5 mm. Fl. Jul–Aug. *2n* = 16.

Grassy slopes, forests, wet places; 400–2700 m. Gansu, N and W Hebei, Heilongjiang, W Henan, Jilin, Nei Mongol, Ningxia, Shaanxi, Shanxi, Xinjiang [Russia (Far East, Siberia)].

- 1a. Stem and petioles retrorse and appressed pubescent 21c. var. *puberulum*
1b. Stem below middle and petioles spreading pubescent.
2a. Central segment 3-parted nearly to midvein, ultimate lobes narrowly lanceolate to linear 21a. var. *barbatum*
2b. Central segment 3-parted not nearly to midvein, ultimate lobes triangular to narrowly lanceolate 21b. var. *hispidum*

21a. *Aconitum barbatum* var. *barbatum*

细叶黄乌头(原变种) *xi ye huang wu tou* (*yuan bian zhong*)

Aconitum barbatum var. *gmelinii* (Reichenbach) Ledebour ex Maximowicz; *A. gmelinii* Reichenbach; *A. leptanthum* Reichenbach; *A. lycotonom* Linnaeus var. *barbatum* (Persoon) Finet & Gagnepain; *A. pyrenaicum* Linnaeus; *A. squarrosum* de Candolle; *Lycotonom barbatum* (Persoon) Nakai.

Stem below middle and petioles spreading pubescent. Central leaf segment 3-parted nearly to midvein; ultimate lobes narrowly lanceolate to linear.

• Grassy slopes, forests, forest margins; 400–900 m. W Heilongjiang.

21b. *Aconitum barbatum* var. *hispidum* (de Candolle) Seringe in de Candolle, *Prodr.* 1: 58. 1824.

西伯利亚乌头 *xi bo li ya wu tou*

Aconitum hispidum de Candolle, *Syst. Nat.* 1: 367. 1818; *A. sibiricum* Poirét; *Lycotonom sibiricum* (Poirét) Nakai.

Stem below middle and petioles spreading pubescent. Central leaf segment 3-parted not nearly to midvein;

ultimate lobes triangular to narrowly lanceolate. $2n = 16^*$.

Grassy slopes, forests, 400–2200 m. Gansu, N and W Hebei, Heilongjiang, W Henan, Jilin, Nei Mongol, Ningxia, Shaanxi, Shanxi, Xinjiang [Russia (Siberia)].

21c. *Aconitum barbatum* var. *puberulum* Ledebour, Fl. Ross. 1: 67. 1842.

牛扁 niu bian

Aconitum barbatum subsp. *pekinense* (Voroschilov) Gubanov; *A. luteum* H. Léveillé & Vaniot; *A. ochranthum* C. A. Meyer; *A. pekinense* Voroschilov; *Lycotconum ochranthum* (C. A. Meyer) Nakai.

Stem and petioles retrorse and appressed pubescent. Central leaf segment 3-parted not nearly to midvein; ultimate lobes triangular or narrowly lanceolate. $2n = 16^*$.

Forests, wet places; 400–2700 m. Hebei, Liaoning, Nei Mongol, Shanxi, E Xinjiang [Mongolia, Russia (Siberia)].

22. *Aconitum fletcheranum* G. Taylor, J. Roy. Hort. Soc. London 77: 242. 1952.

多花乌头 duo hua wu tou

Rhizome terete, branched. Stem 5–19 cm. Leaves all basal; petiole 2.5–14.5 cm, slender, glabrous, base sheathed; leaf blade orbicular-cordate or reniform, 1–3 × 2–4 cm, palmately or pedately 3–5-parted; lobes obovate-cuneate, 2- or 3-lobed; ultimate lobes ovate or oblong, apex acute or mucronate. Scapes 1–4, erect, 6.5–14 cm tall, distally retrorse pubescent; bracts 2, stalked, similar to leaves but smaller, at distal part of pedicels. Flower solitary, terminal. Sepals blue-purple, glabrous or abaxially sparsely pubescent; lower sepals broadly obovate, or suborbicular, ca. 2 × 2 cm; upper sepal navicular, shortly beaked, ca. 3 × 0.9–1.2 cm from base to beak. Petals ca. 2 cm, glabrous; claw slender; limb ca. 3 mm; lip very short, entire or slightly concave; spur narrowly cylindrical. Stamens distally puberulous or glabrous; filaments broadly lanceolate. Carpels 6–8, sparsely pubescent. Fl. Jul–Oct.

Wet places on slopes, grassy slopes; 4300–5100 m. SE Xizang [Bhutan; NE India (Assam)].

This species belongs to *Aconitum* sect. *Fletcherum* Tamura characterized by the upper sepal navicular; petaline lip very short; spur narrowly cylindrical, almost degenerated, and carpels 6–8.

2. *Aconitum* subgen. *Aconitum*

乌头亚属 wu tou ya shu

Caudices usually 2, rarely several. Sepals not clawed or nearly so; upper sepal galeate, navicular, or falcate, rarely cylindrical. Petaline limb with secretory tissue at apex or abaxially; lip indistinct or distinct, ligulate or linear; spur short or long, rarely absent. Carpels 3–5(–9).

About 340 species: Asia, Europe, North America; 188 species (156 endemic) in China.

23. *Aconitum tanguticum* (Maximowicz) Stapf, Ann. Roy. Bot. Gard. (Calcutta) 10: 151. 1905

甘青乌头 gan qing wu tou

Caudex fusiform or obconical, ca. 2 cm. Stem 8–50 cm tall, simple or branched, sparsely retrorse and appressed pubescent or nearly glabrous. Basal leaves 7–9, long petiolate; petiole 3.5–14 cm, glabrous, base sheathed; leaf blade orbicular or orbicular-reniform, 1.1–3 × 2–6.8 cm, both surfaces glabrous, medially 3-lobed; lobes lobulate, margin orbicular dentate. Cauline leaves 1 or 2(–4), usually shortly petiolate, smaller than basal leaves. Inflorescence terminal, 3–5-flowered; rachis and pedicels ± densely retrorse pubescent; bracts linear, or sometimes basal ones 3-fid. Proximal pedicels (1–)2.5–4.5(–6.5) cm, distal ones shorter, with 2 bracteoles; bracteoles ovate to broadly linear, 2–2.5 mm. Sepals blue-purple, rarely greenish, abaxially pubescent; lower sepals broadly elliptic or elliptic-ovate; lateral sepals 1.1–2.1 cm long and wide; upper sepal navicular, 6–8 mm wide, lower margin slightly concave or suberect, 1.4–2.2 cm high. Petals slightly curved, glabrous; limb very small, 0.6–1.5 mm; lip indistinct, slightly concave;

spur erect, short. Stamens sparsely pubescent; filaments entire or 2-denticulate. Carpels 5, pubescent or glabrous. Follicles ca. 1 cm. Seeds obovate, 2–2.5 mm. Fl. Jul–Aug. $2n = 16^*$.

• Grassy slopes, wet and alpine grasslands; 3200–4800 m. S Gansu, E Qinghai, Shaanxi, W Sichuan, E Xizang, NW Yunnan.

1a. Ovary glabrous 23a. var. *tanguticum*

1b. Ovary pubescent 23b. var. *trichocarpum*

23a. *Aconitum tanguticum* var. *tanguticum*

甘青乌头(原变种) gan qing wu tou (yuan bian zhong)

Aconitum rotundifolium Karelina & Kirilov var. *tanguticum* Maximowicz, Fl. Tangut. 26. 1889; *A. tanguticum* f. *viridulum* W. T. Wang.

Ovary glabrous.

• Grassy slopes, wet grasslands; 3200–4800 m. S Gansu, E Qinghai, Shaanxi (Qin Ling), W Sichuan, E Xizang, NW Yunnan.

23b. *Aconitum tanguticum* var. *trichocarpum* Handel-Mazetti, Acta Horti Gothob. 13: 91. 1939.

毛果甘青乌头 mao guo gan qing wu tou

Aconitum iochanicum Ulbrich var. *robustum* Chen & Liu; *A. tanguticum* var. *trichocarpum* f. *robustum* (Chen & Liu) W. T. Wang.

Ovary pubescent.

• Alpine grasslands; 3500–4600 m. S Gansu, E Qinghai, W Sichuan, NW Yunnan (Dêqên Xian).

24. *Aconitum qinghaiense* Kadota, J. Jap. Bot. 76: 185. 2001.

青海乌头 qing hai wu tou

Caudex carrot-shaped, 1–3 cm. Stem 10–30(–70) cm tall, simple, sparsely retrorse and appressed pubescent. Basal leaves 7–9, long petiolate; petiole 5–8 cm, glabrous, base sheathed; leaf blade orbicular-reniform, 3–4 × 3.5–5 cm, both surfaces glabrous, medially 5–9-lobed; lobes lobulate, margin orbicular dentate. Cauline leaves 2 or 3, usually shortly petiolate, smaller. Inflorescence terminal, 2–4-flowered; rachis and pedicels ± densely retrorse pubescent; bracts linear, or sometimes basal ones 3-fid. Pedicels 5–10 mm, with 2 bracteoles; bracteoles linear, ca. 5 mm. Sepals pale greenish white or sometimes bright blue-violet, abaxially pubescent; lower sepals broadly elliptic or elliptic-ovate; lateral sepals 1.7–1.8 cm long and wide; upper sepal navicular, ca. 2 cm wide, lower margin concave, ca. 1 cm high. Petals slightly curved, glabrous; limb ca. 5 mm; lip strongly reflexed, ca. 1 mm; spur cup-shaped. Stamens glabrous or sparsely pubescent; filaments 2-denticulate. Carpels 4 or 5, glabrous. Follicles unknown. Immature seeds smooth, not lamellate. Fl. Jul–Aug.

• Grassy slopes, wet and alpine grasslands; 2700–3600 m. SW Gansu, SE Qinghai, SE Xizang.

25. *Aconitum spiripetalum* Handel-Mazzetti, Acta Horti Gothob. 13: 91. 1939.

螺瓣乌头 luo ban wu tou

Caudex unknown. Stem 18–45(–70) cm tall, simple or branched, retrorse and appressed pubescent. Basal leaves 7–9, long petiolate; petiole 2.5–9.5 cm; leaf blade orbicular or orbicular-reniform, 2.2–5.2(–6.2) cm, 3-parted. Cauline leaves 1 or 2, usually shortly petiolate, smaller than basal leaves. Inflorescence terminal, 2–5-flowered; rachis densely retrorse pubescent; basal bracts leaflike or 3-fid, distal bracts linear. Pedicels 1–3.5 cm, retrorse white and spreading yellowish pubescent, with 2 bracteoles at middle or above; bracteoles linear, 2–7 mm. Sepals pale blue or dark purple, abaxially sparsely pubescent; lower sepals 1.2–1.5 cm; lateral sepals 1.4–1.8 cm; upper sepal navicular-galeate. Petals glabrous; claw slender, apex spirally curved; limb very short, ca. 1.5 mm; lip indistinct; spur subglobose, short. Stamens pubescent; filaments pubescent, entire. Carpels 5, sparsely spreading villous. Follicles ca. 1.5 cm. Seeds obovate, ca. 2.5 cm, smooth. Fl. Aug–Sep.

• Grassy slopes; 3600–4300 m. W Sichuan.

26. *Aconitum naviculare* (Brühl) Stapf, Ann. Roy. Bot. Gard. (Calcutta) 10: 154. 1905.

船盔乌头 chuan kui wu tou

Aconitum ferox Wallich var. *naviculare* Brühl, Ann. Roy. Bot. Gard. (Calcutta) 5: 111. 1896.

Caudex carrot-shaped or fusiform, small, 0.8–1.5 cm. Stem 5–30(–45) cm tall, simple or basally branched, basally glabrous, apically sparsely retrorse and appressed pubescent. Basal leaves long petiolate; petiole 2.5–14 cm, glabrous, base without distinct sheath; leaf blade reniform-pentagonal or reniform, 1–2 × 1.4–3 cm, abaxially glabrous, adaxially sparsely pubescent, 3-parted nearly to middle; central lobe rhombic-obtrapezoid; lateral lobes obliquely flabellate, unequally 2-fid nearly to middle. Cauline leaves 1–3, shortly petiolate. Inflorescence 1–5-flowered; rachis and pedicels retrorse pubescent; proximal bracts leaflike, others linear. Proximal pedicels 2.5–6 cm, distal ones ca. 2 cm, with 2 distal bracteoles or bordering flower, bracteoles linear, 6–7 × 0.5–1 mm. Sepals violet or purple, abaxially sparsely pubescent; lower sepals ca. 1 cm; lateral sepals ca. 1.6 cm; upper sepal navicular, ca. 1.6 cm from base to beak, lower margin slightly concave or suberect. Petals glabrous; claw slender; limb small, ca. 2.5 mm; lip ca. 1.5 mm, slightly concave; spur ± headlike, ca. 1 mm, slightly concave. Stamens sparsely pubescent; filaments sparsely pubescent, entire or 2-denticulate. Carpels 5, sparsely pubescent. Follicles 1–1.2 cm. Seeds obpyramidal, ca. 2 mm. Fl. Sep.

Scrub forests, grassy slopes; 3200–5000 m. S Xizang [Bhutan, Sikkim].

27. *Aconitum creagromorphum* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 12. 1963.

叉苞乌头 cha bao wu tou

Caudex unknown. Stem 3–10 cm tall, simple, white pubescent, basally usually glabrous. Leaves numerous, subbasal, long petiolate; petiole 2–8 cm; leaf blade cordate-orbicular or cordate-reniform, 1.5–3.5 × 1.5–3.5 cm, abaxially glabrous or sparsely pubescent at veins, adaxially pubescent, 3-parted; lobes obovate or cuneate, 3-fid, sometimes unlobed, margin incised-dentate. Inflorescence 1–3-flowered; bracts sessile, leaflike. Pedicels suberect upward, 2–7 cm, spreading white pubescent, usually distally with 2 bracteoles; bracteoles 1.5–4 mm, 3-fid; lobes narrowly long, with long stipes 0.8–1.2 cm. Sepals pale red-purple or purple-blue, pubescent; lower sepals elliptic or obovate, 1–3 cm; lateral sepals broadly obovate-orbicular, to 2 cm; upper sepal navicular, ca. 2 cm from base to beak, lower margin suberect. Petals glabrous, 1.5–1.8 cm; claw slender; lip liguliform, ca. 2.2 mm, slightly concave; spur slightly curved, headlike, ca. 1 mm. Stamens sparsely pubescent, ca. 5 mm; filaments entire. Carpels 5, densely pubescent. Fl. Oct.

• Alpine grasslands; 4600–4700 m. S Xizang (Cona Xian, Nang Xian).

28. *Aconitum rotundifolium* Karelin & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 15: 138. 1842.

圆叶乌头 *yuan ye wu tou*

Caudices in pairs, ca. 2 cm. Stem 15–42 cm tall, simple or branched, sparsely retrorse and appressed pubescent. Proximal cauline leaves 3 or 4, long petiolate; petiole 4.2–20 cm, retrorse pubescent, base sheathed; leaf blade orbicular-reniform, 2–5.8 × 3–6.5 cm, both surfaces glabrous or veins and leaves pubescent at margin, 3-parted; central lobe obtuse-trapezoid, 3-lobed, lobes several ovate-lobulate or orbicular-dentate; lateral lobes flabellate, unequally 3-lobed slightly beyond middle. Inflorescence 3–5-flowered; rachis and pedicels appressed or spreading pubescent; proximal bracts leaflike or 3-lobed, others linear, ca. 1.1 × 0.2 cm. Pedicels 2.5–7 mm, with 2 bracteoles at or above middle; bracteoles linear, 5–7 × ca. 0.6 mm. Sepals purplish, abaxially pubescent; lower sepals ca. 1.1 cm; lateral sepals obliquely obovate, 1.3–1.6 cm; upper sepal falcate or navicular-falcate, lower margin 1.4–1.8 cm. Petals glabrous; limb very short, 1–5 mm, lower part 2-fid; spur slightly curved, headlike. Stamens sparsely pubescent; filaments entire. Carpels 5, densely white pubescent. Follicles 0.9–1.3 cm. Seeds obovate, 2.5–3 mm. Fl. Aug.

Alpine grasslands; ca. 3100 m. Xinjiang [?Afghanistan, Kashmir, ?Nepal, Russia (C Asian Region)].

29. *Aconitum changianum* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, *Addit.* 1: 94. 1965.

察瓦龙乌头 *cha wa long wu tou*

Caudex carrot-shaped, ca. 1.8 cm, ca. 5 mm in diam. Stem 20–35 cm, simple or 1-branched below inflorescence, retrorse and appressed pubescent, with 4 cauline leaves equally arranged along stem. Basal leaves 2 or 3, and most proximal cauline leaves long petiolate; petiole 6–7.5 cm, nearly glabrous; leaf blade pentagonal-reniform, 2.4–2.7 × ca. 5 cm, abaxially glabrous, adaxially sparsely appressed pubescent, base cordate, 3-parted; central lobe obovate-rhombic, apically 3-sect, lobes 1- or 2-lobulate or dentate; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence 4–10 cm, 2–5-flowered; rachis and pedicels slightly spreading yellow pubescent; bracts leaflike. Pedicels 2–4.6 cm, with 2 bracteoles at middle or base, bracteoles 4–5 mm, lowermost ones 3-fid, others linear. Sepals violet, both surfaces sparsely pubescent; lateral sepals ca. 1.4 cm; upper sepal galeate, ca. 9 mm high, shortly beaked, 1.5–1.8 cm from base to beak, lower margin slightly concave; lower sepals ca. 1.2 cm. Petals ca. 2 cm, sparsely pubescent; limb ca. 7 × 2 mm; lip ca. 2.5 mm; spur incurved, ca. 2 cm, sparsely pubescent. Stamens glabrous; filaments 2-denticulate. Carpels 3, densely yellow villous. Fr. Aug.

• Mountain slopes; ca. 3500 m. SE Xizang (Zayü Xian), ?Yunnan.

30. *Aconitum longipetiolatum* Lauener, *Notes Roy. Bot. Gard. Edinburgh* 25: 11. 1963.

长柄乌头 *chang bing wu tou*

Caudex ovate or carrot-shaped, 2.5–3 cm, ca. 1 cm in diam. Stem erect, to 60 cm tall, simple, basally

becoming glabrous, apically retrorse pubescent. Leaves long petiolate; petiole ca. 3 × as long as blade, glabrous; leaf blade orbicular-pentagonal, 3–7 × 4–8 cm, 3-parted nearly to base; central lobe broadly rhombic, 3-fid ± to middle, margin with several narrowly ovate to ovate lobules; lateral lobes ca. 2 × as wide as central lobe, unequally 2-parted. Inflorescence to 16 cm, many flowered, sometimes only 1-flowered, rachis and pedicels retrorse pubescent; bracts nearly sessile, leaflike, pubescent. Pedicels to 4.5 cm, with 2 bracteoles above middle; bracteoles leaflike, broadly ovate, to 1 cm. Sepals blue-violet, pubescent; lower sepals oblong or elliptic, 1–1.2 × ca. 0.5 cm; lateral sepals obliquely broadly obovate, ca. 1.7 × 0.8 cm; upper sepal navicular, ca. 2 cm high, shortly beaked, lower margin suberect or slightly concave. Petals ca. 2 cm, pubescent; claw curved, slender; lip slightly concave at apex; spur incurved, ca. 1.5 mm. Stamens pubescent distally; filaments entire. Carpels 5–7, densely sericeous. Fr. Aug–Sep.

• Forests, by streams; 4000–4700 m. SE Xizang.

31. *Aconitum ichangense* (Finet & Gagnepain) Handel-Mazzetti, *Acta Horti Gothob.* 13: 111. 1939.

巴东乌头 *ba dong wu tou*

Aconitum semigaleatum Pallas ex Reichenbach var. *ichangense* Finet & Gagnepain, *Bull. Soc. Bot. France* 51: 511. 1904.

Caudex narrowly obconical, ca. 1.6 cm. Stem 14–30 cm tall, slightly zigzag, branched or simple, spreading pubescent, distally subcorymbose, with 3–5 leaves equally arranged along stem. Basal leaves 1 or 2, and proximal cauline leaves long petiolate; petiole 5–10 cm; leaf blade reniform-pentagonal, 2–2.8 × 4–5.4 cm, 3-parted; central lobe rhombic-obovate, 3-lobed, upper margin obtuse-dentate; lateral lobes obliquely flabellate, unequally 2-fid slightly beyond middle. Flower solitary, terminal; rachis and pedicels spreading pubescent. Pedicels 4–8 cm, distally with 2 bracteoles; bracteoles elliptic, ca. 7 mm. Sepals yellowish, abaxially sparsely pubescent; lower sepals broadly or narrowly elliptic; lateral sepals orbicular-obovate, ca. 1.6 cm; upper sepal navicular or navicular-galeate, beaked, 2–2.3 cm from base to beak. Petals glabrous; limb ca. 7 mm; lip ca. 3 mm; spur incurved, ca. 2 mm. Stamens glabrous; filaments entire. Carpels 3, white pubescent.

• W Hubei.

32. *Aconitum iochanicum* Ulbrich, *Bot. Jahrb. Syst.* 48: 616. 1913.

滇北乌头 *dian bei wu tou*

Caudex subglobose or terete, 0.8–2.5 cm, 3.5–5 mm in diam. Stem 10–30 cm tall, simple, basally sparsely retrorse and appressed pubescent or becoming glabrous, apically densely pubescent, 2–5-leaved. Basal leaves ca. 2, and proximal cauline leaves long petiolate; petiole 4–9 cm, sparsely pubescent; leaf blade orbicular-

pentagonal, 1.2–2 × 2–3.4 cm, both surfaces sparsely yellow pubescent, 3-parted; central lobe broadly rhombic or flabellate-rhombic, 3-sect; lateral lobes obliquely flabellate, unequally 2-fid ± to middle. Inflorescence 1–4-flowered; rachis and pedicels densely spreading and retrorse yellow pubescent; proximal bracts 3-fid, distal ones subulate, very small. Pedicels suberect upward, 1.2–4 cm, with 2 bracteoles at middle or below; bracteoles linear, ca. 0.8 mm. Sepals yellow, abaxially sparsely yellow pubescent; lateral sepals 1.3–1.5 cm; upper sepal galeate or navicular-galeate, shortly beaked, 1.8–2 cm from base to beak, lower margin suberect or slightly concave. Petals glabrous; limb ca. 8 mm; lip slightly concave; spur 1.2–2.5 mm, spreading backward. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3 or 5, densely yellow villous. Fl. Aug–Oct.

• Grassy slopes; 3700–3800 m. NE Yunnan.

33. *Aconitum alpinonepalense* Tamura, Acta Phytotax. Geobot. 23: 100. 1968.

高峰乌头 gao feng wu tou

Caudex narrowly obovate-globose, ca. 1.5 cm, ca. 7 mm in diam. Stem 10–30 cm, simple, sparsely retrorse pubescent. Basal leaves long petiolate; petiole to 55 cm, sparsely retrorse pubescent; leaf blade reniform, ca. 1.7 × 3 cm, papery, both surfaces glabrous, 3-parted to ca. 2.5 mm from base; central lobe cuneate, 3-sect; lateral lobes obliquely flabellate, unequally 2-parted. Cauline leaves ca. 3, those below middle similar to basal ones; distal leaves subsessile, small, 3-sect; lobules linear. Inflorescence 1–3-flowered; bracts leaflike. Pedicels 1.5–4(–5.5) cm, retrorse white pubescent and spreading yellow pubescent, distally with 2 bracteoles; bracteoles subulate, 2.5–3 mm. Sepals blue-purple, abaxially sparsely pubescent; lateral sepals 1.7–1.9 cm; upper sepal navicular-galeate or navicular, 2–2.5 × ca. 1 cm from base to beak; lower sepals ca. 1.7 cm. Petals sparsely pubescent; lip ca. 4 mm; spur very short, indistinct. Stamens densely pubescent distally; filaments entire. Carpels 5, densely yellow villous. Fl. Aug–Sep.

• Mountain slopes; ca. 4700 m. S Xizang (Nyalam Xian).

34. *Aconitum pulchellum* Handel-Mazzetti, Kaiserl. Akad. Wiss. Wien, Math.-Naturwiss. Kl., Anz. 62: 219. 1925.

美丽乌头 mei li wu tou

Caudex obconical, small, ca. 7 mm. Stem 6–30(–50) cm, simple, glabrous or spreading pubescent, with 1 or 2 leaves. Basal leaves 2 or 3, long petiolate; petiole 2.5–14.5 cm, glabrous, base shortly sheathed; leaf blade orbicular-pentagonal, 1–2 × 2–3.5 cm, 3-sect or -parted nearly to base; ultimate lobes narrowly ovate or orbicular-linear, 1–3 mm wide. Cauline leaves 1 or 2, at middle or below, shortly petiolate. Inflorescence 1–9-flowered; proximal bracts leaflike, distal ones linear. Pedicels 2–6 cm, retrorse pubescent, distally with few spreading hairs, with 2 bracteoles at middle; bracteoles linear, 3–5 mm. Sepals blue, adaxially sparsely

pubescent or nearly glabrous; lateral sepals 1.3–1.6 cm; upper sepal galeate-navicular or galeate, 1.7–2 cm from base to beak. Petals glabrous or sparsely pubescent; lip ca. 3 mm, slender; spur curved, ca. 1.5 mm. Stamens glabrous or sparsely pubescent; filaments entire. Carpels 5, spreading yellow pubescent. Fr. Aug–Sep. $2n = 16^*$.

Scrub, grassy slopes, alpine areas; 3500–4500 m. SW Sichuan, SE Xizang, NW Yunnan [Bhutan, Myanmar, ?Nepal, Sikkim].

- 1a. Stem spreading pubescent; inflorescence 5–9-flowered; stamens sparsely pubescent 34c. var. *racemosum*
- 1b. Stem glabrous; inflorescence 1–4-flowered; stamens glabrous.
 - 2a. Petaline spur glabrous 34a. var. *pulchellum*
 - 2b. Petaline spur sparsely pubescent 34b. var. *hispidum*

34a. *Aconitum pulchellum* var. *pulchellum*

美丽乌头(原变种) mei li wu tou (yuan bian zhong)

Stem glabrous. Inflorescence 1–4-flowered. Petaline spur glabrous. Stamens glabrous.

Grassy slopes, 3500–4500 m. SW Sichuan, SE Xizang, NW Yunnan [Bhutan, Myanmar, Sikkim].

34b. *Aconitum pulchellum* var. *hispidum* Lauener, Notes Roy. Bot. Gard. Edinburgh 23: 10. 1963.

毛瓣美丽乌头 mao ban mei li wu tou

Stem glabrous. Inflorescence 1–4-flowered. Petaline spur sparsely pubescent. Stamens glabrous.

• Scrub; 4000–4500 m. SE Xizang, NW Yunnan.

34c. *Aconitum pulchellum* var. *racemosum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 605. 1979.

长序美丽乌头 chang xu mei li wu tou

Stem spreading pubescent. Inflorescence 5–9-flowered. Stamens sparsely pubescent.

• Alpine areas on mountains; ca. 4200 m. NW Yunnan (Dêqên Xian).

35. *Aconitum hamatipetalum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 95. 1965.

钩瓣乌头 gou ban wu tou

Caudex carrot-shaped or obconical, small, to 1.5 cm. Stem 13–36 cm tall, glabrous. Basal leaves 1–3, long petiolate; petiole 4–14 cm; leaf blade orbicular-pentagonal, 1–1.5 × 2.2–4 cm, 3-sect or -parted nearly to base; ultimate lobes narrowly ovate or lanceolate, 1.5–4 mm wide. Inflorescence 2- or 3-flowered; bracts broadly linear. Pedicels 1–5 cm, with 2 bracteoles at middle; bracteoles linear. Sepals blue-purple; lower sepals broadly elliptic, slightly oblique; lateral sepals 1.3–1.6 cm; upper sepal navicular-galeate, shortly beaked, lower margin suberect or slightly concave, 2–2.5 cm. Petals 9–10 mm, glabrous; claw narrowly hooklike at apex and decurved. Stamens pubescent; filaments entire. Carpels 5, densely spreading pubescent; persistent style glabrous, nearly 2-fid at apex. Fr. Aug–Sep.

• Grasslands; ca. 4000 m. NW Yunnan.

36. *Aconitum sinchiangense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 605. 1979.

新疆乌头 xin jiang wu tou

Caudex unknown. Stem 25–30 cm, simple, sparsely pubescent. Basal leaves ca. 10, long petiolate; petiole 5–10 cm, glabrous; leaf blade semilunate or orbicular-pentagonal, 3–5.5 × 3.6–7 cm, 3-sect or -parted nearly to base; central segment obliquely flabellate, unequally 2-parted, both surfaces glabrous. Cauline leaf petiole 1–2.8 cm; leaves smaller above, ultimate lobes 1–2 mm wide. Inflorescence to 10 cm, 3–12-flowered; rachis and pedicels sparsely spreading pubescent; basal bracts leaflike, others linear. Proximal pedicels to 6 mm, distal ones 1–3 mm, with 2 bracteoles at middle; bracteoles subulate, 2.5–4 mm. Sepals purple-blue, adaxially subglabrous; lateral sepals 1.2–1.5 cm; upper sepal falcate-navicular, 1.6–2 cm from base to beak, lower margin arciform-curved. Petals glabrous, ca. 2 cm; limb linear, 5.6–6.5 × ca. 1.4 mm; spur subglobose, 0.6–0.9 mm. Stamens glabrous. Carpels 5, glabrous. Fr. Aug.

• Mountain slopes; ca. 2600 m. Xinjiang.

37. *Aconitum coriophyllum* Handel-Mazzetti, Kaiserl. Akad. Wiss. Wien, Math.-Naturwiss. Kl., Anz. 62: 220. 1925.

厚叶乌头 hou ye wu tou

Caudex terete, to 10 cm, ca. 1 cm diam. Stem 23–95 cm tall, simple or shortly branched below inflorescence, densely pubescent, sparsely 1- or 2-leaved. Basal leaves 1–3, long petiolate; petiole 18–21 cm; leaf blade suborbicular, 7–10 × 10–21 cm, subleathery, both surfaces becoming glabrous, base deeply cordate, 3-parted to subbase; central lobe broadly obtuse-trapezoid, 3-lobed, margin dentate; lateral lobes flabellate, 2-lobed to middle. Cauline leaves shortly petiolate, small. Inflorescence ca. 15 cm, sparsely flowered; rachis and pedicels densely spreading pubescent; bracts small, lowermost 3-fid, distal ones lanceolate. Proximal pedicels to 2 cm, to 4 cm at fruiting, distal ones shorter, with 2 bracteoles at middle; bracteoles linear-lanceolate, small. Sepals green-yellow, both surfaces spreading pubescent; lower sepals ca. 1 cm; lateral sepals ca. 1.1 cm; upper sepal oblique upward, galeate-navicular, lower margin slightly concave, 2.2–2.4 cm. Petals sparsely pubescent; lip small, slightly concave; spur incurved, saccate, short. Stamens glabrous; filaments entire. Carpels 5, densely hispid. Follicles erect, ca. 2 cm. Seeds 3–3.5 mm wide. Fl. Oct.

• Mountains; ca. 2600 m. NW Yunnan (Zhongdian Xian).

38. *Aconitum nagarum* Stapf, Ann. Roy. Bot. Gard. (Calcutta) 10: 176. 1905.

保山乌头 bao shan wu tou

Caudex subterete or carrot-shaped. Stem 50–70(–100) cm tall, simple or branched, basally becoming glabrous, apically sparsely curved and appressed pubescent. Basal leaves and subbasal cauline leaves long petiolate; petiole to 48 cm, nearly glabrous, base shortly sheathed; leaf blade pentagonal-reniform, 5–8.5 × 10–15 cm,

papery or leathery, abaxially sparsely appressed pubescent, adaxially nearly glabrous, 3-sect, sometimes nearly to base; central segment rhombic or obovate-rhombic, 3-fid, ultimate lobes narrowly ovate or narrowly lanceolate; lateral segment obliquely flabellate, unequally 2-parted. Cauline leaves 1–3, similar to basal ones but smaller. Inflorescence narrowly long, 12–30 cm, 6–25-flowered; proximal bracts leaflike, distal ones narrowly ovate; rachis and pedicels densely curved and appressed white pubescent. Pedicels 2–4.5 cm, proximally with 2 bracteoles; bracteoles narrowly ovate, 3–4 mm. Sepals blue-purple, abaxially white pubescent; lower sepals ca. 1.1 cm; lateral sepals orbicular-obovate, ca. 1.2 cm; upper sepal navicular-galeate, oblique upward, shortly clawed, shortly beaked, ca. 1.8 cm from base to beak, lower margin slightly concave. Petals glabrous; limb ca. 7 mm; lip ca. 2.5 mm; spur incurved, ca. 1.5 mm or ecalcarate. Stamens glabrous; filaments entire. Carpels 5, densely white pubescent. Fl. Oct. $2n = 16^*$.

Forest margins, scrub, grassy slopes; 1800–3800 m. Yunnan [NE India, N Myanmar].

- 1a. Filaments yellow pubescent distally; caudex carrot-shaped; stem ca. 50 cm tall 38c. var. *lasiandrum*
- 1b. Filaments glabrous; caudex terete; stem 70–100 cm tall.
 - 2a. Rachis and pedicels densely curved and appressed white pubescent; ovary densely white pubescent 38a. var. *nagarum*
 - 2b. Rachis and pedicels curved white pubescent and spreading glandular pubescent; ovary densely yellow or yellowish pubescent or glabrous 38b. var. *heterotrichum*

38a. *Aconitum nagarum* var. *nagarum*

保山乌头(原变种) bao shan wu tou (yuan bian zhong)

Aconitum nagarum f. *ecalcaratum* (Airy-Shaw) W. T. Wang; *A. nagarum* var. *ecalcaratum* (Airy-Shaw) Airy-Shaw; *A. venatorium* Diels; *A. venatorium* var. *ecalcaratum* Airy-Shaw.

Caudex terete. Stem 70–100 cm tall. Rachis and pedicels densely curved and appressed white pubescent. Filaments glabrous. Ovary densely white pubescent.

Scrub, grassy slopes; 1800–3000 m. Yunnan [NE India, N Myanmar].

38b. *Aconitum nagarum* var. *heterotrichum* H. R. Fletcher & Lauener, Notes Roy. Bot. Gard. Edinburgh 20: 203. 1950.

小白撑 xiao bai cheng

Aconitum acaule Diels; *A. bullatifolium* H. Léveillé; *A. bullatifolium* var. *dielsianum* (Airy-Shaw) H. R. Fletcher & Lauener; *A. bullatifolium* var. *leiocarpum* W.

T. Wang; *A. dielsianum* Airy-Shaw; *A. nagarum* var. *heterotrichum* f. *dielsianum* (Airy-Shaw) W. T. Wang; *A. nagarum* var. *heterotrichum* f. *leiocarpum* (W. T. Wang) W. T. Wang.

Caudex terete. Stem 70–100 cm tall. Rachis and pedicels curved white pubescent and spreading glandular pubescent. Filaments glabrous. Ovary densely ± yellow pubescent or glabrous.

• Forest margins, grassy slopes; 2500–3800 m. Yunnan.

38c. *Aconitum nagarum* var. *lasiandrum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 605. 1979.

宣威乌头 *xuan wei wu tou*

?*Aconitum subrosulatum* Handel-Mazzetti.

Caudex carrot-shaped. Stem ca. 50 cm tall. Filaments yellow pubescent distally.

• About 2800 m. Yunnan (Xuanwei Xian).

39. *Aconitum duclouxii* H. L veill , Repert. Spec. Nov. Regni Veg. 7: 99. 1909

宾川乌头 *bin chuan wu tou*

Caudex carrot-shaped, ca. 6 cm, ca. 2 cm in diam. Stem 50–100 cm, simple or branched, basally glabrous, apically sparsely retrorse pubescent. Proximal cauline leaves long petiolate; petiole 36–40 cm, nearly glabrous, base shortly sheathed; leaf blade reniform-pentagonal, 12–20 × 16–30 cm, herbaceous, abaxially glabrous, adaxially sparsely pubescent, 3-sect; central segment long stipitate, triangular, ultimate lobes linear-lanceolate or narrowly triangular; middle cauline leaf 1, shortly petiolate, smaller. Inflorescence ca. 40 cm, many flowered; rachis and pedicels densely retrorse white pubescent and spreading yellow pubescent; basal bracts leaflike, others ovate. Pedicels 2–4.5 cm, with 2 bracteoles at middle or below; bracteoles elliptic or ellipsoid-ovate, 0.8–1.4 cm × 4–4.5 mm. Sepals purple, abaxially mixed white and yellow pubescent; lower sepals ca. 1.4 cm; lateral sepals ca. 1.5 cm; upper sepal navicular-galeate, 1.8–2 cm from base to beak. Petals glabrous; limb ca. 1 cm; lip ca. 5 mm; spur ca. 1 mm. Stamens glabrous; filaments 2-denticulate. Carpels 5, yellowish pubescent. Fl. Sep.

• Mountain slopes, forest margins; 3400–4000 m. Yunnan (Jianchuan Xian).

1a. Petals with a spur ca. 1 mm 39a. var. *duclouxii*

1b. Petals ecalcarate 39b. var. *ecalcaratum*

39a. *Aconitum duclouxii* var. *duclouxii*

宾川乌头(原变种) *bin chuan wu tou* (*yuan bian zhong*)

Aconitum nagarum Stapf var. *acaule* (Finet &

Gagnepain) Q. E. Yang; *A. napellus* Linnaeus var.

acaule Finet & Gagnepain.

Petals with a spur ca. 1 mm.

• Forest margins; ca. 3400. NW Yunnan.

39b. *Aconitum duclouxii* var. *ecalcaratum* H. R. Fletcher & Lauener, Notes Roy. Bot. Gard. Edinburgh 20: 190. 1950.

无距宾川乌头 *wu ju bin chuan wu tou*

Petals ecalcarate.

• Mountain slopes, forest margins; ca. 4000 m. Yunnan (Jianchuan Xian).

40. *Aconitum hicksii* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 5. 1963.

同夏乌头 *tong jia wu tou*

Caudex carrot-shaped, 5–8 cm, 0.7–1.3 cm in diam.

Stem ca. 85 cm, simple, glabrous. Proximal cauline leaves withered at anthesis, middle leaves long petiolate;

petiole ca. 7 cm, glabrous; leaf blade cordate-

pentagonal, ca. 7 × 8 cm, 3-sect; central segment

broadly rhombic, subpinnatifid, ultimate lobes narrowly

ovate or narrowly triangular; lateral segments obliquely

flabellate, unequally 2-parted. Inflorescence ca. 18 cm,

ca. 10-flowered; rachis and pedicels densely spreading

yellow pubescent; proximal bracts leaflike, others ovate,

ca. 8 mm. Pedicels suberect upward, 1.5–3.5 cm, with 2

bracteoles at middle; bracteoles ovate or broadly ovate,

ca. 5.5 × 4 mm, apex rounded; lower sepals ca. 1.2 cm;

lateral sepals broadly obovate, ca. 1.3 cm; upper sepal

galeate, ca. 2 cm high, ca. 1.5 cm from base to beak.

Petals glabrous; lip slightly concave at apex; spur in-

curved, short. Stamens glabrous; filaments entire.

Carpels 5, yellow pubescent. Follicles 1.2–1.4 cm.

Seeds triquetrous, 2.5–3 mm. Fl. Aug.

On slopes; 3200–4000 m. S Xizang (Cona Xian) [Bhutan].

41. *Aconitum jilongense* W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 32(5): 469. 1994.

吉隆乌头 *ji long wu tou*

Tuber unknown. Stem 50–60 cm, simple, basally appressed and retrorse pubescent, medially spreading

pubescent. Proximal cauline leaves withered at anthesis;

middle ones long petiolate; petiole 5–17 cm; leaf blade

pentagonal, ca. 10 × 13 cm, papery, both surfaces

pubescent, base cordate, 3-parted; central lobe broadly

rhombic, 3-fid; lateral lobes obliquely flabellate,

unequally 2-parted to middle. Inflorescence terminal, ca.

28 cm, many flowered; rachis and pedicels retrorse

pubescent; proximal bracts leaflike, distal ones

narrowly ovate or ovate-lanceolate, ca. 1.1 cm. Pedicels

1–2.3 cm, with 2 bracteoles at middle; bracteoles ovate

or broadly ovate, ca. 8 × 4 mm. Sepals purple, abaxially

pubescent; lower sepals oblong, ca. 1.2 × 0.6 cm; lateral

sepals obliquely broadly obovate, ca. 1.3 × 1.5 cm;

upper sepal galeate, ca. 1.2 cm high, ca. 2 cm from base

to beak; beak short, ca. 2 mm. Petals sparsely pilose, ca.

2.4 cm; limb ca. 9 mm; lip ca. 4 mm, 2-lobed at apex;

spur ca. 1.5 mm. Stamens glabrous; filaments entire.

Carpels 5, appressed pubescent. Fl. Aug–Sep.

• Alpine scrub; ca. 3800 m. Xizang (Gyirong Xian).

42. *Aconitum bracteolatum* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 6. 1963.

宽苞乌头 *kuan bao wu tou*

Caudex unknown. Stem appressed pubescent. Leaves

glabrous, proximal cauline leaves with petiole 6–12 cm;

leaf blade cordate-pentagonal, ca. 6.5×12 cm, 3-sect; central segment broadly rhombic, subpinnatisect, ultimate lobes lanceolate-linear; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence paniclelike, to 35 cm, many flowered; rachis and pedicels retrorse and appressed pubescent; proximal bracts leaflike, distal ones ovate, entire. Pedicels 1–1.5 cm, with 2 bracteoles above middle; bracteoles broadly ovate or suborbicular. Sepals purple, abaxially subglabrous; lower sepals ovate, to 8 mm; lateral sepals obliquely obovate, ca. 1 cm; upper sepal galeate, to 1.5 cm, shortly beaked, to 1.2 cm from base to beak, lower margin slightly suberect. Petals glabrous; lip slightly concave at apex; spur subglobose, short, ca. 1 mm. Stamens glabrous; filaments entire. Carpels 5, appressed pubescent. Fl. Aug–Sep.

• Mountains; ca. 4000 m. SE Xizang.

43. *Aconitum huiliense* Handel-Mazzetti, Symb. Sin. 7: 289. 1931.

会理乌头 *hui li wu tou*

Caudex unknown. Stem ca. 60 cm, simple, apically and inflorescence densely gray pubescent, ca. 10-leaved. Proximal cauline leaves mostly withered at anthesis, long petiolate; distal ones slightly crowded, shortly petiolate; leaf blade orbicular-pentagonal, ca. 6×8 cm, glabrous or sparsely shortly appressed pubescent, base cordate, 3-sect; central segment broadly rhombic, ultimate lobes linear or linear-lanceolate, 2–3 mm wide, apex blunt; lateral segments obliquely flabellate, unequally 2- or 3-parted. Inflorescence ca. 12-flowered; rachis and pedicels spreading and intermixed retrorse pubescent; proximal bracts leaflike, distal bracts ovate, ca. 1 cm, smaller upward, margin entire. Pedicels 1.5–3 cm, with 2 bracteoles above middle; bracteoles oblong. Sepals blue, pubescent; lower sepals ca. 1.6 cm; lateral sepals ca. 1.8 cm; upper sepal navicular-galeate, lower margin ca. 2 cm, concave. Petals glabrous; claw ca. 2 cm; limb ca. 6 mm; lip ca. 5 mm, 2-lobed, nearly ecalcarate. Stamens glabrous; filaments 2-denticulate. Carpels 5, densely yellow pubescent. Fl. Sep.

• Mountains; 3500–3600 m. SW Sichuan (Huili Xian).

44. *Aconitum wolongense* W. T. Wang, Bull. Bot. Res., Harbin 9(2): 1. 1989.

卧龙乌头 *wo long wu tou*

Caudex carrot-shaped, ca. 11 cm, ca. 1.4 cm in diam. Stem ca. 92 cm, apically 1-branched, apically sparsely retrorse and appressed pubescent, ca. 11-leaved. Proximal cauline leaves withered at anthesis, and middle leaves long petiolate; petiole 8–15 cm, glabrous; leaf blade cordate-pentagonal, ca. 6.5×9 cm, papery, abaxially sparsely sericeous at veins, adaxially appressed pubescent at veins, base deeply cordate, 3-parted; central lobe broadly rhombic, subpinnate lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, ca. 3.8 cm, 2- or 3-flowered; rachis and pedicels appressed and retrorse pubescent; bracts

narrowly oblong, to 1.4 cm. Pedicels 0.9–1.3 cm, with 2 bracteoles at distal part or near apex; bracteoles lanceolate-linear or narrowly linear, 3.5–4 mm, glabrous.

Sepals purple-blue; lower sepals obliquely broadly rhombic or elliptic, $1-1.1 \times 0.65-0.9$ cm; lateral sepals obliquely broadly obovate, ca. 1.4×1.5 cm, both surfaces sparsely appressed pubescent, apex truncate-rounded; upper sepal navicular, ca. 1.9 cm from base to beak, abaxially sparsely appressed pubescent. Petals glabrous, ca. 1.5 cm; claw ca. 1.3 cm; limb ca. 4 mm, ecalcarate; lip ca. 1.8 mm, apex slightly concave.

Stamens glabrous; filaments entire. Carpels 6, densely pale brown pubescent. Fl. ?Jul.

• Sichuan (Wenchuan Xian).

45. *Aconitum pseudohuiliense* Chang ex W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 93. 1965.

雷波乌头 *lei bo wu tou*

Caudex carrot-shaped, ca. 6 cm, ca. 5 cm in diam. Stem ca. 1 m tall, simple or 1-branched below inflorescence, basally becoming glabrous, apically sparsely retrorse pubescent, ca. 15-leaved. Proximal cauline leaves withered at anthesis, and middle ones long petiolate; petiole 6–15 cm, nearly glabrous; leaf blade orbicular or orbicular-pentagonal, $4.6-6.4 \times 7.2-9$ cm, both surfaces nearly glabrous, 3-sect; central segment broadly rhombic, ultimate lobes linear-ovate or linear-lanceolate, 3.6–5.5 mm wide, margin entire or with 1 or 2 teeth, apex rounded or blunt, indistinctly shortly acute; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence ca. 30 cm, 8–12 flowered; rachis and pedicels retrorse and appressed pubescent; bracts leaflike, most distal ones obovate. Pedicels 3–8 cm, distally with 2 bracteoles; bracteoles obovate or broadly elliptic, $0.8-1.3$ cm \times 3–5 mm. Sepals blue, abaxially sparsely appressed pubescent; lower sepals ca. 1.4 cm; lateral sepals 1.6–1.8 cm; upper sepal galeate or navicular-galeate, shortly beaked, lower margin 2.1–2.5 cm. Petals glabrous; claw ca. 1.7 cm, upper part curved; limb ca. 8×3 mm, ecalcarate; lip ca. 4 mm. Stamens pubescent; filaments entire or 2-denticulate. Carpels 5, densely appressed pubescent. Fl. Sep.

• Forests; ca. 3800 m. Sichuan (Leibo Xian).

46. *Aconitum sinoaxillare* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 73. 1965.

腋花乌头 *ye hua wu tou*

Caudex subterete, ca. 5 cm, ca. 6 mm in diam. Stem ca. 80 cm, simple, sparsely spreading white pubescent, apically becoming glabrous. Basal leaves and proximal cauline leaves long petiolate, withered at anthesis; petiole 2–3 cm, spreading pubescent; leaf blade pentagonal, $4-4.8 \times 6-7$ cm, both surfaces glabrous, 3-parted nearly to 6 cm from base, central lobe rhombic, apex acuminate; lateral lobes obliquely flabellate, unequally 2-fid nearly to middle. Flower solitary, axillary, 1.5–1.8 cm; rachis and proximal pedicels sparsely spreading pubescent, apically glabrous; bracts

leaflike. Pedicels arciform-curved, 4.5–7 cm, with 2 bracteoles at middle; bracteoles leaflike, shortly stalked, 1.5–1.8 × 1.2–1.7 cm, glabrous. Sepals purple, abaxially glabrous, margin sparsely pubescent; lower sepals ca. 0.8 cm; lateral sepals ca. 0.8 cm; upper sepal navicular-galeate, 1–1.2 cm high, 0.8–1.2 cm from base to beak, lower margin oblique upward, slightly concave. Petals glabrous, ca. 8 mm; claw ca. 3.5 mm; lip ca. 2 mm, slightly concave; spur incurved, ca. 1 mm. Stamens glabrous; filaments entire or indistinctly 2-denticulate. Carpels 3, glabrous. Fl. Aug.

• Mountains; ca. 4000 m. E Xizang (Bomi Xian).

47. *Aconitum jinyangense* W. T. Wang, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 8: 18. 1980.

金阳乌头 *jin yang wu tou*

Caudex narrowly obconical, 3.2–4 cm, 1–1.5 cm in diam. Stem ca. 82 cm, simple, glabrous, many leaved. Leaves long petiolate, petiole 2–6 cm, glabrous or subglabrous, proximal cauline leaves withered at anthesis; leaf blade pentagonal, 3.5–7.5 × 4.5–11.5 cm, herbaceous, both surfaces glabrous, base cordate, 3-sect; central segment rhombic, duplicatosect, ultimate lobes linear or narrowly triangular; lateral segments unequally 2-parted. Inflorescence ca. 15 cm, proximally shortly 2-branched, many flowered; rachis proximally sparsely and distally slightly densely appressed pubescent; bracts leaflike. Pedicels 5–10 mm, densely appressed pubescent, with 2 bracteoles near middle; bracteoles linear, ca. 5 mm, glabrous. Sepals dark purple, abaxially appressed pubescent near base, others glabrous; lower sepals navicular-elliptic; lateral sepals orbicular-obovate, densely ciliate; upper sepal galeate-hemispheric, beaked, lower margin suberect. Petals sparsely pilose; limb ecalcarate at apex; lip reflexed, 2-lobed. Stamens sparsely pilose. Carpels 5, glabrous.

• Grassy slopes. Sichuan (Jinyang Xian).

48. *Aconitum milinense* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 74. 1965.

米林乌头 *mi lin wu tou*

Caudex carrot-shaped, 3.5–4 cm, 5–7 mm in diam. Stem ca. 80 cm, simple, apically sparsely retrorse pubescent, elsewhere becoming glabrous, 12-leaved. Proximal cauline leaves withered at anthesis, middle ones long or shortly petiolate; petiole 2.2–4 cm; leaf blade pentagonal, ca. 7 × 8 cm, abaxially glabrous, adaxially sparsely pubescent or nearly glabrous, 3-parted nearly to 4 mm from base; central lobe broadly rhombic or rhombic, apex acuminate; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence ca. 5 cm, 4- or 5-flowered; rachis and pedicels sparsely spreading pubescent; proximal bracts leaflike, shortly stalked, ca. 2 cm; distal ones small, ca. 4 mm. Pedicels 1.7–2.4 cm, oblique upward, with 2 bracteoles at middle; bracteoles linear-subulate, 2–3 mm; Sepals purple, abaxially sparsely pubescent; lower sepals 0.7–0.9 cm; lateral sepals 0.8–1 cm; upper sepal falcate-

navicular, 1–1.2 cm from base to beak, lower margin oblique upward. Petals ca. 1 cm, glabrous; claw geniculate-curved at apex; lip ca. 4 mm; spur hemispheric, short, ca. 0.5 mm. Stamens glabrous; filaments 2-denticulate, rarely entire. Carpels 3, glabrous. Fl. Aug.

• Mountains; ca. 3900 m. E Xizang (Mainling Xian).

49. *Aconitum brunneum* Handel-Mazzetti, Acta Horti Gothob. 13: 103. 1939.

褐紫乌头 *he zi wu tou*

Caudex ellipsoid-globose or subterete, 1.5–3.5 cm. Stem 85–110 cm, simple or 1-branched below inflorescence, glabrous or nearly so, near inflorescence retrorse pubescent. Proximal cauline leaves long petiolate; petiole 20–25 cm, distal ones shorter, base sheathed; leaf blade reniform or pentagonal, 3.8–6 × 6.5–11 cm, both surfaces glabrous, 3-parted; central lobe obovate, obtrapezoid or rhombic; lateral lobes flabellate, unequally 2-fid near middle. Inflorescence 20–50 cm, 15–30-flowered; rachis and pedicels ± densely retrorse pubescent; lowermost bracts 3-fid, others linear. Pedicels 0.5–2.5(–5.8) cm, with 2 bracteoles proximally to distally; bracteoles narrowly linear, 1.6–4 mm. Sepals brown-purple or gray-purple, ca. 1 cm, sparsely pubescent or nearly glabrous. Petaline limb rounded at apex, ecalcarate; lip ca. 2.5 mm. Stamens glabrous; filaments entire. Carpels 3, sparsely pubescent or glabrous. Follicles 1.2–2 cm, glabrous. Seeds obovate, ca. 2.6 mm. Fl. Aug–Sep. $2n = 16^*$.

• Slopes, *Abies* forests; 3000–4300 m. SW Gansu, SE Qinghai, NW Sichuan.

50. *Aconitum pseudobrunneum* W. T. Wang, Acta Bot. Yunnan. 4: 129. 1982.

小花乌头 *xiao hua wu tou*

Caudex obovoid, ca. 1.2 cm, ca. 5 mm in diam. Stem ca. 50 cm, simple, glabrous. Leaves ca. 10, crowded below or near base, long petiolate; petiole 3.5–13 cm; leaf blade orbicular-reniform or pentagonal, 3.2–3.5 × 5–7 cm, papery, both surfaces glabrous, base cordate, 3-parted; central lobe cuneate-rhombic; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence terminal, ca. 14 cm, 15-flowered; rachis and pedicels densely retrorse pubescent; proximal bracts 3-fid, 7–10 mm, distal ones linear, 2.5–4 mm, glabrous. Pedicels 3–7 mm, with 2 bracteoles at or near base; bracteoles lanceolate-linear, ca. 1.5 mm, glabrous. Sepals purple, abaxially appressed pubescent; lower sepals long elliptic or oblong, 6.5–7.5 × 2.5–4.5 mm; lateral sepals obliquely broadly ovate, 6.5–8.5 × 5–7 mm; upper sepal galeate, 7–11 mm high, long beaked, lower margin ca. 1.1 cm. Petals 0.8–1.2 cm; claw 6.5–8 mm, sparsely pubescent at apex; limb 7–7.5 mm, ecalcarate; lip 4–5 mm, sparsely pubescent at base, apex 2-lobed. Stamens

3.5–5 mm, glabrous; filaments entire. Carpels 3, glabrous. Fl. Aug.

• By streams; 3900–4000 m. W Sichuan (Xiangcheng Xian).

51. *Aconitum bulleyanum* Diels, Notes Roy. Bot. Gard. Edinburgh. 5: 267. 1912.

滇西乌头 *dian xi wu tou*

Caudex obconical, ca. 3.5 cm. Stem ca. 1.2 m, apically branched, basally sparsely pubescent or becoming glabrous, elsewhere glabrous. Proximal leaves long petiolate; petiole 7–12 cm; leaf blade pentagonal, 9–11 × 13–18 cm, abaxially glabrous, adaxially sparsely pubescent or becoming glabrous, 3-parted; central lobe broadly rhombic; lateral lobes obliquely flabellate, unequally 2-fid slightly beyond middle. Inflorescence terminal, ca. 10-flowered; rachis and pedicels glabrous; proximal bracts leaflike, distal ones lanceolate. Pedicels 3–7 cm, with 2 bracteoles on lowermost pedicels; bracteoles lanceolate, 1.5–1.8 cm, others linear-oblong to linear, 0.6–1.4 cm × 0.6–2.5 mm, glabrous. Sepals purple, abaxially glabrous; lower sepals ca. 1.4 cm; lateral sepals ca. 1.6 cm; upper sepal galeate, 1.6–2 cm high, beak ca. 3 mm, lower margin suberect, oblique upward, 1.7–2.1 cm. Petals glabrous; limb ca. 8 mm; lip ca. 3 mm; spur incurved, ca. 1.8 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous. Fl. Jul–Sep. $2n = 16^*$.

• Forest margins, by streams; 3200–3500 m. W Yunnan.

52. *Aconitum spathulatum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 65. 1965.

匙苞乌头 *chi bao wu tou*

Caudex narrowly obconical, ca. 6.8 cm, ca. 2.2 cm in diam. Stem ca. 1 m tall, apically branched, glabrous. Proximal cauline leaves withered at anthesis, middle ones long petiolate; petiole 5.2–10 cm, glabrous; leaf blade reniform-pentagonal, ca. 11 × 14 cm, abaxially glabrous, adaxially sparsely appressed pubescent, 3-parted; central lobe rhombic; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, 14–18 cm, 8–12-flowered; rachis and pedicels glabrous; proximal bracts leaflike, distal ones elliptic. Pedicels 2–5.2 cm, with 2 bracteoles at middle or above, glabrous; bracteoles broadly ovate, 6–12 × 4–8 mm, 3-lobed, others obovate-elliptic or spatulate. Sepals blue, abaxially glabrous; lower sepals 1.5–1.7 cm; lateral sepals 1.8–2.2 cm; upper sepal galeate, 2–2.7 cm high, shortly beaked, lower margin slightly oblique upward, suberect, 2–2.5 cm. Petals glabrous, subequaling sepal; lip ca. 6 mm, slightly concave; spur incurved, ca. 3 mm. Stamens glabrous; filaments 2-denticulate. Carpels (3–)5, glabrous. Fl. Aug–Sep. $2n = 16^*$.

• Forests; ca. 3700 m. Yunnan (Heqing Xian).

53. *Aconitum geniculatum* H. R. Fletcher & Lauener, Notes Roy. Bot. Gard. Edinburgh 20: 201. 1950.

膝瓣乌头 *xi ban wu tou*

Caudex unknown. Stem ca. 1 m tall, branched, glabrous, or yellowish spreading pubescent. Proximal cauline leaves long petiolate; petiole 3–5 cm, glabrous, base sheathed; leaf blade orbicular-pentagonal, 6–10 × 6–10 cm, adaxially sparsely appressed pubescent at veins, base cordate, 3-parted; central lobe rhombic, 3-fid; lateral lobes obliquely flabellate, 2-parted beyond middle. Inflorescence racemose or corymbose, 3–8.5 cm, 2–8-flowered; rachis and pedicels glabrous; bracts leaflike. Pedicel 2–4 cm, with 2 bracteoles at middle; bracteoles linear, 3.5–4.5 mm, glabrous. Sepals blue, abaxially glabrous; lower sepals oblong; lateral sepals broadly obovate, 1.3–1.4 cm, abaxially sparsely pubescent; upper sepal high galeate, ca. 1.6 cm high, lower margin 1.5–1.8 cm. Petals glabrous; claw geniculate at apex; limb ca. 1.1 cm; lip 4.5–5.5 mm, 2-lobed at apex; spur incurved or circinate, 2.5–4.5 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 5, glabrous. Fl. Jul. $2n = 16^*$.

• Mountains, grassy slopes, wet grassy places, by streams; 3200–3600 m. Sichuan, Yunnan.

- 1a. Petaline spur ca. 4.5 mm, circinate; lip ca. 5.5 mm 53d. var. *longicalcaratum*
- 1b. Petaline spur ca. 2.5 mm, incurved; lip ca. 4.5 mm.
 - 2a. Stem yellowish spreading pubescent 53b. var. *unguiculatum*
 - 2b. Stem glabrous.
 - 3a. Upper sepal high galeate 53a. var. *geniculatum*
 - 3b. Upper sepal galeate or lower galeate, oblique, broadest above middle 53c. var. *humilius*

53a. *Aconitum geniculatum* var. *geniculatum*

膝瓣乌头(原变种) *xi ban wu tou* (yuan bian zhong)

Stem glabrous. Upper sepal high galeate. Petaline spur incurved, ca. 2.5 mm; lip ca. 4.5 mm.

• Mountains; ca. 3200 m. NE Yunnan.

53b. *Aconitum geniculatum* var. *unguiculatum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 73. 1965.

爪盔膝瓣乌头 *zhao kui xi ban wu tou*

Stem yellowish spreading pubescent. Petaline spur incurved, ca. 2.5 mm; lip ca. 4.5 mm.

• Grassy slopes; 3500–3600 m. Yunnan (Luquan Xian).

53c. *Aconitum geniculatum* var. *humilius* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 73. 1965.

低盔膝瓣乌头 *di kui xi ban wu tou*

Stem glabrous. Upper sepal galeate or lower galeate, oblique, broadest above middle. Petaline spur incurved, ca. 2.5 mm; lip ca. 4.5 mm.

• Wet grassy places; ca. 3600 m. Sichuan (Puge Xian).

53d. *Aconitum geniculatum* var. *longicalcaratum* M. Li, Acta Phytotax. Sin. 32(2): 192. 1994.

长距膝瓣乌头 *chang ju xi ban wu tou*

Petaline spur circinate, ca. 4.5 mm; lip ca. 5.5 mm.

• By streams; ca. 3200 m. Sichuan (Yuexi Xian).

54. *Aconitum luningense* W. T. Wang in W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 25: 24. 1987.

芦宁乌头 lu ning wu tou

Caudex carrot-shaped or terete, 6.5–8.5 cm, ca. 1 cm in diam. Stem 60–100 cm tall, simple or branched apically, apically spreading pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole ca. 4.5 cm, sparsely spreading pubescent; leaf blade pentagonal, 5–7 × 7–9 cm, papery, abaxially sparsely pubescent at veins, adaxially appressed pubescent, base cordate, 3-parted; central lobe rhombic or broadly rhombic, subpinnately lobed; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, ca. 5 cm, several flowered; rachis and pedicels glabrous; lowermost bracts leaflike, others linear. Pedicels 2–3.5 cm, proximally with 2 bracteoles; bracteoles linear, glabrous. Sepals blue-purple, abaxially glabrous; lower sepals obovate-oblong or linear, ca. 1.2 cm × 1.5–3.5 mm; lateral sepals obliquely broadly obovate, ca. 1.1 × 1.2 cm; upper sepal galeate, ca. 2 cm high, clawed, ca. 1.5 cm from base to beak. Petals ca. 1.5 cm, glabrous; limb ca. 9 mm; lip ca. 5.5 mm; spur circinate, ca. 3.5 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3, glabrous. Fl. Sep.

• Scrub; 3000–3100 m. Sichuan (Mianning Xian).

55. *Aconitum magnibracteolatum* W. T. Wang, Acta Bot. Yunnan. 6: 364. 1984.

巨苞乌头 ju bao wu tou

Caudex ca. 1.6 cm in diam. Stem ca. 80 cm, base sparsely pubescent, elsewhere glabrous. Distal leaves shortly petiolate; petiole ca. 1.5 cm; leaf blade cordate-pentagonal, ca. 5 × 8 cm, papery, abaxially glabrous, adaxially sparsely appressed pubescent, 3-parted; central lobe narrowly rhombic, 3-fid; lateral lobes unequally 2-parted. Inflorescence terminal, ca. 29 cm, 14-flowered; distal rachis retrorse yellowish pubescent, elsewhere glabrous; bracts leaflike, shortly stipitate. Proximal pedicels 7–10 cm, distal ones shorter, sparsely retrorse pubescent; bracteoles 2, leaflike, 1–3.5 × 1–3.5 cm, contiguous with flower. Sepals white or bluish, abaxially appressed pubescent; lower sepals obliquely elliptic or narrowly lanceolate, 1.1–1.3 cm; lateral sepals obliquely rhombic, ca. 1.6 × 0.7 cm, abaxially sparsely villous; upper sepal galeate, with short ca. 1.2 mm beak, lower margin ca. 1.8 cm. Petals ca. 2.1 cm, pilose; claw geniculate at apex; limb ca. 1 cm; lip ca. 3 mm, 2-lobed; spur curved, ca. 1.5 mm. Stamens glabrous; filaments entire, rarely 1-denticulate. Carpels 3, appressed pubescent.

• Grassy slopes; ca. 4100 m. W Sichuan (Yanbian Xian).

56. *Aconitum yangii* W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 25: 25. 1987.

竞生乌头 jing sheng wu tou

Caudex carrot-shaped. Stem ca. 80 cm, shortly branched, basally glabrous, apically sparsely retrorse

and appressed pubescent, or spreading pubescent.

Middle cauline leaves shortly petiolate; petiole 2–3 cm, appressed pubescent; leaf blade orbicular-pentagonal, ca. 6 × 6–8 cm, leathery, abaxially glabrous, adaxially sparsely appressed pubescent, base broadly cordate or truncate-cordate, 3-parted; central lobe rhombic, apex acuminate, 3-fid; lateral lobes obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, ca. 24 cm, ca. 7-flowered; rachis and pedicels retrorse and appressed pubescent; proximal bracts leaflike, distal ones linear. Pedicels 2–6.5 cm, with 2 bracteoles near middle; bracteoles linear, 5–7 mm, sparsely pubescent. Sepals blue, abaxially appressed or spreading pubescent; lower sepals oblong or narrowly oblong, ca. 1.5 × 0.3–0.7 cm; lateral sepals obliquely broadly obovate, ca. 1.6 × 1.9 cm, adaxially sparsely pilose; upper sepal high galeate or galeate, 2–2.2 cm high, not or distinctly clawed, with a 4–5 mm beak, 1.6–2 cm from base to beak, lower margin curved. Petals ca. 2.5 cm, glabrous; claw ca. 2 cm; limb ca. 1.3 cm; lip ca. 6 mm, 2-lobed at apex; spur slightly circinate, ca. 3.5 mm. Stamens glabrous; filaments entire. Carpels 3, densely appressed pubescent. Fl. Aug.

• 3100–3800 m. NW Yunnan (Zhongdian Xian).

- 1a. Stem sparsely retrorse and appressed pubescent apically; sepals abaxially appressed pubescent, upper sepal high galeate, not clawed 56a. var. *yangii*
1b. Stem spreading pubescent; sepals abaxially spreading pubescent, upper sepal galeate, distinctly clawed 56b. var. *villosulum*

56a. *Aconitum yangii* var. *yangii*

竞生乌头(原变种) jing sheng wu tou (yuan bian zhong)

Stem sparsely retrorse and appressed pubescent apically. Sepals abaxially appressed pubescent; upper sepal high galeate, not clawed.

• About 3100 m. NW Yunnan (Zhongdian Xian).

56b. *Aconitum yangii* var. *villosulum* W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 25: 26. 1987.

展毛竞生乌头 zhan mao jing sheng wu tou

Stem spreading pubescent. Sepals abaxially spreading pubescent; upper sepal galeate, distinctly clawed.

• About 3800 m. NW Yunnan (Zhongdian Xian).

57. *Aconitum georgei* H. F. Comber, Notes Roy. Bot. Gard. Edinburgh 18: 223. 1934.

长喙乌头 chang hui wu tou

Caudex carrot-shaped, 8–11 cm, ca. 1.8 cm in diam. Stem 60–150 cm tall, basally glabrous, apically sparsely retrorse and appressed pubescent. Leaves with petiole ca. 3 cm; leaf blade orbicular-pentagonal, ca. 6 × 8 cm, both surfaces glabrous, 3-parted; central lobe subrhombic, subpinnatifid, margin with irregular teeth; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, erect or pendulous, 5–10-flowered, proximally with several short branches, sparsely retrorse pubescent; proximal bracts leaflike, distal ones usually 3-fid. Pedicels and rachis intersected

at obtuse angle, 2.5–3.5 cm, with 2 bracteoles near middle of pedicels; bracteoles linear-lanceolate. Sepals blue-purple, abaxially appressed pubescent; lower sepals ca. 1.6 cm; lateral sepals ca. 1.8 cm; upper sepal high galeate, 2–3 cm high, external margin subvertical, concave, with a 5–8 mm beak, sublevel, lower margin slightly oblique upward, ca. 2 cm. Petals ca. 2.2 cm; limb ca. 1 cm; lip 2-lobed; spur very short, glabrous or sparsely pubescent at apex. Stamens glabrous; filaments entire. Carpels 4 or 5, densely pubescent. Fl. Jul–Sep.

• Forest margins, scrub; 3700–4000 m. NW Yunnan (Lijiang Naxi Zu Zizhixian, Zhongdian Xian).

58. *Aconitum pukeense* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 66. 1965.

普格乌头 pu ge wu tou

Caudex unknown. Stem ca. 1 m tall, several branched below inflorescence, glabrous. Distal leaves shortly petiolate; petiole ca. 3 cm, glabrous; leaf blade pentagonal, ca. 8 × 10 cm, glabrous, base cordate, 3-parted; central lobe rhombic; lateral lobes obliquely flabellate, unequally 2-fid slightly beyond middle. Inflorescence terminal, ca. 18 cm, 10-flowered; rachis and pedicels glabrous; bracts leaflike. Proximal pedicels to 8 cm, distal ones 2–3.5 cm, with 2 bracteoles above middle; bracteoles of proximal pedicels leaflike, shortly petiolate, 3-parted, 0.7–1.7 × 1.1–1.7 cm; distal ones elliptic, obovate, or oblong, smaller, 5–6 × 1.5–3 mm, glabrous, undivided. Sepals dark purple-red; lower sepals ca. 1.1 cm; lateral sepals ca. 1.3 cm; upper sepal galeate, ca. 2 cm high, ca. 1.2 cm wide, glabrous, shortly beaked, lower margin suberect, oblique upward, ca. 2 cm. Petals ca. 2 cm, glabrous; claw geniculate at apex; limb ca. 1.1 × 3 mm; lip ligulate, ca. 5 mm, apex slightly concave; spur ca. 3.5 mm, circinate. Stamens glabrous; filaments entire or 1- or 2-denticulate. Carpels 5, glabrous. Fl. Aug.

• Forests, forested valleys, by streams; 2800–3600 m. Sichuan, NE Yunnan.

- 1a. Leaves glabrous; pedicels to 8 cm, bracteoles near flower or not; carpels 5 58a. var. *pukeense*
- 1b. Leaves adaxially pubescent; pedicels to 2.5 cm; bracteoles bordering or near flower; carpels 3 58b. var. *brevipes*

58a. *Aconitum pukeense* var. *pukeense*

普格乌头(原变种) pu ge wu tou (yuan bian zhong)

Leaves glabrous. Pedicels to 8 cm. Bracteoles near flower or not. Carpels 5.

• Forested valleys, by streams; 3400–3600 m. SW Sichuan, NE Yunnan.

58b. *Aconitum pukeense* var. *brevipes* W. T. Wang, *Bull. Bot. Res.*, Harbin 3(1): 26. 1983.

短梗普格乌头 duan geng pu ge wu tou

Leaves pubescent adaxially. Pedicels relatively short, to 2.5 cm. Bracteoles bordering or near flower. Carpels 3.

• Forests; ca. 2800 m. Sichuan (Yuexi Xian).

59. *Aconitum shimianense* W. T. Wang, *Acta Bot. Yunnan* 6: 366. 1984.

石棉乌头 shi mian wu tou

Caudex obconical or conical, 2–4 cm, slender, 0.8–1.8 cm in diam. Stem ca. 60 cm, 6–9 mm in diam., apically 1-branched or simple, sparsely retrorse pubescent. Middle cauline leaves with petiole 2.2–4 cm, retrorse yellowish pubescent; leaf blade cordate-pentagonal, ca. 9 × 12 cm, herbaceous, abaxially subglabrous, adaxially sparsely appressed pubescent, 3-parted; central lobe rhombic, apex acuminate, 3-fid; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, 7–10 cm, ca. 6-flowered; rachis sparsely retrorse pubescent; bracts leaflike, 3–7.5 cm. Pedicels 3–6 cm, glabrous, with 2 bracteoles near or above middle; bracteoles usually linear, 4–6 mm, glabrous, rarely proximal ones leaflike, ca. 1.8 cm. Sepals blue-purple, ca. 1.6 cm, concave, beak indistinct; lower sepals narrowly ovate or narrowly elliptic, 1–1.3 cm; lateral sepals obliquely obovate, ca. 15 × 1.2 cm. Petals ca. 1.5 cm, glabrous; claw ca. 1 cm; lip ca. 4 mm; spur recurved, ca. 2.5 mm. Stamens glabrous; filaments 2-denticulate. Carpels 5, glabrous.

• Scrub; 3500–3800 m. Sichuan (Shimian Xian).

60. *Aconitum pomeense* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 67. 1965.

波密乌头 bo mi wu tou

Caudex unknown. Stem branched, spreading yellowish pubescent. Distal leaves shortly petiolate; petiole ca. 1 cm, spreading pubescent; leaf blade ovate-pentagonal, ca. 4 × 4 cm, abaxially glabrous, adaxially sparsely pubescent at veins, base cordate, 3-parted; central lobe rhombic, 3-fid to middle, subpinnatifid; lateral lobes obliquely flabellate, unequally 2-parted slightly beyond middle. Inflorescence terminal, ca. 15 cm, 6-flowered; rachis sparsely spreading yellow pubescent; bracts leaflike. Pedicels 4–6.5 cm, oblique upward, glabrous, with 2 bracteoles at middle; bracteoles leaflike, sessile, 1.2–2 × 1–2 cm. Sepals blue-purple, abaxially glabrous; lower sepals elliptic or obovate, 1.3–1.4 × 6.5–8 mm; lateral sepals obliquely broadly obovate, 1.5–1.7 × 1.5–1.6 cm; upper sepal navicular, shortly beaked. Petals curved, ca. 2.6 cm, glabrous; claw slightly geniculate at apex; limb ca. 1.2 cm × 3.8 mm; lip ca. 4 mm, slightly concave at apex; spur incurved, ca. 2 mm. Stamens glabrous; filaments 2-denticulate distally. Carpels 5, glabrous. Fl. Aug.

• Alpine grasslands; ca. 4000 m. E Xizang (Bomi Xian).

61. *Aconitum yachiangense* W. T. Wang, *Fl. Reipubl. Popul. Sin.* 27: 605. 1979.

雅江乌头 ya jiang wu tou

Caudex unknown. Stem ca. 1 m tall, apically branched, spreading pubescent. Leaf blade pentagonal, ca. 7 × 10 cm, both surfaces sparsely pubescent, 3-parted; central lobe rhombic, apex acuminate, subpinnatifid; lateral lobes obliquely flabellate, unequally 2-fid. Compound inflorescence coniform, many flowered; rachis and pedicels densely yellowish pubescent, and intermixed shortly glandular pubescent; bracts leaflike. Pedicels 2–3.3 cm, with 2 bracteoles above middle; bracteoles leaflike. Sepals white, becoming purplish when dried, abaxially spreading pubescent; lower sepals ca. 1.2 cm; lateral sepals orbicular-obovate, ca. 1.4 cm; upper sepal galeate, ca. 2 cm high, clawed, ca. 1.5 cm from base to beak, lower margin oblique upward, concave. Petals sparsely pubescent; limb ca. 1 cm; lip and spur ca. 4 mm. Stamens glabrous; filaments entire. Carpels 5, densely yellowish pubescent. Fl. May.

• Mountains; 3100–3400 m. W Sichuan (Yajiang Xian).

62. *Aconitum chayuense* W. T. Wang, Acta Bot. Yunnan. 6: 363. 1984.

察隅乌头 cha yu wu tou

Caudex carrot-shaped, ca. 5.5 cm, ca. 9 mm in diam. Stem ca. 90 cm tall, shortly branched, basally sparsely spreading pubescent, apically glabrous. Proximal cauline leaves withered at anthesis, and middle ones long petiolate; petiole ca. 4.5 cm; leaf blade cordate-pentagonal, ca. 6.4 × 9.5 cm, abaxially glabrous, adaxially pilose at veins, base broadly cordate or subtruncate, 3-parted; central lobe rhombic, apex acute, 3-fid; lateral lobes unequally 2-fid nearly to middle. Inflorescence a panicle, terminal, ca. 20 cm, sparsely branched, branch 1- or 2-flowered; rachis glabrous; bracts leaflike. Pedicels 1.5–3.5 cm, proximally densely pubescent, apically sparsely so, with 2 bracteoles at middle or above; bracteoles leaflike, 0.6–1.2 cm. Sepals brown-purple, abaxially pubescent; lower sepals elliptic, ca. 9 mm; lateral sepals obliquely broadly obovate, ca. 1.1 × 1.4 cm; upper sepal galeate, ca. 1.5 cm high, beak ca. 2 mm, lower margin curved, ca. 1.3 cm. Petals ca. 1.8 cm; claw ca. 1.5 cm, pilose; lip ca. 6 mm, 2-lobed, pilose; spur subglobose, glabrous. Stamens glabrous; filaments entire or 2-denticulate. Carpels 5, spreading yellowish sericeous. Fl. Sep.

• Scrub, grasslands, by streams; ca. 3700 m. E Xizang (Zayü Xian).

63. *Aconitum nielamuense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 605. 1979.

聂拉木乌头 nie la mu wu tou

Caudex narrowly conical or carrot-shaped, 3.5–6.5 cm, ca. 1.2 cm in diam. Stem 60–150 cm, 4–10 mm in diam., several branched or simple, basally glabrous, apically retrorse pubescent. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 6–9 cm; leaf blade broadly pentagonal, ca. 7 × 9.5 cm, both surfaces sparsely shortly appressed pubescent, 3-parted; central lobe rhombic, apex acute, 3-fid; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence 6.5–30 cm, 6–28-flowered; rachis and

pedicels densely spreading yellowish pubescent and shortly glandular pubescent; bracts leaflike. Proximal pedicels 2.5–6.5 cm, distal ones ca. 2 cm, with 2 bracteoles proximally or distally; bracteoles leaflike. Sepals grayish blue-purple, abaxially pubescent; lower sepals ca. 1 cm; lateral sepals 1.5–1.7 cm; upper sepal navicular, 1.8–2.4 cm from base to beak, 1–1.2 cm wide at middle. Petals sparsely pubescent; lip ca. 4 mm, slightly concave; spur slightly incurved, ca. 1.5 mm. Stamens glabrous; filaments entire. Carpels 5, densely pubescent. Fl. Aug–Sep.

• Forest margins, scrub; 3400–3900 m. S Xizang (Nyalam Xian).

64. *Aconitum franchetii* Finet & Gagnepain, Bull. Soc. Bot. France 51: 510. 1904.

大渡乌头 da du wu tou

Caudex carrot-shaped, ca. 6 mm, ca. 1.2 cm in diam. Stem to 1.2 m, branched, sparsely retrorse and appressed pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 3–4 cm, sparsely retrorse pubescent; leaf blade cordate-pentagonal, ca. 7.5 × 8.5 cm, nearly glabrous or sparsely pubescent, 3-parted; central lobe rhombic; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence terminal, 10–35 cm, 7–20-flowered; rachis and pedicels retrorse or spreading pubescent, or intermixed with short glandular hairs, or glabrous; proximal bracts leaflike, shortly stipitate, distal ones linear, ca. 9 mm. Pedicels 1–10 cm, with 2 bracteoles at middle; bracteoles of proximal pedicels to 1.5 cm, 3-fid; others oblong to linear, 4–10 × 0.5–2 mm, nearly glabrous, undivided. Sepals blue, abaxially glabrous; lower sepals ca. 2.0 cm; lateral sepals ca. 2.1 cm; upper sepal galeate, 1.8–2.4 cm high, 1.9–2.3 cm from base to beak, external margin suberect or oblique, lower margin slightly oblique upward, suberect or slightly concave. Petals glabrous; claw erect or geniculate at apex; limb ca. 5 mm; spur short, beak curved or subcircinate. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3 or 5, glabrous. Fl. Jul–Aug.

• Grassy slopes, forests; 3400–4100 m. Sichuan.

- 1a. Rachis and pedicels spreading pubescent and intermixed shortly glandular pubescent 64c. var. *villosulum*
- 1b. Rachis and pedicels retrorse or appressed pubescent, or glabrous.
 - 2a. Rachis and pedicels appressed pubescent, or glabrous .. 64e. var. *glabrescens*
 - 2b. Rachis and pedicels retrorse pubescent.
 - 3a. Upper sepal navicular-galeate or subnavicular, external margin oblique 64b. var. *subnaviculare*
 - 3b. Upper sepal galeate, external margin suberect.
 - 4a. Petaline claw not geniculate at apex 64a. var. *franchetii*

- 4b. Petaline claw geniculate at apex
5a. Sepals pubescent abaxially, petals sparsely pubescent 64f. var. *lasiocalyx*
5b. Sepals glabrous abaxially, petals glabrous ... 64d. var. *geniculatum*

64a. *Aconitum franchetii* var. *franchetii*

大渡乌头(原变种) da du wu tou (yuan bian zhong)

Aconitum longtouense T. L. Ming.

Rachis and pedicels retrorse pubescent. Upper sepal galeate, external margin suberect. Petaline claw not geniculate at apex.

- Grassy slopes, forests; 3400–4000 m. W Sichuan, Yunnan.

Yang Qiner (pers. comm.) believes that *Aconitum longtouense* is a synonym of *A. georgei*.

64b. *Aconitum franchetii* var. *subnaviculare* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 67. 1965.

低盔大渡乌头 di kui da du wu tou

Rachis and pedicels retrorse pubescent. Upper sepal navicular-galeate or subnavicular, external margin oblique.

- Grassy slopes; ca. 3400 m. W Sichuan (Lushan Xian).

64c. *Aconitum franchetii* var. *villosulum* W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 211. 606. 1979.

展毛大渡乌头 zhan mao da du wu tou

Rachis and pedicels spreading pubescent, intermixed shortly glandular pubescent.

- W Sichuan.

64d. *Aconitum franchetii* var. *geniculatum* W. T. Wang & P. K. Hsiao in W. T. Wang, *Bull. Bot. Lab. N. E. Forest. Inst.*, Harbin 8: 21. 1980.

膝瓣大渡乌头 xi ban da du wu tou

Rachis and pedicels retrorse pubescent. Upper sepal galeate, external margin suberect. Sepals glabrous abaxially. Petals glabrous; claw geniculate at apex.

- Sichuan (Baoping Xian).

64e. *Aconitum franchetii* var. *glabrescens* W. T. Wang, *Bull. Bot. Lab. N. E. Forest. Inst.*, Harbin 8: 21. 1980.

光序大渡乌头 guang xu da du wu tou

Rachis and pedicels appressed pubescent, or glabrous.

- Sichuan (Meigu Xian).

64f. *Aconitum franchetii* var. *lasiocalyx* W. T. Wang & P. K. Hsiao in W. T. Wang, *Acta Bot. Yunnan.* 4: 129. 1982.

毛萼大渡乌头 mao e da du wu tou

Rachis and pedicels retrorse pubescent. Upper sepal galeate, external margin suberect. Sepals pubescent abaxially. Petals sparsely pubescent; claw geniculate at apex.

- About 4100 m. Sichuan (Yanbian Xian).

65. *Aconitum secundiflorum* W. T. Wang, *Bull. Bot. Res.*, Harbin 3(1): 24. 1983.

侧花乌头 ce hua wu tou

Caudex unknown. Stem 32–42 cm, ca. 2 mm in diam., apically shortly branched, glabrous, 5–8-leaved. Proximal cauline leaves long petiolate, withered at anthesis, and distal leaves shortly petiolate; petiole 1.5–5 cm, sparsely pubescent, base shortly and narrowly sheathed; leaf blade pentagonal, 4.8–5.5 × 4.8–6.4 cm, herbaceous, abaxially glabrous or subglabrous, adaxially sparsely pubescent, 3-parted; central lobe rhombic, apex long acuminate, 3-fid; lateral lobes obliquely flabellate, unequally 2-parted slightly beyond middle. Inflorescence terminal, 6.5–10 cm, 3–5-flowered on one side; rachis and pedicels spreading pubescent; bracts leaflike, shortly stipitate. Pedicels 1–4 cm, with 2 bracteoles bordering flower, bracteoles leaflike or narrowly elliptic, 0.9–1.7 cm × 2.5–14 mm, 2- or 3-lobed. Sepals blue, abaxially pubescent; lower sepals obliquely elliptic or long elliptic, ca. 1.1 × 0.4–0.7 mm; lateral sepals obliquely broadly obovate, ca. 1.4 × 1.6 cm; upper sepal galeate, 1.4–1.6 cm high, shortly beaked, ca. 1.5 cm from base to beak. Petals ca. 9 × 3 mm; claw ca. 1.1 cm, sparsely pubescent; spur decurved, ca. 1.2 mm, glabrous; lip ca. 5 mm, 2-lobed, sparsely pubescent. Stamens sparsely ciliate; filaments entire. Carpels 4, sparsely pubescent. Fl. Aug.

- Slopes; 2800–2900 m. Sichuan (Maowen Qiang Zu Zizhixian).

66. *Aconitum lycoctonifolium* W. T. Wang & L. Q. Li, *Acta Phytotax. Sin.* 25: 27. 1987.

牛扁叶乌头 niu bian ye wu tou

Caudex unknown. Stem 80–100 cm tall, branched at middle, apically sparsely retrorse and appressed pubescent. Cauline middle leaves long petiolate; petiole 7–15 cm, sparsely appressed pubescent; leaf blade pentagonal, 9–15 × 10–21 cm, papery, both surfaces sparsely pubescent, base cordate, 3-parted; central lobe unequally 2-parted beyond middle. Compound inflorescence terminal, ca. 35 cm, many flowered; rachis and pedicels yellowish spreading pubescent; bracts leaflike. Pedicel 1.5–5 cm, with 2 bracteoles near middle; bracteoles oblanceolate or linear, 5–8 × 1–2 mm, sparsely pubescent. Sepals blue, abaxially pubescent; lower sepals narrowly obovate or suboblong, ca. 1.2 × 0.5–0.8 cm; lateral sepals obliquely broadly obovate, ca. 1.4 × 1.2–1.5 cm; upper sepal navicular-galeate, 1.7–2 cm, clawed, shortly beaked, ca. 2.1 cm from base to beak. Petals ca. 2.2 cm; limb ca. 1 cm × 1.6 mm; lip ca. 5 mm, upper part sparsely pubescent; spur slightly incurved, ca. 1 mm; claw ca. 1.7 cm, spreading

pubescent. Stamens pubescent; filaments entire, rarely 2-denticulate. Carpels 3, pubescent. Fl. Sep–Oct.

• *Tsuga* forests; 2600–2700 m. Xizang (Médog Xian).

67. *Aconitum forrestii* Stapf, Bull. Misc. Inform. Kew 1910: 19. 1910.

丽江乌头 *li jiang wu tou*

Caudex carrot-shaped, ca. 5.5 cm, ca. 1.6 cm in diam. Stem 70–100 cm, apically branched, sometimes simple, retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves slightly long petiolate, withered at anthesis; petiole 2–10 mm; distal leaves shortly petiolate or sessile; leaf blade broadly ovate or pentagonal-ovate, 7–12 × 7–10 cm, papery, both surfaces pubescent, base broadly cordate or shallowly cordate, 3-parted; central lobe rhombic; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence terminal, long, 20–40 cm, narrow, many flowered; rachis and pedicels densely yellowish spreading pubescent and intermixed retrorse pubescent; proximal bracts leaflike, distal ones oblong-linear, shortly petiolate, 1.8–2.8 cm. Pedicels 1–2.5 cm, with 2 bracteoles near middle; bracteoles of proximal pedicels oblong or narrowly oblong, ca. 1 cm, distal ones linear, 4–6 mm. Sepals purple-blue, abaxially pubescent; lower sepals 1.4–1.7 cm; lateral sepals 1.5–1.8 cm; upper sepal galeate, shortly beaked, 1.7–2 cm from base to beak. Petals glabrous or pubescent; lip ca. 5 mm, 2-lobed; spur slightly incurved, ca. 1 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous or pubescent. Fl. Sep. $2n = 16^*$.

• Grassy slopes; ca. 3100 m. SW Sichuan, NW Yunnan.

1a. Petals and carpels glabrous 67a. var. *forrestii*
1b. Petals and carpels pubescent 67b. var. *albovillosum*

67a. *Aconitum forrestii* var. *forrestii*

丽江乌头(原变种) *li jiang wu tou* (*yuan bian zhong*)

Aconitum likiangense Chen & Liu.

Petals and carpels glabrous.

• Grassy slopes; ca. 3100 m. SW Sichuan (Muli Zang Zu Zizhixian), NW Yunnan (Lijiang Naxi Zu Zizhixian).

67b. *Aconitum forrestii* var. *albovillosum* (Chen & Liu) W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 68. 1965.

毛果丽江乌头 *mao guo li jiang wu tou*

Aconitum carmichaelii Debeaux var. *albovillosum* Chen & Liu, Bull. Fan Mem. Inst. Biol. 11: 47. 1941.

Petals and carpels pubescent.

• Grassy slopes; ca. 3100 m. SW Sichuan (Muli Zang Zu Zizhixian).

68. *Aconitum coriaceifolium* W. T. Wang, Acta Bot. Yunnan. 6: 367. 1984.

革叶乌头 *ge ye wu tou*

Caudex carrot-shaped, 6–9 cm, 7–10 mm in diam. Stem ca. 60 cm, subdichasial branched, sparsely spreading pubescent, apically glabrous, ca. 15-leaved. Cauline middle and distal leaves shortly petiolate; petiole 0.6–3

cm; leaf blade cordate-pentagonal, 5–6 × 5–8 cm, leathery, abaxially glabrous, adaxially sparsely pubescent at veins, base deeply cordate, 3-parted, between lobes slightly imbricate; central lobe broadly rhombic, apex obtuse, 3-lobed; lateral lobes unequally 2-fid ± to middle. Inflorescence terminal or axillary, ca. 10 cm, 2–6-flowered, dichasial branched; rachis and pedicels glabrous; bracts leaflike. Pedicels 1.5–3.7 cm, with 2 bracteoles near middle; bracteoles oblong or linear, 3.5–7 mm, those of proximal pedicels 3-fid. Sepals abaxially glabrous; lower sepals oblong or linear, 1.1–1.2 cm; lateral sepals obliquely broadly obovate, ca. 1.5 × 1.4 cm, adaxially sparsely villous; upper sepal galeate, 1.8–2.2 cm high, clawed, beak ca. 3 mm, lower margin 1.8–2 cm. Petals ca. 1.8 cm; claw glabrous; lip ca. 6 mm, 2-lobed, pilose; spur curved, ca. 3 mm, glabrous. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Aug.

• Slopes; ca. 2400 m. Sichuan (Jiulong Xian).

69. *Aconitum stylosum* Stapf, Bull. Misc. Inform. Kew 1910: 20. 1910.

显柱乌头 *xian zhu wu tou*

Caudex carrot-shaped, ca. 6 cm, ca. 1 cm in diam. Stem 70–90 cm, simple, retrorse and appressed pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 4–8 cm, sparsely retrorse pubescent; leaf blade pentagonal, 5.5–8 × 8.5–12 cm, abaxially nearly glabrous, adaxially sparsely appressed pubescent or at veins pubescent, 3-parted; central lobe broadly rhombic; lateral lobes obliquely flabellate, unequally 2-fid slightly beyond middle. Inflorescence 17–25 cm, 7–20-flowered; proximal rachis densely retrorse yellowish pubescent, distal ones and pedicels densely spreading pubescent; bracts leaflike, stipitate, upward becoming small. Pedicels 3–12 cm, distally with 2 bracteoles; proximal bracteoles leaflike or 3-fid, 1.5–3.5 cm, distal ones oblong, linear, or narrowly linear, 0.5–1.6 cm. Sepals blue-purple or white, abaxially sparsely pubescent or glabrous; lower sepals ca. 1.8 cm; lateral sepals orbicular-obovate or broadly obovate, 1.7–2.3 cm; upper sepal galeate or navicular-galeate, oblique upward, shortly beaked, 2–2 cm from base to beak. Petaline claw pubescent above middle, not or geniculate at apex; limb ca. 5.5 mm, sparsely pubescent; spur incurved, ca. 2.5 mm, glabrous. Stamens glabrous; filaments entire or 2-denticulate. Carpels 5, densely yellowish pubescent. Fl. Aug–Oct.

• Grassy slopes; 3400–4000 m. SE Xizang, NW Yunnan.

1a. Petaline claw not geniculate at apex 69a. var. *stylosum*

1b. Petaline claw geniculate at apex 69b. var. *geniculatum*

69a. *Aconitum stylosum* var. *stylosum*

显柱乌头(原变种) *xian zhu wu tou* (*yuan bian zhong*)

Aconitum euryanthum Handel-Mazzetti; *A. stylosum* f. *albidum* Chen & Liu

Petaline claw not geniculate at apex.

• Grassy slopes; 3400–4000 m. NW Yunnan.

69b. *Aconitum stylosum* var. *geniculatum* H. R. Fletcher & Lauener, Notes Roy. Bot. Gard. Edinburgh 20: 184. 1950.

膝爪显柱乌头 xi zhao xian zhu wu tou

Petaline claw geniculate at apex.

• SE Xizang (Zayü Xian), NW Yunnan.

70. *Aconitum yunlingense* Q. E. Yang & Z. D. Fang, Acta Bot. Yunnan. 12: 387. 1990.

云岭乌头 yun ling wu tou

Caudex obconical, ca. 5 cm, ca. 1.2 cm in diam. Stem ca. 60 cm, simple, sparsely retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole 3–5.5 cm, glabrous; leaf blade pentagonal, 5.5–6.5 × 5–8 cm, adaxially sparsely pubescent, base cordate, 3-parted; central lobe rhombic, apex acuminate, subpinnately incised-lobed; lateral lobes flabellate, unequally 2-fid. Inflorescence ca. 10 cm, sparsely 6-flowered; rachis and pedicels glabrous; bracts leaflike. Pedicels 2–5 cm, with 2 bracteoles at apex; bracteoles 3–5 × ca. 1 mm, glabrous. Sepals blue; lower sepals obovate; lateral sepals broadly obovate, ca. 2.2 × 2.2 cm, abaxially glabrous, adaxially sparsely pubescent; upper sepal navicular, ca. 1.5 cm, 2.5–3 cm from base to beak, glabrous, lower margin slightly erect. Petals glabrous; claw geniculate at apex; limb ca. 1.2 cm; lip ca. 4 mm, apex slightly concave; spur curved, ca. 2.5 mm. Stamens glabrous; filaments 2-denticulate. Carpels 5, glabrous.

• Alpine grasslands; ca. 4100 m. NW Yunnan (Weixi Lisu Zu Zhi-xian).

71. *Aconitum stylosoides* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 606. 1979.

拟显柱乌头 ni xian zhu wu tou

Caudex carrot-shaped or fusiform, ca. 7 cm, to 1.5 cm in diam. Stem ca. 1 m tall, retrorse or ± spreading pubescent. Middle cauline leaves shortly petiolate; petiole ca. 3 cm; leaf blade cordate-pentagonal, ca. 9 × 12 cm, herbaceous, abaxially nearly glabrous, adaxially sparsely appressed pubescent, 3-parted; central lobe rhombic, 3-lobed at middle, margin unequally dentate, apex acuminate; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, ca. 20 cm, ca. 8-flowered; rachis and pedicels with intermixed spreading and glandular hairs; bracts leaflike. Pedicels 2–5 cm, suberect upward, with 2 bracteoles at middle or above; bracteoles narrowly linear, ca. 6 mm, rarely leaflike. Sepals blue, abaxially pubescent; lower sepals ca. 1.5 cm; lateral sepals ca. 1.7 cm; upper sepal navicular, 2.5–2.7 cm from base to beak. Petals pubescent; limb ca. 9 mm; lip ca. 4.5 mm, 2-lobed at apex; spur decurved, ca. 2 mm. Stamens pubescent; filaments entire. Carpels 3(or 4), pubescent. Fl. Aug.

• At margins of *Picea* forests; ca. 3500 m. W Sichuan (Daocheng Xian).

72. *Aconitum taronense* (Handel-Mazzetti) H. R. Fletcher & Lauener, Notes Roy. Bot. Gard. Edinburgh 20: 197. 1950.

独龙乌头 du long wu tou

Aconitum bisma (Buchanan-Hamilton) Rapaics var. *taronense* Handel-Mazzetti, Symb. Sin. 7(2): 284. 1931.

Caudex obconical, ca. 4 cm, ca. 1 cm in diam. Stem 85–110 cm, simple, retrorse or slightly spreading pubescent, basally usually becoming glabrous, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 2–5 cm; leaf blade pentagonal, 5.5–7.5 × ca. 9 cm, both surfaces glabrous, 3-parted; central lobe usually broadly rhombic or rhombic; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence ± narrowly long, 15–37 × 5–10 cm, 8–35-flowered; rachis retrorse or intermixed with spreading yellowish hairs; bracts leaflike. Pedicels 2.5–7 cm, densely spreading yellowish pubescent, with 2 bracteoles proximal to distal; bracteoles usually linear, 2.5–4 mm, sometimes bracteoles of lowermost pedicels larger, 3-fid. Sepals purple, abaxially sparsely pubescent; lower sepals ca. 1.5 cm; lateral sepals ca. 1.6 cm; upper sepal galeate, shortly clawed, ca. 2 cm high, 1.5–1.8 cm from base to beak. Petals glabrous or nearly so; lip ca. 4.5 mm; spur incurved, ca. 2 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 4 or 5, ± densely pubescent. Follicles 1–1.8 cm. Seeds obovate. Fl. Aug–Sep.

• Grassy slopes; 2600–3600 m. NW Yunnan.

73. *Aconitum kungshanense* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 68. 1965.

贡山乌头 gong shan wu tou

Caudex obconical, ca. 3 cm, 6–10 mm in diam. Stem 74–80 cm, 1- or 2-branched below inflorescence, appressed pubescent, with 8 leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 3–7 cm; leaf blade pentagonal, ca. 8 × 9 cm, both surfaces shortly yellowish strigose, 3-parted; central lobe rhombic, apex acuminate; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence 5–18 cm, 7–20-flowered; rachis and pedicels densely spreading yellow pubescent; proximal bracts leaflike, distal ones linear. Pedicels 0.8–2.2 cm, with 2 bracteoles at middle; bracteoles subulate, 2–3 mm. Sepals blue-purple; lower sepals ca. 0.8 cm; lateral sepals ca. 0.9 cm; upper sepal navicular or falcate-navicular, oblique upward, shortly beaked, ca. 1.2 cm from base to beak, both surfaces yellow pubescent, lower margin slightly concave. Petals ca. 9 mm, glabrous; limb ca. 7 mm; lip ca. 5 mm; spur incurved, ca. 1.2 mm. Stamens glabrous; filaments entire. Carpels 5, densely yellow pubescent. Fl. Aug.

• Grassy slopes; 3500–4100 m. Yunnan.

74. *Aconitum tatsienense* Finet & Gagnepain, Bull. Soc. Bot. France 51: 510. 1904.

康定乌头 kang ding wu tou

Caudex carrot-shaped, ca. 10 cm. Stem 60–170 cm tall, simple or 1-branched below inflorescence, basally usually glabrous, apically retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones long or shortly petiolate; petiole 2–7 cm; leaf blade pentagonal, 4.2–7 × 6–8 cm, abaxially sparsely pubescent at veins, adaxially appressed pubescent, 3-parted; central lobe rhombic, apex acuminate; lateral lobes obliquely flabellate or obliquely ovate, unequally 2-parted nearly to base. Inflorescence terminal, 8–40 cm, 7–30-flowered; rachis and pedicels densely spreading pubescent; proximal bracts leaflike, distal ones narrowly linear, 7–12 mm. Pedicels 1.5–4 cm, proximally with 2 bracteoles; bracteoles linear or linear-subulate, 2–4 × ca. 0.4 mm. Sepals pale blue or white, adaxially pubescent or glabrous; lateral sepals ca. 1.6 cm; lower sepals ca. 1.5 cm; upper sepal galeate, 1.7–2 cm high, shortly or long beaked, 1.5–1.8 cm from base to beak. Petals pubescent; claw usually slightly geniculate or not at apex; limb 3–5 mm; spur slightly incurved, short. Stamens pubescent; filaments entire. Carpels 3(–5), glabrous or sparsely pubescent. Fl. Jul–Aug.

• Forests, scrub in valleys, grassy slopes; 2700–3700 m. W Sichuan.

- 1a. Stem simple or 1-branched below inflorescence; petaline claw usually slightly geniculate at apex 74a. var. *tatsienense*
- 1b. Stem many branched; petaline claw usually not geniculate at apex 74b. var. *divaricatum*

74a. *Aconitum tatsienense* var. *tatsienense*

康定乌头(原变种) kang ding wu tou (yuan bian zhong)

Aconitum sikangense Handel-Mazzetti.

Stem simple or 1-branched below inflorescence.

Petaline claw usually slightly geniculate at apex.

• Scrub in valleys, grassy slopes; 2700–3700 m. W Sichuan.

74b. *Aconitum tatsienense* var. *divaricatum* (Finet & Gagnepain) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 216. 1979.

展枝康定乌头 zhan zhi kang ding wu tou

Aconitum divaricatum Finet & Gagnepain, Bull. Soc. Bot. France 51: 511. 1904.

Stem many and longer branched. Petaline claw usually not geniculate at apex.

• Forests; 3100–3500 m. W Sichuan (Kangding Xian).

75. *Aconitum elliotii* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 20. 1963.

墨脱乌头 mo tuo wu tou

Caudex carrot-shaped, to 6 cm, ca. 1.4 cm in diam. Stem 1–1.5 m tall, simple, apically spreading pubescent, many leaved. Leaf blade ovate, ca. 12 × 12 cm,

subglabrous, base cordate, 3-parted; central lobe ovate-rhombic, 3-lobed to middle, margin with irregular teeth; lateral lobes obliquely ovate, unequally 2-parted slightly beyond middle. Inflorescence conical, to 30 cm, many flowered; rachis and pedicels densely spreading yellow pubescent or glabrous; proximal bracts leaflike, distal ones ovate or lanceolate. Pedicels 0.5–9 cm, with 2 bracteoles above middle; bracteoles lanceolate-linear or linear, sometimes leaflike. Sepals blue-purple, adaxially glabrous; lateral sepals 1.4–1.5 cm; upper sepal galeate, 2.3–3 cm high, beak ca. 4 mm, 2.4–3 cm from base to beak, lower margin suberect. Petals glabrous, or sparsely yellowish pubescent, ca. 2 cm; claw suberect; lip slightly concave at apex; spur subcircinate, ca. 3 mm. Stamens glabrous; filaments 2-denticulate. Carpels 3–5, glabrous. Fl. Aug.

• Scrub, grasslands, grassy slopes; 3000–4100 m. E Xizang.

- 1a. Rachis and pedicels glabrous 75c. var. *glabrescens*
- 1b. Rachis and pedicels densely spreading pubescent.
 - 2a. Pedicels shorter, proximal ones to 4.5 cm, distal ones 0.5–1.5 cm 75b. var. *doshongense*
 - 2b. Pedicels longer, proximal ones to 6–9 cm, distal ones ca. 4 cm.
 - 3a. Petals glabrous; carpels 5 75a. var. *elliotii*
 - 3b. Petals sparsely yellowish pubescent; carpels 3 or 4 75d. var. *pilopetalum*

75a. *Aconitum elliotii* var. *elliotii*

墨脱乌头(原变种) mo tuo wu tou (yuan bian zhong)

Rachis and pedicels densely spreading pubescent. Pedicels longer, proximal ones to 6–9 cm, distal ones ca. 4 cm. Petals glabrous. Carpels 5.

• Grasslands; 3000–3400 m. E Xizang.

75b. *Aconitum elliotii* var. *doshongense* (Lauener) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 219. 1979.

短梗墨脱乌头 duan geng mo tuo wu tou

Aconitum stylosum var. *doshongense* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 20. 1963.

Rachis and pedicels densely spreading pubescent. Pedicels shorter, proximal ones to 4.5 cm, distal ones 0.5–1.5 cm.

• Grassy slopes; 3700–4100 m. E Xizang (Médog Xian).

75c. *Aconitum elliotii* var. *glabrescens* W. T. Wang & L. Q. Li, Acta Bot. Yunnan. 8: 259. 1986.

光梗墨脱乌头 guang geng mo tuo wu tou

Rachis and pedicels glabrous.

•Grassy slopes, 3100–3100 m. E Xizang (Bomi Xian).

75d. *Aconitum elliotii* var. *pilopetalum* W. T. Wang & L. Q. Li, Acta Bot. Yunnan. 8: 260. 1986.

毛瓣墨脱乌头 *mao ban mo tuo wu tou*

Rachis and pedicels densely spreading pubescent. Pedicels longer, proximal ones to 6–9 cm, distal ones ca. 4 cm. Petals sparsely yellowish pubescent. Carpels 3 or 4.

•Scrub, grassy slopes; 3500–3800 m. E Xizang (Bomi Xian)

76. *Aconitum spicatum* Stapf, Ann. Roy. Bot. Gard. (Calcutta) 10(2): 165. 1905.

亚东乌头 *ya dong wu tou*

Caudex narrowly obconical, to 6.5 cm, to 2 cm in diam. Stem 1–1.5 m tall, usually simple, sparsely pubescent. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole ca. 3 cm; leaf blade cordate-pentagonal, ca. 7 × 9.5 cm, both surfaces appressed pubescent, 3-parted; central lobe rhombic, 3-fid; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence 6–15 cm, many flowered; rachis and pedicels densely spreading yellowish pubescent and shortly glandular pubescent; bracts leaflike or lanceolate-linear to linear. Pedicels 2–8 cm, oblique upward, proximally with 2 bracteoles; bracteoles narrowly linear, ca. 4 mm. Sepals purple, abaxially densely pubescent; lower sepals ca. 1.6 cm; lateral sepals 1.5–1.7 cm; upper sepal galeate or lower galeate, 1.5–2 cm high, ca. 1.7 cm from base to beak, lower margin slightly concave. Petaline claw sparsely pubescent; lip ca. 5 mm, slightly concave; spur slightly incurved, ca. 1.5 mm. Stamens sparsely pubescent; filaments entire. Carpels 5, densely yellowish pubescent. Fl. Sep. $2n = 32$.

Scrub; ca. 4000 m. S Xizang [Bhutan, Nepal, Sikkim].

77. *Aconitum brevilimbum* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 22. 1963.

短唇乌头 *duan chun wu tou*

Caudex terete, ca. 6 cm, ca. 1.5 cm in diam. Stem erect, 0.5–1.5 m, apically and inflorescence densely curved and appressed yellow pubescent. Proximal cauline leaves long petiolate; petiole to 18 cm, pubescent or becoming glabrous, distal leaves shortly petiolate; leaf blade broadly ovate or orbicular, ca. 8 × 8–10 cm, abaxially sparsely pubescent at veins, base cordate, 3-parted; central lobe broadly rhombic, 3-fid nearly to middle; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence to 55 cm, many flowered; rachis and pedicels retrorse pubescent; proximal bracts leaflike. Pedicels to 15 cm, suberect upward, with 2 bracteoles at or near middle; bracteoles of proximal pedicels leaflike, distal ones lanceolate. Sepals blue-violet or dark red, abaxially pubescent; lower sepals ca. 1.5 cm; lateral sepals ca. 2 cm; upper sepal navicular, ca. 2 cm high, shortly beaked, ca. 2.5 cm from base to beak. Petals pubescent; lip short, slightly concave; spur

incurved, short. Stamens pubescent; filaments 2-denticulate. Carpels 3, appressed sericeous. Fl. Jul.

•*Abies* forests, on boulders on slopes; 3300–4300 m. E Xizang (Médog Xian).

78. *Aconitum chiachaense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 606. 1979.

加查乌头 *jia cha wu tou*

Caudex terete, ca. 4 cm, ca. 7 mm in diam. Stem 40–45 cm, simple or 1-branched, sparsely retrorse or spreading pubescent. Middle cauline leaves long petiolate; petiole ca. 4.5 cm; leaf blade cordate-pentagonal, ca. 3.4 × 6 cm, glabrous, 3-parted; central lobe rhombic, 3-lobed; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence 5.5–10 cm, 4- or 5-flowered; rachis and pedicels retrorse white pubescent, or spreading glandular pubescent; proximal bracts leaflike. Pedicels suberect upward, 1.5–3.5 cm, with 2 bracteoles at middle or below; bracteoles linear, 3–6 mm. Sepals blue, abaxially sparsely pubescent; lower sepals ca. 1 cm; lateral sepals obliquely broadly obovate, ca. 1.3 cm; upper sepal galeate, ca. 1.5 cm high, ca. 1.4 cm from base to beak, lower margin slightly concave. Petals glabrous; lip ca. 3.5 mm; spur incurved, ca. 2 mm. Stamens glabrous or sparsely pubescent; filaments entire. Carpels 4 or 5, appressed white pubescent or spreading pubescent. Fl. Aug.

•*Juniperus* scrub, slopes; 4400–4800 m. Xizang.

- 1a. Stem sparsely retrorse pubescent apically; rachis densely retrorse pubescent; filaments glabrous; carpels appressed white pubescent 78a. var. *chiachaense*
- 1b. Stem spreading pubescent; rachis spreading glandular pubescent; filaments sparsely pubescent; carpels spreading pubescent 78b. var. *glandulosum*

78a. *Aconitum chiachaense* var. *chiachaense*

加查乌头(原变种) *jia cha wu tou (yuan bian zhong)*

Stem sparsely retrorse pubescent apically. Rachis densely retrorse pubescent. Filaments glabrous. Carpels appressed white pubescent.

•Slopes; 4500–4800 m. Xizang (Gyaca Xian).

78b. *Aconitum chiachaense* var. *glandulosum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 606. 1979.

腺毛加查乌头 *xian mao jia cha wu tou*

Stem spreading pubescent. Rachis spreading glandular pubescent. Filaments sparsely pubescent. Carpels spreading pubescent.

•*Juniperus* scrub; ca. 4400 m. Xizang (Gyaca Xian).

79. *Aconitum namlaense* W. T. Wang, Acta Bot. Yunnan. 15: 348. 1993.

纳木拉乌头 *na mu la wu tou*

Caudex unknown. Stem ca. 55 cm, apically flexuous, simple, sparsely pubescent, ca. 12-leaved. Proximal cauline leaves withered at anthesis, middle leaves long petiolate or nearly so; petiole 3–5 cm, sparsely pubescent; leaf blade pentagonal, ca. 2.7 × 4.5 cm, abaxially glabrous, adaxially sparsely appressed pubescent or subglabrous, base deeply cordate, 3-parted; central lobe rhombic, apex acute, 3-lobed; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence terminal, ca. 9.5 cm, 6-flowered; rachis and pedicels glabrous; bracts leaflike. Pedicels 1.5–2.8 cm, with 2 bracteoles at middle; bracteoles usually linear, rarely 3-lobed, 3–5 mm, glabrous. Sepals pale red-purple, abaxially glabrous; upper sepal galeate, ca. 1.7 cm high, 1.5–2 cm from base to beak; lower sepals narrowly obovate or lanceolate, ca. 1.5 cm; lateral sepals obliquely obovate, ca. 1.6 cm, adaxially sparsely pilose. Petals ca. 2.1 cm, glabrous; claw ca. 1.3 cm, slightly geniculate at apex; lip ca. 5 mm; spur circinate, ca. 7 mm. Stamens glabrous, ca. 8 mm; filaments 2-denticulate or entire. Carpels 4, glabrous.

• Grasslands; ca. 4500 m. Xizang (near Nanjiabawa Shan).

One of us (Kadota) believes that this species is the same as *Aconitum stapfianum*.

80. *Aconitum souliei* Finet & Gagnepain, Bull. Soc. Bot. France 51: 515. 1904.

茨开乌头 *ci kai wu tou*

Aconitum souliei var. *pumilum* Finet & Gagnepain. Tube obconical, 1–1.4 cm, 4–6 mm in diam. Stem 25–50(–70) cm tall, basally becoming glabrous, apically sparsely retrorse pubescent, or intermixed with few spreading hairs. Basal leaf 1, with proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 5–15 cm; leaf blade pentagonal or pentagonal-reniform, 2.4–5 × 4.5–7 cm, abaxially sparsely pubescent or becoming glabrous, adaxially appressed pubescent, 3-parted; central lobe broadly rhombic or obtusoid-rhombic; lateral lobes obliquely flabellate, unequally 2- or 3-fid. Inflorescence terminal, 3–5 cm, 3–5-flowered; rachis and pedicels densely spreading yellowish pubescent or intermixed with retrorse hairs; lowermost bracts leaflike, others linear. Pedicels suberect upward, 5–10 mm, proximally with 2 bracteoles; bracteoles narrowly linear, 2.5–5 mm. Sepals yellow, abaxially yellowish pubescent; lower sepals ca. 0.9 cm; lateral sepals ca. 1.2 cm; upper sepal galeate or navicular-galeate, shortly beaked, 1.6–1.9 cm from base to beak, ca. 7 mm wide. Petaline claw ± densely pubescent; lip ca. 5 mm, sparsely pubescent; spur incurved, globose, ca. 1 mm, glabrous. Stamens glabrous or sparsely pubescent; filaments entire. Carpels 5, densely brown-yellow villous. Fl. Aug.

• Grassy slopes; 3800–3900 m. NW Yunnan.

81. *Aconitum parcifolium* Q. E. Yang & Z. D. Fang, Acta Bot. Yunnan. 12: 388. 1990.

疏叶乌头 *shu ye wu tou*

Caudex unknown. Stem 30–35 cm, simple, basally glabrous, apically sparsely retrorse pubescent. Basal leaf 1, and proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole 3–5 cm, distal leaves shortly petiolate; leaf blade pentagonal, 2.5–3 × 3–4 cm, abaxially glabrous, adaxially pubescent at veins, base cordate, 3-parted; central lobe rhombic or flabellate; lateral lobes obliquely flabellate, unequally 2- or 3-fid. Inflorescence 5–7 cm, 4–6-flowered; rachis and pedicels spreading pubescent; proximal bracts leaflike, distal ones lanceolate. Pedicels 1–1.5 cm, with 2 bracteoles above middle; bracteoles linear-lanceolate, 2–3 mm, both surfaces glabrous. Sepals blue-purple, abaxially pubescent, adaxially glabrous; lower sepals elliptic, ca. 1 × 0.5–0.8 cm; lateral sepals broadly obovate, ca. 1.2 × 1.3 cm; upper sepal navicular, 7–10 mm high, 1.6–2.5 cm from base to beak, lower margin suberect or slightly concave. Petals ca. 3 cm, glabrous; limb ca. 5 mm, glabrous; lip ca. 1.5 mm, erose; spur curved, ca. 1 mm. Stamens sparsely pilose or glabrous; filaments entire. Carpels 5, appressed pubescent. Fl. Aug.

• Alpine meadows; ca. 3900 m. NW Yunnan (Weixi Lisu Zu Zizhixian).

82. *Aconitum phyllostegium* Handel-Mazzetti, Acta Horti Gothob. 13: 110. 1939.

木里乌头 *mu li wu tou*

Caudex carrot-shaped, to 7 cm, ca. 1 cm in diam. Stem ca. 30 cm tall, simple or shortly 1-branched, with inflorescence spreading yellow puberulent. Lowest cauline leaves withered at anthesis, long petiolate; petiole 7–15 cm, base sheathed; leaf blade pentagonal, 2–3.5 × 4–5 cm, adaxially pubescent, base cordate, 3-parted; central lobe rhombic, apex acute, 3-lobed; lateral lobes obliquely flabellate, indistinctly 3-lobed. Inflorescence 8–14 cm, 4–7-flowered; rachis and pedicels spreading yellow puberulent, or appressed pubescent; bracts leaflike, proximal ones long stipitate, distal ones becoming short. Proximal pedicels to 5 cm, distal ones ca. 1.5 cm, with 2 bracteoles bordering flowers; bracteoles leaflike, shortly stipitate. Sepals yellowish or greenish, adaxially and marginally hispid; lower sepals narrowly ovate; lateral sepals obliquely broadly ovate, to 1.5 cm; upper sepal navicular, with a beak, lower margin slightly concave, ca. 1.8 cm. Petals glabrous or pubescent; claw geniculate at apex; limb short; lip narrowly spatulate; spur incurved, globose or subpocket-shaped. Stamens glabrous; filaments entire. Carpels 5, glabrous or pubescent.

• Alpine grasslands, mountains; 4000–4600 m. SW Sichuan, ?Yunnan.

1a. Rachis and pedicels spreading yellow puberulent; petals and ovary glabrous

..... 82a. var. *phyllostegium*

1b. Rachis and pedicels appressed pubescent;
petals and ovary pubescent 82b. var. *pilosum*

82a. *Aconitum phyllostegium* var. *phyllostegium*

木里乌头(原变种) mu li wu tou (yuan bian zhong)

Aconitum souliei var. *glabrum* H. F. Comber.

Rachis and pedicels spreading yellow puberulent. Petals and ovary glabrous.

• Alpine grasslands; 4000–4300 m. SW Sichuan (Muli Zang Zu Zizhixian).

82b. *Aconitum phyllostegium* var. *pilosum* H. R. Fletcher & Lauener, Notes Roy. Bot. Gard. Edinburgh 20: 183. 1950.

伏毛木里乌头 fu mao mu li wu tou

Rachis and pedicels appressed pubescent. Petals and ovary pubescent.

• Mountains, ca. 4600 m. SW Sichuan (Muli Zang Zu Zizhixian).

83. *Aconitum lobulatum* W. T. Wang, Acta Bot. Yunnan. 6: 369. 1984.

浅裂乌头 qian lie wu tou

Caudex carrot-shaped, ca. 7 cm, ca. 9 mm in diam. Stem ca. 1 m tall, apically retrorse and appressed pubescent. Distal leaves long petiolate; petiole ca. 4.5 cm; leaf blade cordate-pentagonal, ca. 5.4 × 7.5 cm, papery, abaxially curved pubescent at veins, adaxially appressed pubescent, 3-parted; central lobe rhombic, 3-lobed to middle or subpinnately lobed; lobes broadly ovate, apex acute; lateral lobes unequally 2-parted. Inflorescence with branches ca. 2-flowered; rachis and pedicels retrorse and appressed pubescent; bracts leaflike. Pedicels ca. 2.2 cm, with 2 bracteoles at middle; bracteoles linear, ca. 4 mm. Sepals blue or blue-purple, abaxially glabrous; lower sepals oblong or obliquely elliptic, ca. 1.2 cm; lateral sepals obliquely broadly obovate, ca. 1.7 × 1.5 cm, abaxially sparsely appressed pubescent at veins, adaxially sparsely villous; upper sepal galeate or navicular-galeate, ca. 1.2 cm high, beaked, lower margin concave, ca. 1.8 cm. Petals ca. 1.8 cm; claw pilose; limb ca. 9 × 4 mm; lip ca. 4 mm, pilose; spur subglobose, ca. 1.5 mm, glabrous. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3, glabrous. Fl. Aug–Sep.

• Alpine grasslands, W Sichuan (Muli Zang Zu Zizhixian).

84. *Aconitum stramineiflorum* Chang ex W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 70. 1965.

草黄乌头 cao huang wu tou

Caudex carrot-shaped, ca. 1.2 cm in diam. Stem ca. 1.5 m tall, branched, basally pubescent, apically glabrous. Proximal cauline leaves withered at anthesis, distal ones shortly petiolate; petiole ca. 2 cm, glabrous; leaf blade pentagonal, ca. 8 × 12 cm, abaxially sparsely appressed pubescent, adaxially glabrous, 3-parted; central lobe

rhombic or narrowly rhombic, apex acuminate; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence terminal, ca. 20 cm, ca. 11-flowered; rachis glabrous; bracts usually leaflike, distal ones linear. Pedicels 2–6.5 cm, above middle densely spreading yellowish pubescent, with 2 bracteoles near middle, bracteoles oblong to narrowly linear, 4.5–10 × 0.5–1.5 mm. Sepals stramineous, glabrous or nearly so; lower sepals ca. 1.2 cm; lateral sepals ca. 1.2 cm; upper sepal galeate, 1.4–1.9 cm high, shortly clawed, with a short beak, slightly upward curved, 1.3–1.5 cm from base to beak, lower margin oblique upward, concave. Petals curved, ca. 1.9 cm, glabrous; lip ca. 3 mm, slightly concave; spur subcircinate, subequaling lip. Stamens glabrous; filaments entire. Carpels 5, glabrous. Fl. Aug. • Slopes; ca. 3600 m. NW Yunnan (Weixi Lisu Zu Zizhixian).

85. *Aconitum alboflavidum* W. T. Wang, Acta Bot. Yunnan. 5: 153. 1983.

淡黄乌头 dan huang wu tou

Caudex narrowly obconical, ca. 3 cm, ca. 1 cm in diam. Stem ca. 80 cm, basally sparsely pubescent, apically and petioles retrorse pubescent. Distal leaves shortly petiolate; petiole ca. 2 cm; leaf blade pentagonal, ca. 7 × 9 cm, herbaceous or papery, abaxially sparsely pubescent at veins, adaxially sparsely appressed pilose, base broadly cordate, 3-parted; central lobe rhombic, apex long acuminate, pinnatifid, ultimate lobes triangular; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, 35–50 cm, 14–22-flowered; rachis and pedicels retrorse pubescent; proximal bracts leaflike, distal ones narrowly lanceolate or narrowly linear, 1–2 cm. Pedicels 1.8–10 cm, with 2 bracteoles at middle or above; bracteoles narrowly linear or subulate, 3–9 mm, pubescent. Sepals yellowish, abaxially appressed pubescent; lower sepals oblong or narrowly oblong, ca. 9 × 2–3.5 mm; lateral sepals obliquely broadly obovate, ca. 1.4 × 1.2 cm; upper sepal galeate, 1.7–1.9 cm, ca. 1.5 cm from base to beak, lower margin ca. 3 mm, concave. Petals ca. 1.9 cm; claw ca. 1.5 cm, sparsely pubescent; limb ca. 7 mm; lip ca. 3.8 mm, sparsely pubescent, 2-lobed at apex; spur circinate, ca. 3.5 mm, glabrous. Stamens glabrous. Carpels 4 or 5, appressed pubescent. Fl. Aug.

• *Abies* forests, grasslands; 3400–3800 m. NW Yunnan (Dêqên Xian).

86. *Aconitum nutantiflorum* Chang ex W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 70. 1965.

垂花乌头 chui hua wu tou

Caudex unknown. Stem ca. 1.5 m tall, many branched, basally spreading pubescent, apically retrorse pubescent, with leaves equally arranged along stem. Middle cauline leaves with petiole ca. 4 cm, glabrous; leaf blade pentagonal, 8.5–10 × ca. 12 cm, abaxially glabrous, adaxially sparsely appressed pubescent, 3-parted; central lobe rhombic, apex acuminate; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, ca. 20 cm, 7–12-flowered; rachis retrorse pubescent; proximal bracts leaflike,

distal ones elliptic or lanceolate to narrowly linear. Pedicels decurved at apex, 2.5–5 cm, spreading pubescent, proximally with 2 bracteoles; bracteoles subulate, 2.5–3.5 × ca. 0.3 mm, glabrous. Sepals blue or blue-white; lower sepals ca. 1.4 cm; lateral sepals ca. 1.7 cm; upper sepal navicular, glabrous, lower margin 1.7–2.1 cm, slightly concave. Petals ca. 2.2 cm, glabrous; claw slightly geniculate at apex; lip 3–3.5 mm, apex slightly concave; spur subcircinate, ca. 2.5 mm. Stamens glabrous; filaments entire. Carpels 3(–5), glabrous. Follicles 1.4–1.7 cm. Seeds ca. 4 mm. Fl. Aug.

• Forests; ca. 3600 m. SE Xizang (Zayü Xian).

87. *Aconitum pendulicarpum* Chang ex W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 69. 1965.

垂果乌头 *chui guo wu tou*

Caudex carrot-shaped, ca. 6 cm, ca. 1 cm in diam. Stem ca. 1.5 m, several shortly branched below inflorescence, sparsely retrorse pubescent, with 16 leaves equally arranged along stem. Proximal cauline leaves long petiolate, withered at anthesis, middle ones slightly long petiolate; petiole 4.5–6 cm, sparsely spreading pubescent, base sheathed; leaf blade orbicular-renal or pentagonal, 8–10 × 10–14 cm, abaxially sparsely pubescent at veins, adaxially sparsely appressed pubescent, base broadly cordate, 3-parted; central lobe rhombic, apex acuminate; lateral lobes obliquely flabellate. Inflorescence terminal, 22–28 cm, 13–18-flowered; rachis and pedicels densely retrorse and appressed pubescent; proximal and middle bracts leaflike, distal bracts linear or narrowly so, small. Pedicels slightly decurved, 1.5–5 cm, with 2 proximal bracteoles; bracteoles linear-subulate, 3–4.5 × ca. 0.3 mm. Sepals pale blue; lower sepals ca. 1.2 cm; lateral sepals ca. 1.5 cm; upper sepal navicular-galeate, 1.5–1.7 cm high, abaxially nearly glabrous, external margin oblique, beak ca. 4 mm, 1.5–2 cm from base to beak, lower margin slightly concave. Petals ca. 1.7 cm; claw glabrous or sparsely pubescent; lip ca. 3 mm, glabrous; spur incurved and ca. 1.2 mm, or circinate and 3.5–4 mm. Stamens glabrous; filaments entire. Carpels 3 or 4, sparsely or densely pubescent. Fl. Sep. $2n = 16^*$.

• Forests, scrub; 3500–3800 m. SE Xizang, NW Yunnan.

1a. Petaline spur ca. 1.2 mm, not circinate;

carpels sparsely pubescent 87a. var. *pendulicarpum*

1b. Petaline spur 3.5–3 mm, circinate;

carpels densely pubescent 87b. var. *circinatum*

87a. *Aconitum pendulicarpum* var. *pendulicarpum*

垂果乌头(原变种) *chui guo wu tou* (yuan bian zhong)

Petaline spur incurved, not circinate, ca. 1.2 mm.

Carpels sparsely pubescent.

• Forests; ca. 3500 m. SE Xizang (Zayü Xian).

87b. *Aconitum pendulicarpum* var. *circinatum* W. T. Wang, *Acta Bot. Yunnan.* 5: 155. 1983.

长距垂果乌头 *chang ju chui guo wu tou*

Petaline spur circinate, 3.5–3 mm. Carpels densely pubescent.

• Scrub; 3600–3800 m. NW Yunnan (Dêqên Xian).

88. *Aconitum rockii* H. R. Fletcher & Lauener, *Notes Roy. Bot. Gard. Edinburgh* 20: 185. 1950.

拟康定乌头 *ni kang ding wu tou*

Caudex carrot-shaped, ca. 6 cm, ca. 1 cm in diam. Stem 50–100 cm, simple or branched, densely spreading pubescent, with 15 leaves equally arranged along stem.

Proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole 4.5–6.5 cm, spreading pubescent, base narrowly sheathed; leaf blade

pentagonal, 6.5–7.5 × 8–12 cm, abaxially sparsely pubescent at veins, adaxially appressed pubescent, 3-parted;

central lobe rhombic, 3-fid beyond middle; lateral lobes obliquely flabellate, unequally 2-parted.

Inflorescence ca. 25 cm, many flowered; rachis and pedicels densely spreading yellowish pubescent or

appressed pubescent; proximal and middle bracts leaf-like; distal ones oblong to linear, small, ca. 1.2 cm.

Pedicels 1.4–5.5 cm, or to 10–12 cm, with 2 bracteoles proximally or distally; bracteoles linear or subulate,

rarely ovate, 3–6.5(–10) mm. Sepals blue-purple; lower sepals ca. 1.5 cm; lateral sepals abaxially sparsely

pubescent; upper sepal galeate or navicular-galeate, lower margin 1.5–1.8 cm, slightly oblique upward,

erect or slightly concave, abaxially glabrous. Petals glabrous; limb ca. 9 mm; lip ca. 4.5 mm, 2-lobed at

apex; spur circinate, ca. 3.5 mm. Stamens glabrous; filaments 2-denticulate or entire. Carpels 5, glabrous or

ovary pubescent. Fl. Aug–Sep.

• *Rhododendron* forests and scrub, scrub margins; 3800–4100 m. NW Yunnan.

1a. Rachis densely spreading yellowish pubescent;

pedicels 1.4–5.5 cm; carpels pubescent 88a. var. *rockii*

1b. Rachis appressed pubescent; proximal pedicels to 10–12 cm, distal ones ca. 3.5

cm; carpels glabrous 88b. var. *fengii*

88a. *Aconitum rockii* var. *rockii*

拟康定乌头(原变种) *ni kang ding wu tou* (yuan bian zhong)

Aconitum rockii var. *ramosum* W. T. Wang. Rachis densely spreading yellowish pubescent. Pedicels

1.4–5.5 cm. Carpels pubescent.

• *Rhododendron* scrub, scrub margins; 3900–4100 m. NW Yunnan (Zhongdian Xian).

88b. *Aconitum rockii* var. *fengii* (W. T. Wang) W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 226. 1979.

石膏山乌头 *shi gao shan wu tou*

Aconitum fengii W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 71. 1965.

Rachis appressed pubescent. Proximal pedicels to 10–12 cm, distal ones ca. 3.5 cm. Carpels glabrous.

• In *Rhododendron* forests; ca. 3800 m. NW Yunnan (Zhongdian Xian).

Further study is necessary to determine the placement of *Aconitum fengii* var. *crispulum* Q. E. Yang (Acta Phytotax. Sin. 37: 572. 1999), which may be synonymous with this taxon.

89. *Aconitum dolichorhynchum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 606. 1979.

长柱乌头 chang zhu wu tou

Caudex carrot-shaped, ca. 7 cm, ca. 7 mm in diam. Stem ca. 1 m tall, basally densely retrorse and spreading pubescent, apically glabrous. Proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole 5–9 cm, nearly glabrous; leaf blade cordate-pentagonal, 7–8.2 × 11–12 cm, both surfaces sparsely pubescent at veins, 3-parted; central lobe cuneate-rhombic, 3-lobed; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence ca. 6 cm, ca. 6-flowered; rachis distally and pedicels densely white spreading pubescent; bracts usually leaflike. Pedicels 1–3 cm, oblique upward, with 2 bracteoles at middle; bracteoles subulate, ca. 5 mm. Sepals blue-purple, abaxially glabrous; lower sepals narrowly oblong or linear, ca. 9 mm; lateral sepals obliquely broadly obovate, ca. 1.7 cm; upper sepal navicular-galeate, long clawed (claw ca. 9 mm), beak ca. 5 mm, ca. 2.5 cm from base to beak, lower margin concave. Petals glabrous. Stamens glabrous; filaments entire. Carpels 4, glabrous, style ca. 4 mm, ca. 3.2 mm. Fl. Aug.

• NW Yunnan (Dêqên Xian).

90. *Aconitum contortum* Finet & Gagnepain, Bull. Soc. Bot. France 51: 506. 1904.

苍山乌头 cang shan wu tou

Caudex carrot-shaped, 5–9 cm, 1.1–1.9 cm in diam. Stem erect or apically twining, 45–85 cm tall, apically branched, retrorse pubescent, or becoming glabrous, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole sparsely retrorse pubescent; leaf blade pentagonal, 4.5–7.6 × 8–10 cm, both surfaces sparsely pubescent or abaxially nearly glabrous, 3-sect; central segment rhombic; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence 2–5-flowered; rachis retrorse pubescent; bracts leaflike. Pedicels oblique upward, 2.2–4 cm, glabrous, with 2 bracteoles at middle or above; bracteoles oblong, obovate-oblong, or narrowly obovate, 5–6 × 1.6–3 mm. Sepals blue-purple, abaxially glabrous; lower sepals ca. 1.7 cm; lateral sepals ca. 1.8 cm; upper sepal ca. 2.1 cm, shortly beaked, lower margin oblique upward, suberect, ca. 2 cm. Petals glabrous; lip ca. 3.5 mm, slightly concave; spur incurved, globose, ca. 1.5 mm. Stamens glabrous; filaments usually 2-denticulate, rarely entire. Carpels 3–5, glabrous. Follicles 1.4–1.8 cm. Seeds ca. 3 mm. Fl. Sep–Oct. $2n = 16^*$.

• Mountains; ca. 3400 m. NW Yunnan (Dali Xian, Yunlong Xian).

91. *Aconitum lonchodontum* Handel-Mazzetti, Acta Horti Gothob. 13: 122. 1939.

长齿乌头 chang chi wu tou

Caudex ellipsoid-globose, ca. 1.5 cm. Stem ca. 1 m tall, apically shortly branched, glabrous. Proximal and middle cauline leaves long petiolate; petiole ca. 6 cm; leaf blade cordate-pentagonal, ca. 5.8 × 8 cm, abaxially glabrous, adaxially sparsely retrorse pubescent, 3-parted; central lobe rhombic, subpinnately parted, apex acuminate; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, 5–7-flowered; rachis and pedicels glabrous; proximal bracts leaflike, others linear. Pedicels slightly curved, to 3 cm, with 2 bracteoles at middle or below; bracteoles nearly subulate, ca. 5 mm. Sepals blue-purple, abaxially glabrous; lower sepals ovate or sublanceolate; lateral sepals orbicular-obovate, ca. 1.8 cm; upper sepal high galeate, 2–2.5 cm high, lower margin oblique upward, ca. 2 cm. Petals glabrous; lip ca. 7 mm, 2-lobed at apex; spur backward subcircinate, ca. 4 mm. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Aug.

• Mountains; ca. 2800 m. W Hubei.

92. *Aconitum fanjingshanicum* W. T. Wang, Bull. Bot. Res., Harbin 9(2): 3. 1989.

梵净山乌头 fan jing shan wu tou

Tuber carrot-shaped, 2–3.5 cm, 0.9–1.4 cm in diam. Stem ca. 70 cm, apically branched, middle sparsely spreading pubescent, elsewhere glabrous. Middle cauline leaves long petiolate; petiole ca. 5.5 cm, sparsely spreading pubescent; leaf blade subpentagonal, ca. 5.4 × 8.5 cm, leathery, abaxially glabrous, adaxially pubescent at veins, base cordate, 3-parted; central lobe rhombic, 3-parted, ultimate lobes narrowly ovate; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, 2- or 3-flowered; rachis glabrous; bracts leaflike. Pedicels 1.7–2.5 cm, sparsely spreading pubescent nearly to apex, rarely glabrous, with 2 bracteoles at middle; bracteoles narrowly elliptic, oblong, or linear, 5–7.5 mm, adaxially pubescent at veins, margin ciliate. Sepals blue, glabrous; lower sepals narrowly ovate or oblong, 0.7–1.4 cm; lateral sepals obliquely broadly obovate, ca. 1.3–1.6 cm; upper sepal high galeate, 1.5–1.7 cm high, shortly beaked, lower margin slightly concave, 1.6–1.7 cm. Petals glabrous; claw ca. 1.4 cm; limb ca. 7.5 mm; lip ca. 4 mm, 2-lobed at apex; spur incurved, ca. 2 mm. Stamens ca. 6 mm, glabrous; filaments entire. Carpels 5, glabrous.

• About 2200 m. Guizhou (Fanjing Shan).

93. *Aconitum taipeicum* Handel-Mazzetti, Acta Horti Gothob. 13: 120. 1939.

太白乌头 tai bai wu tou

Caudex obovate-globose or carrot-shaped, 1.5–3 cm. Stem 35–60 cm tall, apically branched, apically retrorse and appressed pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole ca. 22 cm, retrorse pubescent; leaf blade 3.5–5.5 × 5–7 cm, both surfaces sparsely pubescent, 3-parted; central lobe broadly rhombic, subpinnately lobed; lateral lobes

obliquely flabellate, unequally 2-parted. Inflorescence terminal, 2–4-flowered; rachis and pedicels retrorse pubescent; bracts 3-fid or oblong. Pedicel suberect upward, decurved at apex, 1.5–2.5 cm, with 2 bracteoles at middle; bracteoles linear, 0.6–1.1 × ca. 0.5 mm. Sepals blue; lower sepals ca. 1.1 cm; lateral sepals ca. 1.2 cm; upper sepal galeate, ca. 1.7 cm high, adaxially glabrous, indistinctly clawed, shortly beaked, ca. 1.5 cm from base to beak, lower margin slightly concave. Petals glabrous; limb ca. 8 mm; lip ca. 3.5 mm; spur incurved, ca. 1 mm. Stamens glabrous; filaments 2-denticulate. Carpels 5, glabrous or sparsely pubescent. Follicles ca. 8 mm. Fl. Sep.

• Alpine grasslands; 2600–3400 m. W Henan, S Shaanxi.

94. *Aconitum transectum* Diels, Notes Roy. Bot. Gard. Edinburgh 5: 268. 1912.

直缘乌头 zhi yuan wu tou

Caudex carrot-shaped, 6–8 cm, ca. 1.5 cm in diam. Stem to 1 m tall, branched, retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole 2–10 cm; leaf blade pentagonal, (4.5–)5(–10) × 6.5–15 cm, abaxially pubescent at veins, adaxially sparsely appressed pubescent, 3-sect or -parted; central segment rhombic, subpinnately lobed; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, 30–45 cm, many flowered; rachis and pedicels densely retrorse and appressed pubescent; proximal bracts leaflike, distal ones smaller, 3-fid or oblong. Pedicel 1–10 cm, with 2 bracteoles at middle or above; proximal bracteoles 3-fid, shortly stipitate, oblong to linear, 4–10 mm, distal ones unlobed. Sepals pale blue, abaxially pubescent; lower sepals ca. 1.3 cm; lateral sepals ca. 1.7 cm; upper sepal galeate, ca. 1.5 cm high, lower margin 2–2.2 cm, apex curved. Petaline claw pubescent, apex slightly geniculate; lip ca. 4.5 mm, 2-lobed at apex; spur incurved, ca. 1.6 mm. Stamens glabrous; filaments 2-denticulate. Carpels 5, densely appressed pubescent. Follicles ca. 1 cm. Seeds 2.5–3 mm. $2n = 16^*$.

• *Abies* forests, scrub, grassy slopes; 2800–3900 m. W Sichuan (Yanyuan Xian), NW Yunnan (Lijiang Naxi Zu Zizhixian).

95. *Aconitum lihsienense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 607. 1979.

理县乌头 li xian wu tou

Caudex narrowly obconical or carrot-shaped, 4–7 cm. Stem 50–100 cm tall, simple or apically branched, glabrous, with many leaves equally arranged along stem. Proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole 8–12 cm; leaf blade orbicular-pentagonal, 4–6.8 × 5.5–8 cm, both surfaces sparsely pubescent at veins, base deeply cordate, 3-parted; central lobe rhombic; lateral lobes obliquely flabellate, unequally 3-parted. Inflorescence terminal, 6–24 cm, 6–20-flowered; rachis glabrous; proximal bracts leaflike, others oblong-linear. Pedicels 2–6.4 cm,

sparsely spreading pubescent, with 2 bracteoles at middle or above; bracteoles oblong-linear to linear, 0.8–1.5 cm × 0.5–3 mm. Sepals dark blue, abaxially glabrous or subglabrous, margin sparsely pubescent; lateral sepals obliquely obovate, ca. 0.9 cm; upper sepal navicular-galeate, 1.4–1.5 cm, shortly beaked, 1.4–1.5 cm from base to beak, lower margin concave. Petals glabrous; claw sometimes slightly geniculate at apex; limb 5–7 mm; lip ca. 2.5 mm; spur subglobose, 1–1.5 mm. Stamens 6–7 mm, glabrous; filaments entire. Carpels 5(or 6), spreading pubescent. Fl. Jul.

• Forests; ca. 3300 m. NC Sichuan (Li Xian).

96. *Aconitum longipedicellatum* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 21. 1963.

长梗乌头 chang geng wu tou

Caudex unknown. Stem to 80 cm tall, basally becoming glabrous, apically retrorse pubescent. Proximal cauline leaves long petiolate; petiole to 25 cm, distal leaves shortly petiolate; leaf blade cordate-pentagonal, ca. 10 × 10 cm, glabrous, 3-parted; central lobe rhombic, apex acute, 3-fid slightly beyond middle. Inflorescence conical, to 40 cm, many flowered; rachis and pedicels pubescent; proximal bracts leaflike. Pedicels erect upward, 3–9 cm, with 2 bracteoles at or near middle; proximal bracteoles leaflike, distal ones lanceolate or linear. Sepals blue-violet, abaxially pubescent; lower sepals ca. 1.4 cm; lateral sepals ca. 1.5 × 1.5 cm; upper sepal subgaleate, ca. 1.7 cm high, shortly beaked, 1.3–2 cm from base to beak, lower margin suberect. Petaline claw pubescent; spur incurved, globose, short. Stamens pubescent; filaments entire or 2-denticulate. Carpels 5, sericeous. Fl. Aug.

• Scrub; ca. 4300 m. SE Xizang.

97. *Aconitum laevicaule* W. T. Wang, Acta Bot. Yunnan. 15: 155. 1983.

光茎乌头 guang jing wu tou

Caudex unknown. Stem ca. 80 cm, glabrous. Middle cauline leaves slightly long petiolate; petiole ca. 4 cm, glabrous; leaf blade pentagonal, ca. 11 × 14 cm, herbaceous, abaxially glabrous, adaxially sparsely appressed pubescent, base deeply cordate, 3-sect; central segment rhombic, apex long acuminate, subpinnatifid; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence terminal, ca. 28 cm, ca. 15-flowered; rachis glabrous; proximal bracts leaflike, 3–8.5 cm, shortly stipitate, distal ones oblong, ca. 1 cm, dentate. Pedicels 0.6–2.5 cm, distally pale brown spreading pubescent, with 2 bracteoles at middle or above; bracteoles linear, 3.5–8 mm, membranous, glabrous. Sepals purple, abaxially sparsely pubescent, elsewhere glabrous; lower sepals narrowly oblong, 5–7 mm; lateral sepals suborbicular, ca. 7 mm; upper sepal galeate, ca. 7 mm high, ca. 8 mm from base to beak, lower margin concave. Petals glabrous; claw ca. 9 mm; limb ca. 7 mm; lip ca. 2.5 mm; spur circinate, ca. 2 mm.

Stamens glabrous; filaments 2-denticulate. Carpels 3, glabrous. Fl. Aug–Sep.

• Forests; 3700–3900 m. NW Yunnan (Zhongdian Xian).

98. *Aconitum chuosiense* W. T. Wang, Fl. Reipubl. Popul. Sin. 27: 607. 1979.

绰斯甲乌头 *chuo si jia wu tou*

Caudex unknown. Stem dark purple, ca. 1 m tall, slightly retrorse and appressed pubescent. Middle cauline leaves shortly petiolate; petiole ca. 2.4 cm; leaf blade pentagonal, ca. 6.5 × 9 cm, both surfaces sparsely appressed pubescent, base cordate, 3-sect; central segment narrowly rhombic, apex long acuminate, 3-fid at middle; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence ca. 12 cm, 9-flowered; proximal bracts leaflike, distal ones linear; rachis and pedicels densely retrorse pubescent. Pedicels to 3.5 cm, with 2 bracteoles below middle; bracteoles narrowly linear, 4–5 × ca. 0.4 mm. Sepals purplish, external margin sparsely retrorse pubescent at lower part, elsewhere subglabrous; lower sepals linear or narrowly linear, ca. 1 cm × 1–2 mm; lateral sepals obliquely broadly obovate, ca. 1.4 cm; upper sepal galeate, ca. 1.7 cm high, ca. 1.4 cm from base to beak. Petals sparsely pubescent; limb ca. 9 mm; lip ca. 4.5 mm, 2-fid at apex; spur incurved, subglobose, ca. 1.1 mm. Stamens glabrous; filaments entire. Carpels 4, glabrous. Fl. Aug.

• *Picea* forests; ca. 3400 m. NW Sichuan.

99. *Aconitum zhaojueense* W. T. Wang & P. K. Hsiao in W. T. Wang, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 8: 16. 1980.

昭觉乌头 *zhao jue wu tou*

Caudex ellipsoid-globose or oblong, ca. 3.5 cm, 1–2 cm in diam. Stem ca. 80 cm, densely retrorse pubescent. Middle cauline leaves shortly petiolate; petiole ca. 1 cm; leaf blade pentagonal, ca. 7 × 7.8 cm, papery, both surfaces sparsely appressed pubescent, base cordate, 3-sect; central segment rhombic, subpinnately parted; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence a panicle, terminal, ca. 25 cm, proximally ca. 4-branched, many flowered; rachis and pedicels densely retrorse and spreading pubescent; proximal bracts leaflike, distal ones linear. Pedicels 0.3–2.5 cm, with 2 bracteoles at or above base; bracteoles linear, 3–4.5 mm, densely pubescent. Sepals purple, abaxially pubescent; lower sepals obliquely oblong, 1.1–1.3 cm; lateral sepals obliquely broadly obovate, ca. 1.5 cm, adaxially sparsely villous; upper sepal galeate, ca. 1.9 cm high, shortly clawed, ca. 1.6 cm from base to beak, lower margin slightly concave. Petals ca. 1.7 cm; claw ca. 1.3 cm, rarely pubescent; lip ca. 4.5 mm, 2-lobed at apex; spur subglobose, ca. 1.1 mm in diam. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3, glabrous.

• About 2200 m. Sichuan (Zhaojue Xian).

100. *Aconitum pseudodivarticatum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 72. 1965.

全裂乌头 *quan lie wu tou*

Caudex carrot-shaped, 6–10 cm, 0.9–2 cm in diam.

Stem 1–1.5 m tall, several branched below inflorescence, basally retrorse pubescent, apically spreading pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle leaves long petiolate; petiole ca. 4.5 cm; leaf blade pentagonal, ca. 8 × 14 cm, both surfaces sparsely pubescent, or becoming glabrous, base cordate, 3-sect; central segment rhombic or broadly rhombic; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, to 25 cm, many flowered; rachis and pedicels densely spreading yellowish or white pubescent; proximal bracts 3-fid, others lanceolate or linear. Pedicels 1.2–3.2 cm, with 2 bracteoles at middle; bracteoles oblong to linear, 3–7 × 0.5–1.6 mm. Sepals purple, abaxially glabrous; lower sepals oblong; lateral sepals ca. 1.3 cm; upper sepal galeate, ca. 1.6 cm high, short, not clawed, shortly beaked, ca. 1.2 cm from base to beak, lower margin slightly concave. Petals sparsely pubescent; limb ca. 6.5 mm; lip ca. 3 mm; spur incurved, ca. 1 mm. Stamens glabrous; filaments entire. Carpels 5, sparsely pubescent. Follicles erect, ca. 9 mm. Seeds ca. 2 mm. Fl. Aug.

• Mountains; ca. 3200 m. E Xizang (Bomi Xian).

101. *Aconitum yanyuanense* W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 25: 28. 1987.

盐源乌头 *yan yuan wu tou*

Caudex obovate or carrot-shaped, 6–10 cm, 1.2–2 cm in diam. Stem 1–1.6 m tall, apically branched, basally sparsely spreading pubescent. Basal leaves withered at anthesis; proximal and middle cauline leaves long petiolate; petiole 5–15 cm; leaf blade pentagonal, 8–12 × 10–16 cm, papery, abaxially appressed pubescent at veins, adaxially appressed pubescent, base cordate, 3-sect; central segment broadly rhombic, pinnately parted; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal or axillary, 5–15-flowered; rachis and pedicels densely retrorse white or yellowish pubescent; bracts leaflike. Pedicels 1–5 cm, distally with 2 bracteoles; bracteoles usually leaflike. Sepals purplish, abaxially pubescent; lower sepals oblong, ca. 8 × 3 mm; lateral sepals obliquely broadly obovate, ca. 1 × 1.2 cm; upper sepal galeate, ca. 1 cm high, shortly beaked, ca. 1.4 cm from base to beak, lower margin suberect. Petals glabrous, ca. 1.4 cm; claw geniculate at apex; limb ca. 8 × 2.5 mm; lip ca. 4 mm, 2-lobed at apex; spur incurved, ca. 3 mm. Stamens glabrous; filaments entire. Carpels 4, glabrous.

• *Abies* forests; 3600–3900 m. Sichuan (Yanyuan Xian).

102. *Aconitum japonicum* Thunberg subsp. *napiforme* (H. Léveillé & Vaniot) Kadota, Rev. *Aconitum* E. Asia 179. 1987.

萝卜乌头 *luo bo wu tou*

Aconitum napiforme H. Léveillé & Vaniot, Repert. Spec. Nov. Regni Veg. 5: 9. 1908.

Caudex obovoidal, 3–8 cm, 1–3 cm in diam. Stem 15–150 cm, 3–10-branched, sparsely retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones with petiole 2–8 cm, sparsely retrorse pubescent; leaf blade pentagonal, 4–14 × 4.5–16 cm, membranous to leathery, both surfaces sparsely retrorse pubescent, base cordate, ternate; central segment rhombic to ovate-rhombic, subpinnately divided or lobed; lateral segments obliquely flabellate, unequally 2-parted, apex acuminate. Inflorescence terminal, racemose to corymbose, 2–8-flowered; rachis and pedicels retrorse pubescent; proximal bracts 3-fid, others oblong or linear. Proximal pedicels 3–10 cm, with 2 bracteoles medially at pedicels; bracteoles linear to lanceolate, 3–10 × 0.5–3 mm. Sepals purple-blue, abaxially sparsely retrorse pubescent; lower sepals oblong, 1–1.9 cm; lateral sepals 1.3–2.3 cm; upper sepal galeate, 2–2.8 cm high, long beaked, lower margin 1.4–2.3 cm. Petals glabrous; limb 3–6 mm wide; lip 2–4 mm; spur incurved to subcircinate, 2–4 mm. Stamens glabrous; filaments 2-denticulate. Carpels 3–5, glabrous or sparsely to densely retrorse pubescent. Follicles erect, 0.8–1.3 cm. Seeds ca. 2 mm. Fl. Aug–Oct. $2n = 32$. Forests, forest margins, by streams; 500–1500 m. Liaoning [Japan, Korea].

103. *Aconitum longiramosum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 607. 1979.

长枝乌头 *chang zhi wu tou*

Tuber carrot-shaped, ca. 5 cm, ca. 8 mm in diam. Stem trailing, ca. 1.8 m, with slender branches to 34 cm, basally glabrous, apically pubescent. Cauline leaves with petiole ca. 2.5 cm; leaf blade ovate-pentagonal, to 9 × 9 cm, abaxially glabrous, adaxially sparsely appressed pubescent, 3-parted; central lobe ovate-rhombic, apex caudate-acuminate, subpinnately parted, lobules narrowly ovate; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence terminal, ca. 30 cm, many flowered; rachis and pedicels sparsely spreading pubescent and glandular pubescent; proximal bracts leaflike, distal ones linear. Pedicels 3–5 cm, with 2 bracteoles at middle; bracteoles narrowly linear or subulate, 3–8 mm. Sepals blue-purple, abaxially glabrous; lower sepals ca. 9 mm; lateral sepals 1.2–1.4 cm; upper sepal falcate-navicular, 1.4–1.8 cm from base to beak. Petaline claw sparsely pubescent; lip ca. 3.5 mm; spur ca. 1.2 mm. Stamens glabrous; filaments entire. Carpels 4 or 5 (or 6), glabrous. Fl. Aug–Sep.

• Mountains; ca. 3700 m. W Sichuan.

104. *Aconitum racemulosum* Franchet, J. Bot. (Morot) 8: 276. 1894.

岩乌头 *yan wu tou*

Caudex obconical, 2.3–3.6 cm, 0.9–1.1 cm in diam., or subterete, ca. 7 cm, ca. 5 mm in diam. Stem 40–65 cm tall, glabrous, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis; middle ones shortly petiolate; petiole terete, 2.2–3 cm,

glabrous; leaf blade pentagonal, sometimes orbicular-rhombic, 5.5–9 × 8–10 cm, leathery, glabrous, base cordate or shallowly cordate, 3-parted; central lobe ovate-rhombic, apex long acuminate; lateral lobes obliquely flabellate; distal leaves smaller, broadly ovate or rhombic, 3-fid slightly beyond middle, sometimes narrowly ovate, almost unlobed. Inflorescence 2.2–3 cm, 1–6-flowered; rachis and pedicels glabrous; bracts ovate or narrowly ovate. Pedicels slightly decurved, ca. 1 cm, with 2 bracteoles at middle; bracteoles lanceolate-linear to broadly ovate or rhombic, 3–12 × 1.5–9.5 mm, nearly glabrous. Sepals blue, glabrous; lower sepals ca. 2.1 cm; lateral sepals ca. 2.2 cm; upper sepal cylindrical-galeate, 2.4–3.2 cm high, lower margin slightly concave, 1.5–2.4 cm. Petals glabrous; claw long; lip ca. 6 mm; spur incurved, 5–7 mm. Stamens glabrous; filaments 2-denticulate or entire. Carpels 3, glabrous. Follicles 1.6–1.8 cm. Seeds ca. 2 mm. Fl. Sep–Oct. $2n = 16^*$.

• On rocks in valleys and forests; 1600–2800 m. Guizhou, W Hubei, Sichuan, NE Yunnan.

1a. Bracteoles relatively small, lanceolate to lanceolate-linear, 3–8 × ca. 1.5 mm, apex acuminate 104a. var. *racemulosum*

1b. Bracteoles relatively large, ovate, broadly ovate, or rhombic, 7–12 × 5–9.5 mm, apex acute 104b. var. *grandibracteolatum*

104a. *Aconitum racemulosum* var. *racemulosum*

岩乌头(原变种) *yan wu tou* (yuan bian zhong)

Aconitum coriaceum H. Léveillé; *A. racemulosum* var. *pengzhouense* W. J. Zhang & G. H. Chen; *A. sczukinii* Turczaninow var. *pauciflorum* Rapaics.

Bracteoles relatively small, lanceolate to lanceolate-linear, 3–8 × ca. 1.5 mm, apex acuminate.

• 1600–2300 m. Guizhou, W Hubei, Sichuan, NE Yunnan.

104b. *Aconitum racemulosum* var. *grandibracteolatum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 75. 1965.

巨苞岩乌头 *ju bao yan wu tou*

Bracteoles relatively large, ovate, broadly ovate, or rhombic, 7–12 × 5–9.5 mm, apex acute.

• 2300–2800 m. W Sichuan.

105. *Aconitum rhombifolium* F. H. Chen, Bull. Fan Mem. Inst. Biol, n. s., 1: 91. 1943.

菱叶乌头 *ling ye wu tou*

Caudex unknown. Stem to 70 cm tall, ca. 4 mm in diam., glabrous, with leaves equally arranged along stem. Leaves shortly petiolate; petiole 1.4–3 cm, glabrous; leaf blade rhombic-ovate or narrowly ovate, 8.5–15.5 × 3.3–7 cm, leathery, glabrous, abaxially veins convex or not, margin undivided, base broadly cuneate or rounded. Inflorescence 2–3.5 cm, 1–3-flowered; rachis and pedicels sparsely spreading pubescent or pedicels glabrous; bracts oblong or subulate, 4–11 mm, glabrous. Pedicels 1.3–1.6 cm, with 2 bracteoles at middle or below; bracteoles subulate, 2–2.5 mm,

sparingly pubescent or glabrous. Sepals blue, abaxially sparsely pubescent; lower sepals 1.4–1.5 cm; lateral sepals 1.5–1.6 cm; upper sepal cylindrical-galeate, ca. 2.5 cm high, lower margin concave, 1.1–1.5 cm. Petals glabrous; lip ca. 5 mm; spur incurved, 2–3 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3, glabrous, or ovary sparsely pubescent. Follicles 1.7–1.8 cm. Seeds ca. 2.6 mm. Fl. Oct–Nov.

• On rocks, steep cliffs; 900–1200 m. Sichuan.

1a. Leaf blade rhombic-ovate, broadly cuneate at base, abaxially veins convex, pedicels, bracteoles, and carpels pubescent 105a. var. *rhombofolium*

1b. Leaf blade narrowly ovate, rounded at base, abaxially veins not convex, pedicels, bracteoles, and carpels glabrous 105b. var. *leiocarpum*

105a. *Aconitum rhombifolium* var. *rhombofolium*

菱叶乌头(原变种) ling ye wu tou (yuan bian zhong)

Leaf blade rhombic-ovate, abaxially veins convex, base broadly cuneate. Pedicels, bracteoles and carpels pubescent.

• Steep cliffs; ca. 1200 m. Sichuan.

105b. *Aconitum rhombifolium* var. *leiocarpum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 76. 1965.

光果菱叶乌头 guang guo ling ye wu tou

Leaf blade narrowly ovate, abaxially veins not convex, base rounded. Pedicels, bracteoles and carpels glabrous.

• On rocks; 900–1000 m. W Sichuan (Tianquan Xian).

106. *Aconitum hemsleyanum* E. Pritzel in Diels, Bot. Jahrb. Syst. 29: 329. 1900.

瓜叶乌头 gua ye wu tou

Caudex conical, ellipsoid-globose, or fusiform, 1.6–10 cm, to 1.6–2.8 cm in diam. Stem usually purplish, twining, branched, glabrous. Leaves long petiolate; petiole 4–10 cm, sparsely pubescent or nearly glabrous; leaf blade pentagonal or ovate-pentagonal, 6.5–12 × 8–13 cm, glabrous, base cordate or subtruncate, 3-parted; central lobe trapezoid-rhombic or ovate-rhombic; lateral lobes obliquely flabellate, unequally 2-lobed. Inflorescence terminal, 2–6(–12)-flowered; rachis and pedicels glabrous or appressed pubescent, or pedicels spreading pubescent; proximal bracts leaflike or broadly elliptic; distal bracts linear, smaller. Pedicels usually pendulous, 2.2–6 cm, with 2 bracteoles proximally or distally; bracteoles linear, 3–5 × ca. 0.5 mm, glabrous or pubescent. Sepals dark blue, abaxially glabrous or sparsely pubescent, or both surfaces pubescent; lower sepals 1.2–1.3 cm; lateral sepals suborbicular, 1.5–1.6 cm; upper sepal high galeate or

cylindrical-galeate, 2–2.4 cm high, clawed or indistinctly so, lower margin erect or slightly concave, 1.7–1.8 cm. Petals glabrous, or petaline lip and claw sparsely pubescent; limb ca. 1 cm × 4 mm; lip ca. 5 mm; spur incurved or circinate, 2–8 mm. Stamens glabrous; filaments 2-denticulate or entire. Carpels 5, glabrous or rarely ovary pubescent. Follicles erect, 1.2–1.5 mm; persistent style 2.5–5.5 mm. Seeds ca. 3 mm. Fl. Aug–Oct.

Forests, forest margins, scrub, mountains, grassy slopes; 1700–3500 m. W Anhui, NW Guizhou, W Henan, Hubei, N Hunan, N Jiangxi, S Shaanxi, Sichuan, Xizang, NW and W Yunnan, NW Zhejiang [Myanmar].

1a. Leaves subtruncate at base, persistent style 5–5.5 mm 106d. var. *chingtungense*

1b. Leaves cordate at base, persistent style ca. 2.5 mm.

2a. Distal leaves abaxially with a globose bulbil; petaline spur ca. 1 mm 106g. var. *hsiae*

2b. Distal leaves without bulbil; petaline spur more than 1.5 mm.

3a. Bracteoles pubescent, or glabrous, sepals pubescent on both surfaces or abaxially pubescent.

4a. Bracteoles and sepals pubescent on both surfaces; petals glabrous; abaxial hairs on upper sepal indistinct 106h. var. *lasianthum*

4b. Bracteoles glabrous; sepals pubescent only abaxially.

5a. Petaline lip and spur sparsely pubescent, abaxial hairs on upper sepal ca. 8 mm, rachis glabrous or appressed pubescent 106i. var. *pilopetalum*

5b. Petaline lip and spur glabrous; abaxial hairs on upper sepal indistinct; rachis spreading pubescent ... 106k. var. *xizangense*

3b. Bracteoles and sepals abaxially glabrous.

6a. Petaline spur 4–8 mm, circinate.

7a. Petaline spur 4–6 mm . 106b. var. *circinatum*

7b. Petaline spur ca. 8 mm 106c. var. *elongatum*

6b. Petaline spur 1.5–2 mm, incurved or circinate.

8a. Pedicels glabrous or appressed pubescent.

9a. Branchlet glabrous; spur ca. 2 mm, not circinate 106a. var. *hemsleyanum*

9b. Branchlet sparsely pubescent; spur 6–7 mm, circinate 106j. var. *puberulum*

8b. Pedicels spreading pubescent.

10a. Petals pubescent, upper sepal not clawed; cylindrical-galeate, spur ca. 1.5 mm; caudex 1.6–3 cm, ca. 1.6 in diam. 106e. var. *atropurpureum*

- 10b. Petals glabrous, high galeate, upper sepal clawed, claw ca. 5 mm; spur ca. 6 mm; caudex 5.5–10 cm, 2.5–2.8 in diam.

..... 106f. var. *unguiculatum*

106a. *Aconitum hemsleyanum* var. *hemsleyanum*

瓜叶乌头(原变种) *gua ye wu tou* (yuan bian zhong) *Aconitum hemsleyanum* E. Pritzl var. *leucanthum* P. Guo & M. R. Jia; *A. sczukinii* Turczaninow var. *hemsleyanum* Rapaics.

Branchlet glabrous. Leaves cordate at base, distal ones without bulbils. Pedicels glabrous or appressed pubescent. Bracteoles and sepals abaxially glabrous. Petals glabrous; spur not circinate, ca. 2 mm. Persistent style ca. 2.5 mm.

• Forests, scrub; 1700–2200 m. W Anhui, W Henan, Hubei, N Hunan, N Jiangxi, S Shaanxi, Sichuan, NW Zhejiang.

106b. *Aconitum hemsleyanum* var. *circinatum* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 76. 1965.

拳距瓜叶乌头 *quan ju gua ye wu tou*

Leaves cordate at base, distal ones without bulbils. Bracteoles and sepals abaxially glabrous. Petaline spur circinate, 4–6 mm. Persistent style ca. 2.5 mm.

Scrub; 2300–2900 m. NW Guizhou (Panxian Tequ), W Sichuan (Ebian Xian, Emei Xian), ?Yunnan [Myanmar].

106c. *Aconitum hemsleyanum* var. *elongatum* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 77. 1965.

长距瓜叶乌头 *chang ju gua ye wu tou*

Leaves cordate at base, distal ones without bulbils. Bracteoles and sepals abaxially glabrous. Petaline spur circinate, ca. 8 mm. Persistent style ca. 2.5 mm.

• Forest margins; 1900–3300 m. W Sichuan.

106d. *Aconitum hemsleyanum* var. *chingtungense* (W. T. Wang) W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 236. 1979.

截基瓜叶乌头 *jie ji gua ye wu tou*

Aconitum chingtungense W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 77. 1965.

Leaves subtruncate at base. Persistent style 5–5.5 mm.

• Mountains; ca. 3100. W Yunnan (Jingdong Xian).

106e. *Aconitum hemsleyanum* var. *atropurpureum* (Handel-Mazzetti) W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 236. 1979.

展毛瓜叶乌头 *zhan mao gua ye wu tou*

Aconitum atropurpureum Handel-Mazzetti, *Acta Horti Gothob.* 13: 124. 1939.

Caudex 1.6–3 cm, ca. 1.6 in diam. Leaves cordate at base, distal ones without bulbils. Bracteoles and sepals abaxially glabrous. Pedicels spreading pubescent.

Upper sepal cylindrical-galeate, not clawed. Petals pubescent; spur ca. 1.5 mm. Persistent style ca. 2.5 mm.

• Mountains; 2100–3100 m. C Sichuan (Guan Xian).

106f. *Aconitum hemsleyanum* var. *unguiculatum* W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 607. 1979.

爪盔瓜叶乌头 *zhao kui gua ye wu tou*

Caudex 5.5–10 cm, 2.5–2.8 in diam. Leaves cordate at base, distal ones without bulbils. Bracteoles and sepals abaxially glabrous. Pedicels spreading pubescent. Upper sepal clawed, claw ca. 5 mm. Petals glabrous, high galeate; spur ca. 6 mm. Persistent style ca. 2.5 mm.

• Forest margins; ca. 3100 m. NW Yunnan (Weixi Lisu Zu Zizhixian).

106g. *Aconitum hemsleyanum* var. *hsiae* (W. T. Wang) W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 238. 1979.

珠芽瓜叶乌头 *zhu ya gua ye wu tou*

Aconitum hsiae W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 78. 1965.

Leaves cordate at base, distal ones abaxially with a globose bulbil. Petaline spur ca. 1 mm. Persistent style ca. 2.5 mm.

• Grassy slopes; SE Xizang (Cona Xian).

106h. *Aconitum hemsleyanum* var. *lasianthum* W. T. Wang & L. Q. Li, *Acta Phytotax. Sin.* 25: 29. 1987.

毛萼瓜叶乌头 *mao e gua ye wu tou*

Leaves cordate at base, distal ones without bulbils. Bracteoles and sepals pubescent on both surfaces. Upper sepal with indistinct abaxial hairs. Petals glabrous; spur more than 1.5 mm. Persistent style ca. 2.5 mm.

• Scrub; 3200–3300 m. W Sichuan (Muli Zang Zu Zizhixian).

106i. *Aconitum hemsleyanum* var. *pilopetalum* W. T. Wang & L. Q. Li, *Acta Phytotax. Sin.* 25: 29. 1987.

毛瓣瓜叶乌头 *mao ban gua ye wu tou*

Leaves cordate at base, distal ones without bulbils. Rachis glabrous or appressed pubescent; bracteoles glabrous. Sepals abaxially pubescent, hairs of upper sepal ca. 8 mm. Petaline spur more than 1.5 mm, lip and spur sparsely pubescent. Persistent style ca. 2.5 mm

• Shaded places in forests; 3200–3300 m. W Sichuan (Muli Zang Zu Zizhixian).

106j. *Aconitum hemsleyanum* var. *puberulum* W. T. Wang & L. Q. Li, *Acta Bot. Yunnan.* 8: 260. 1986.

毛枝瓜叶乌头 *mao zhi gua ye wu tou*

Branchlet sparsely pubescent. Leaves cordate at base, distal ones without bulbils. Bracteoles and sepals abaxially glabrous. Pedicels glabrous or appressed pubescent. Petals glabrous; spur circinate, 6–7 mm. Persistent style ca. 2.5 mm.

• Scrub; 3200–3500 m. Xizang (Nyingchi Xian).

106k. *Aconitum hemsleyanum* var. *xizangense* W. T. Wang & L. Q. Li, *Acta Phytotax. Sin.* 32(5): 470. 1994.

西藏瓜叶乌头 *xi zang gua ye wu tou*

Leaves cordate at base, distal ones without bulbils. Rachis spreading pubescent; bracteoles glabrous. Sepals

abaxially pubescent. Petaline lip and spur glabrous, spur more than 1.5 mm. Persistent style ca. 2.5 mm.

• About 2900 m. S Xizang (Nang Xian).

107. *Aconitum refractarpum* Chang ex W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 77. 1965.

弯果乌头 wan guo wu tou

Caudex unknown. Stem twining, branched, glabrous. Cauline leaves long petiolate; petiole 6–9 cm, glabrous; leaf pentagonal or ovate-pentagonal, 5–5.5 × 7–9 cm, abaxially appressed pubescent, adaxially glabrous, 3-parted; central lobe rhombic; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence sparsely 2- or 3-flowered; rachis and pedicels glabrous; bracts broadly rhombic, 3-lobed or unlobed. Pedicels 5–14 cm, with 2 bracteoles near middle; bracteoles shortly stipitate or sessile, elliptic or spatulate, 3.5–25 × 1.5–10 cm. Sepals green, abaxially glabrous; lower sepals ca. 1.4 cm; lateral sepals broadly obovate, ca. 1.5 cm; upper sepal high galeate, ca. 2.5 cm high, lower margin oblique upward, suberect, ca. 1.9 cm. Petals ca. 1.8 cm; claw sparsely pubescent; limb glabrous; lip ca. 4.5 mm, slightly concave; spur incurved, ca. 2.5 mm. Stamens glabrous; filaments entire. Carpels 3–5, glabrous. Follicles ca. 1.5 cm. Seeds ca. 3 mm. Fl. Aug–Sep.

• Forests; ca. 3200 m. NW Yunnan (Bijiang Xian).

108. *Aconitum weixiense* W. T. Wang, *Acta Bot. Yunnan*. 4: 132. 1982.

维西乌头 wei xi wu tou

Caudex unknown. Stem twining, branched; branches sparsely retrorse white pubescent. Cauline leaves long petiolate; petiole ca. 5.5 cm, sparsely retrorse and spreading pubescent; leaf blade pentagonal, ca. 12 × 22 cm, papery, abaxially retrorse pubescent at veins, adaxially sparsely appressed pubescent or subglabrous, base broadly cordate, 3-parted; central lobe rhombic, apex long acuminate; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence ca. 10 cm, several flowered; rachis and pedicels villous; bracts 3-parted, 0.6–2 cm. Pedicels 2–2.5 cm, with 2 or 3 bracteoles at or above middle; bracteoles linear, 2–3 mm, villous. Sepals white; lower sepals lanceolate-oblong, ca. 1.2 cm, abaxially sparsely villous; lateral sepals obliquely broadly obovate, ca. 1.4 cm, abaxially sparsely villous; upper sepal galeate, ca. 1.5 cm high, shortly clawed, ca. 3 mm, beak ca. 1.5 mm, 1.5–1.6 cm from base to beak. Petals ca. 2.1 cm, glabrous; claw ca. 1.5 cm; limb ca. 9 mm; lip ca. 4 mm, 2-lobed; spur decurved, ca. 3 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3, glabrous.

• Mountain summits. NW Yunnan (Weixi Lisu Zu Zizhixian).

109. *Aconitum crassaule* W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 607. 1979.

粗茎乌头 cu jing wu tou

Caudex obovate-conical, to 5.5 cm, to 1.6 cm in diam. Stem twining, ca. 3 m tall, base 1.2–2.4 cm in diam., branched, apically sparsely retrorse pubescent. Cauline

leaves with petiole 4–8 cm, sparsely retrorse pubescent; leaf blade pentagonal or ovate-pentagonal, 7–8.5 × ca. 10 cm, both surfaces becoming glabrous, base cordate, 3-parted; central lobe rhombic; lateral lobes obliquely flabellate, unequally 2-lobed. Inflorescence 5–10-flowered; rachis and pedicels glabrous or nearly so; proximal bracts leaflike, others ovate-linear. Pedicels 1.6–3 cm, proximally with 2 bracteoles; bracteoles linear or linear-subulate, ca. 3 mm, usually glabrous. Sepals blue-purple, abaxially glabrous; lower sepals ca. 1.2 cm; lateral sepals 1–1.5 cm; upper sepal galeate or navicular-galeate, 2.5–4 mm from base to beak. Petals glabrous; claw sometimes slightly geniculate at apex; lip ca. 4.5 mm, slightly concave; spur incurved, ca. 1.5 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous. Follicles erect, ca. 1.3 cm; persistent style ca. 2.2 mm. Seeds ca. 1.5 mm. Fl. Aug–Sep.

• Forests; 2800–3300 m. NW Yunnan.

110. *Aconitum tsaii* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 79. 1965.

碧江乌头 bi jiang wu tou

Caudex unknown. Stem twining, branched, glabrous, or spreading and retrorse pubescent. Middle cauline leaves slightly long petiolate; petiole 3–7 cm, glabrous, base cordate, 3-parted; central lobe rhombic or broadly rhombic, apex shortly acuminate, subpinnately lobed; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence 15–20 cm, ca. 10-flowered; rachis and pedicels glabrous, or retrorse pubescent; proximal bracts leaflike, distal ones shortly stipitate, oblong. Pedicels 1.6–3.5 cm, with 2 bracteoles near middle; bracteoles shortly stipitate, obovate or spatulate, sometimes elliptic, margin entire, rarely dentate. Sepals green or purple, abaxially glabrous; lower sepals ca. 1.5 cm; lateral sepals ca. 1.6 cm; upper sepal galeate, short, 1.8–2.3 cm high, not clawed, beak slightly upward curved, ca. 1.8 cm from base to beak, lower margin oblique upward, concave. Petals glabrous; claw erect or geniculate at apex, or not geniculate; lip ca. 4 mm, slightly concave; spur circinate, ca. 3 mm, glabrous. Stamens glabrous; filaments entire. Carpels 5, glabrous. Fl. Aug.

• Scrub, grassy slopes; 3200–4100 m. NW Yunnan (Bijiang Xian).

- 1a. Stem glabrous; rachis and pedicels glabrous; sepals green or purple 110a. var. *tsaii*
- 1b. Stem spreading and retrorse pubescent; rachis and pedicels retrorse pubescent; sepals blue 110b. var. *puberulum*

110a. *Aconitum tsaii* var. *tsaii*

碧江乌头(原变种) bi jiang wu tou (yuan bian zhong)

Aconitum tsaii f. *geniculatum* W. T. Wang; *A. tsaii* f.

purpureum W. T. Wang.

Stem glabrous. Rachis and pedicels glabrous. Sepals green or purple.

• Grassy slopes; 3200–4000 m. NW Yunnan (Bijiang Xian).

110b. *Aconitum tsaii* var. *puberulum* W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 607. 1979.

毛茎碧江乌头 *mao jing bi jiang wu tou*

Stem spreading and retrorse pubescent. Rachis and pedicels retrorse pubescent. Sepals blue.

• Scrub, grassy slopes; ca. 4100 m. NW Yunnan (Bijiang Xian).

111. *Aconitum bulbilliferum* Handel-Mazzetti, Kaiserl. Akad. Wiss. Wien, Math.-Naturwiss. Kl., Anz. 62: 220. 1925. 珠芽乌头 *zhu ya wu tou*

Caudex terete, 1.5–3 cm. Stem twining, 1.5–2.5 m tall, apically pubescent; bulbils usually axillary, dark purple, to 6 mm, deciduous. Leaves long petiolate; petiole 8–18 cm; leaf blade cordate-pentagonal, 5.5–9 × 6–9 cm, both surfaces glabrous, 3-parted; central lobe rhombic-ovate, apex long acuminate; lateral lobes obliquely flabellate, unequally 2-fid slightly beyond middle. Inflorescence 1–6-flowered; bracts leaflike; rachis and pedicels retrorse and appressed pubescent. Pedicels 1.5–4.5 cm, with 2 bracteoles at middle; bracteoles leaflike. Sepals blue, abaxially glabrous or nearly so, adaxially white pubescent; lower sepals ca. 1.8 cm; lateral sepals 1.8–2 cm; upper sepal high galeate, 2.5–3 cm high, lower margin oblique upward, slightly concave, 1.5–1.8 cm. Petals glabrous; lip 6–7 mm, 2-lobed at apex; spur incurved, circinate, ca. 1 cm, apex subglobose. Stamens glabrous; filaments 2-denticulate or entire. Carpels 5, glabrous. Fl. Sep.

• Mountains; ca. 3600 m. SW Sichuan (Huili Xian).

112. *Aconitum habaense* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 80. 1965.

哈巴乌头 *ha ba wu tou*

Caudex carrot-shaped, ca. 4.5 cm, ca. 1.5 cm in diam. Stem twining, 1.5–2.4 m, sparsely retrorse and appressed pubescent. Proximal cauline leaves withered at anthesis, and middle ones slightly long petiolate; petiole 4–8 cm; leaf blade pentagonal, 5.5–8 × 10–11 cm, abaxially nearly glabrous, adaxially sparsely appressed pubescent, 3-parted; central lobe broadly rhombic, apex acuminate or long acuminate; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, 50–85 cm, 16–19-flowered; rachis and pedicels densely retrorse yellowish pubescent; bracts usually leaflike, distal ones linear, smaller. Pedicels 2.2–7 cm, oblique upward, with 2 bracteoles proximally or distally; bracteoles linear, 6–10 × 0.4–1 mm. Sepals blue-purple, abaxially densely pubescent; lower sepals ca. 2 cm; lateral sepals ca. 2.1 cm; upper sepal galeate, ca. 2.2 cm high, shortly beaked, 2–2.2 cm from base to beak, lower margin slightly concave. Petals glabrous; claw geniculate at apex; limb ca. 8 mm; lip ca. 5 mm, 2-lobed at apex; spur subcircinate, ca. 3 mm. Stamens glabrous; filaments entire, rarely 1- or 2-denticulate. Carpels 5, glabrous. Fl. Aug.

• Scrub; ca. 3600 m. NW Yunnan (Zhongdian Xian).

113. *Aconitum chuanum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 80. 1965.

拟哈巴乌头 *ni ha ba wu tou*

Caudex narrowly obconical, 4.5–6 cm, ca. 1.5 cm in diam. Stem basally erect, apically twining, 1.2–1.6 m, apically branched, sparsely retrorse pubescent, with leaves equally arranged along stem. Middle cauline leaves slightly long petiolate; petiole ca. 5 cm, sparsely pubescent; leaf blade pentagonal, ca. 7.8 × 11 cm, both surfaces sparsely appressed pubescent at veins, base cordate, 3-parted; central lobe rhombic, apex acuminate, 3-fid; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, 12–14 cm, ca. 11-flowered; rachis and pedicels densely retrorse pubescent; proximal bracts leaflike, distal ones linear. Pedicels 1–3 cm, oblique upward, with 2 bracteoles above middle; bracteoles linear, 7–10 mm. Sepals deep-purple, abaxially pubescent; lower sepals ca. 1.2 cm; lateral sepals broadly obovate, ca. 1.4 cm; upper sepal galeate, ca. 1.5 cm high, shortly beaked, ca. 1.7 cm from base to beak, lower margin slightly concave. Petals glabrous, ca. 1.8 cm; limb ca. 8.5 × 3.2 mm; lip ca. 4 mm, slightly concave; spur incurved, ca. 1.5 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous. Fl. Aug.

• Scrub; ca. 3800 m. NW Yunnan (Zhongdian Xian).

114. *Aconitum elwesii* Stapf, Ann. Roy. Bot. Gard. (Calcutta) 10: 174. 1905.

藏南乌头 *zang nan wu tou*

Caudex unknown. Stem twining, branched, sparsely retrorse pubescent. Middle cauline leaves long or shortly petiolate; petiole 2.4–8 cm; leaf blade cordate-pentagonal, 4.5–12 × 6–13 cm, both surfaces sparsely appressed pubescent, 3-parted; central lobe ovate-narrowly rhombic; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence (1- or) 2–4-flowered; rachis and pedicels retrorse pubescent; bracts leaflike. Pedicels 2–4 cm, with 2 bracteoles at middle; bracteoles subulate, ca. 4 mm, sometimes bracteoles below inflorescence narrowly ovate, 3-fid or unlobed. Sepals black-purple, abaxially sparsely pubescent or nearly glabrous; lower sepals ca. 1.4 cm; lateral sepals ca. 1.5 cm; upper sepal high galeate, 1.8–2 cm high, not clawed, 1.4–1.8 cm from base to beak, lower margin concave, oblique upward. Petals glabrous; lip narrow, ca. 6 mm; spur circinate, ca. 4 mm. Stamens glabrous; filaments 2-denticulate or entire. Carpels 5, glabrous. Fl. Aug.

Forests, scrub; S Xizang (Nyalam Xian) [Nepal, Sikkim].

115. *Aconitum longilobum* W. T. Wang, Acta Phytotax. Sin., Addit. 1: 81. 1965.

长裂乌头 *chang lie wu tou*

Caudex carrot-shaped, 4.2–5.5 cm, 7–9 mm in diam. Stem twining, branched, retrorse or spreading pubescent or apically glabrous. Middle cauline leaves long petiolate; petiole ca. 4.6 cm, sparsely spreading pubescent; leaf blade pentagonal or suborbicular, 5–11 × 8–14 cm, abaxially glabrous, adaxially sparsely appressed pubescent at veins, base cordate, 3–5-parted; central lobe rhombic, apex acuminate, pinnately lobed; lateral lobes obliquely flabellate, unequally 2-parted.

Inflorescence 4–8-flowered; rachis and pedicels glabrous; bracts leaflike. Pedicels 3–4.5 cm, proximally with 2 bracteoles; bracteoles narrowly oblong to linear-subulate, 4–7 × 0.5–1.2 mm, glabrous. Sepals purple, abaxially glabrous; lower sepals ca. 1.4 cm; lateral sepals ca. 1.5 cm; upper sepal galeate, 1.8–2 cm, lower margin ca. 1.6 cm. Petals ca. 1.8 cm, glabrous; claw geniculate at upper part; lip ca. 4 mm, slightly concave; spur incurved, ca. 2 mm, subglobose. Stamens glabrous; filaments entire. Carpels 5, glabrous. Fl. Aug.

• E Xizang (Nyingchi Xian).

116. *Aconitum austroyunnanense* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 81. 1965.

滇南乌头 dian nan wu tou

Caudex carrot-shaped, 6–7 cm, 0.7–1.3 cm in diam., sometimes subterete, small, to 12 cm. Stem twining, curved, branched, pubescent, with leaves equally arranged along stem. Middle cauline leaves long petiolate; petiole 5.5–7.5 cm, retrorse pubescent; leaf blade pentagonal, 8–10 × 9–14 cm, abaxially sparsely pubescent at veins, adaxially sparsely pubescent, 3-parted; central lobe rhombic or broadly rhombic, apex acuminate; lateral lobes obliquely flabellate, unequally 2-fid. Inflorescence 4–12 cm, 2–6-flowered; rachis and pedicels ± densely retrorse pubescent; bracts leaflike. Pedicels 2.5–3.5 cm, with 2 bracteoles near middle; bracteoles narrowly linear or subulate, 3–7 mm. Sepals blue-purple, abaxially sparsely pubescent; lower sepals ca. 1.5 cm; lateral sepals oblique, ca. 1.6 cm; upper sepal galeate, 2.3–2.6 cm high, middle 0.9–1.3 cm in diam., beak 2–6 mm, 1.8–2.1 cm from base to beak, lower margin concave. Petals glabrous; limb ca. 1.1 × 0.4 cm; lip ca. 6 mm, slightly concave; spur incurved, ca. 3 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous. Follicles 2–2.2 cm. Seeds ca. 3.5 mm. Fl. Oct, fr. Oct–Nov. $2n = 16^*$.

• Scrub; 1700–2500 m. Yunnan (Jingdong Xian, Xiping Yi-Dai Zu Zizhixian).

117. *Aconitum vilmorinianum* Komarov, Repert. Spec. Nov. Regni Veg. 7: 145. 1909.

黄草乌 huang cao wu

Caudex ellipsoid-globose or carrot-shaped, 2.7–7 cm, ca. 1 cm in diam. Stem twining, to 4 m, branched, sparsely retrorse pubescent or nearly glabrous. Leaves with petiole 5–10 cm; leaf blade papery, abaxially sparsely pubescent at veins, base broadly cordate, 3-sect or nearly to base; central segment broadly rhombic, apex acute or shortly acuminate; lateral segments obliquely flabellate, unequally 2-parted slightly beyond middle. Inflorescence 3–6-flowered; rachis and pedicels densely retrorse yellowish pubescent or spreading pubescent; bracts linear. Pedicels 2–4 cm, with 2 bracteoles at middle or below; bracteoles narrowly linear, 3–5 × 0.3–0.5 mm, densely pubescent. Sepals purple-blue, abaxially densely pubescent; lower sepals ca. 1.3 cm; lateral sepals 1.3–1.4 cm; upper sepal 1.5–

1.6 cm high, shortly beaked. Petals glabrous; lip ca. 6 mm, slightly concave; spur incurved, ca. 3 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 5, glabrous or ovary sparsely pubescent at upper part. Follicles erect, 1.6–1.8 cm, glabrous. Seeds ca. 3 mm. Fl. Aug–Oct. $2n = 16^*$.

• Scrub, mountains; 2100–3000 m. W Guizhou, SW Sichuan, C and N Yunnan.

- 1a. Rachis and pedicels densely retrorse yellowish pubescent 117a. var. *vilmorinianum*
1b. Rachis and pedicels densely spreading pubescent 117b. var. *patentipilum*

117a. *Aconitum vilmorinianum* var. *vilmorinianum*

黄草乌(原变种) huang cao wu (yuan bian zhong)

Aconitum mairei H. Léveillé.

Rachis and pedicels densely retrorse yellowish pubescent.

• Scrub; 2100–2500 m. W Guizhou, Sichuan (Huili Xian), C Yunnan.

117b. *Aconitum vilmorinianum* var. *patentipilum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 82. 1965.

展毛黄草乌 zhan mao huang cao wu

Rachis and pedicels densely spreading pubescent.

• Mountains; 2300–3000 m. SW Sichuan (Huili Xian, Muli Zang Zu Zizhixian), N Yunnan.

118. *Aconitum pseudostapfianum* W. T. Wang, Acta Phytotax. Sin. 12: 156. 1974.

拟玉龙乌头 ni yu long wu tou

Aconitum tuguancunense Q. E. Yang.

Caudex unknown. Stem twining, branched, sparsely retrorse pubescent or nearly glabrous. Middle cauline leaves long petiolate; petiole 7.5–10 cm, sparsely pubescent; leaf blade cordate-pentagonal, 7–9.5 × 12–14 cm, abaxially sparsely pubescent at veins, adaxially sparsely strigose, 3-parted; central lobe broadly rhombic, 3-fid at middle; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence to 9 cm, 3–10-flowered; rachis and pedicels glabrous; basal bracts leaflike, others narrowly linear, ca. 4 mm. Pedicels decurved, to 3.8 cm, with 2 bracteoles at middle or below; bracteoles narrowly linear or subulate, 3–4 mm. Sepals blue-violet, abaxially glabrous; lower sepals 1–1.5 cm; lateral sepals 1.1–1.6 cm; upper sepal galeate, 1.8–2.2 cm, shortly beaked, lower margin concave. Petals ca. 1.8 cm, glabrous; limb ca. 1 cm; lip ca. 5 mm, 2-lobed at apex; spur circinate, ca. 3.5 mm. Stamens glabrous; filaments entire. Carpels 5(–10), glabrous. Follicles erect, 1–2.4 cm; persistent style ca. 2.5 mm. Seeds ca. 3 mm. Fl. Sep.

• Scrub; 2800–3000 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

119. *Aconitum validinerve* W. T. Wang, Acta Bot. Yunnan. 6: 369. 1984.

显脉乌头 xian mai wu tou

Caudex obconical, 3.5–4 cm. Stem basally erect, apically twining, 1–2 m, ca. 7 mm in diam., branched, retrorse and appressed pubescent. Petiole 1–2.2 cm; leaf blade cordate-pentagonal, ca. 6 × 7.5 cm, papery, abaxially sparsely pubescent at veins, adaxially appressed pubescent with convex veins, base cordate, 3-parted; central lobe rhombic, apex long acuminate, subpinnately lobed; lateral lobes unequally 2-fid nearly to middle. Inflorescence 1.5–4 cm, 2–4-flowered; rachis sparsely retrorse pubescent; bracts linear, ca. 7 mm, proximal ones leaflike. Pedicels 1.2–2.5 cm, glabrous or subglabrous, proximally with 2 bracteoles; bracteoles linear, 3–4 mm. Sepals purple-blue, abaxially glabrous; lower sepals oblong or linear-lanceolate, 1.1–1.3 cm; lateral sepals obliquely broadly obovate, 1.3–1.6 × ca. 1.3 cm; upper sepal galeate, 1.6–1.9 cm high, beak indistinct, lower margin 1.5–1.8 cm. Petals ca. 1.5 cm; claw pilose; lip ca. 4 mm, 2-lobed at apex, glabrous; spur circinate, ca. 4 mm, glabrous. Stamens glabrous; filaments entire. Carpels 5, glabrous.

• Grasslands. SW Sichuan (Muli Zang Zu Zizhixian).

120. *Aconitum stapfianum* Handel-Mazzetti, Symb. Sin. 7: 294. 1931.

玉龙乌头 *yu long wu tou*

Caudex narrowly obconical or carrot-shaped, 3–7.5 cm, 1–3.8 cm in diam. Stem twining, ca. 3 m, branched, becoming glabrous. Petiole 4–9 cm; leaf blade pentagonal, 4.8–8.5 (–11.5) × 5.2–10 (–14) cm, abaxially glabrous, adaxially very sparsely pubescent, base cordate, 3-parted or -lobed nearly to base; central lobe ovate-rhombic, apex acuminate, subpinnately parted; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence 3–8-flowered; rachis glabrous or sparsely retrorse pubescent; proximal bracts leaflike, others oblong-linear or linear. Pedicels 2–6 cm, glabrous or spreading pubescent, apex curved, with 2 bracteoles at middle or below; bracteoles narrowly linear, 2.5–5 mm. Sepals blue; lower sepals 1.1–1.3 cm; lateral sepals orbicular-obovate, 1.3–1.5 cm; upper sepal galeate, 1.9–2.2 cm high, abaxially glabrous, lower margin 1.5–1.8 cm, oblique upward. Petals glabrous; limb ca. 1 cm; lip ca. 5.5 mm; spur incurved, ca. 4 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 5, glabrous. Follicles erect, ca. 1.8 cm. Fl. Sep–Oct. $2n = 16^*$.

• Scrub; 2800–3400 m. NW Yunnan.

1a. Pedicels glabrous 120a. var. *stapfianum*

1b. Pedicels spreading pubescent ... 120b. var. *pubipes*

120a. *Aconitum stapfianum* var. *stapfianum*

玉龙乌头(原变种) *yu long wu tou* (yuan bian zhong)
Pedicels glabrous.

• Scrub; 2800–3400 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

120b. *Aconitum stapfianum* var. *pubipes* W. T. Wang, Acta Phytotax. Sin. 31: 206. 1993.

毛梗玉龙乌头 *mao geng yu long wu tou*

Pedicels spreading pubescent.

• Scrub; ca. 2800 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

121. *Aconitum episcopale* H. Léveillé, Repert. Spec. Nov. Regni Veg. 13: 341. 1914.

西南乌头 *xi nan wu tou*

Caudex obconical, ca. 5 cm, ca. 18 cm in diam. Stem twining, branched, apically sparsely spreading or retrorse pubescent. Leaves long petiolate; petiole ca. 7 cm, retrorse pubescent or nearly glabrous; leaf blade orbicular-pentagonal, ca. 7.5 × 10 cm, both surfaces sparsely pubescent or nearly glabrous, base cordate, 3-sect or -parted to base; central segment rhombic or ovate-rhombic, apex acuminate; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence 4–8-flowered; rachis densely spreading yellowish pubescent; bracts linear. Pedicels appressed white pubescent or subglabrous, or spreading yellowish glandular pubescent, 1.3–3 cm, with 2 bracteoles at middle or below; bracteoles linear, 3–8 × 0.3–0.5 mm, densely spreading pubescent. Sepals blue-purple, abaxially sparsely pubescent; lower sepals ca. 1.3 cm; lateral sepals 1.2–1.4 cm; upper sepal high galeate or cylindric-galeate, 2–2.4 cm high, shortly beaked, 1.4–1.6 cm from base to beak, lower margin slightly concave. Petals glabrous; lip ca. 4.5 mm; spur incurved, ca. 3 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels (3–)5, yellowish pubescent or glabrous. Follicles 1.1–1.4 cm. Seeds ca. 2.5 mm. Fl. Jul–Nov. $2n = 16^*$.

• Mountains, forests; 2200–3200 m. W Guizhou, SW Sichuan, Yunnan.

1a. Pedicels appressed white pubescent or subglabrous; sepals abaxially white pubescent 121a. var. *episcopale*

1b. Pedicels and sepals abaxially spreading yellowish glandular pubescent 121b. var. *villosulipes*

121a. *Aconitum episcopale* var. *episcopale*

西南乌头(原变种) *xi nan wu tou* (yuan bian zhong)

Aconitum delavayi Franchet var. *leiocarpum* Finet & Gagnepain; *A. tripartitum* H. R. Fletcher & Lauener; *A. vilmorinianum* var. *altifidum* W. T. Wang.

Pedicels appressed white pubescent or subglabrous.

Sepals abaxially white pubescent.

• Mountains, forests; 2400–3200 m. W Guizhou, SW Sichuan, N Yunnan.

121b. *Aconitum episcopale* var. *villosulipes* W. T. Wang, Acta Phytotax. Sin. 31: 204. 1993.

紫乌头 *zi wu tou*

Pedicels and sepals abaxially spreading yellowish glandular pubescent.

• Mountains; 2200–3100 m. NW and W Yunnan.

122. *Aconitum campylorrhynchum* Handel-Mazzetti, Acta Horti Gothob. 13: 126. 1939.

弯喙乌头 *wan hui wu tou*

Caudex carrot-shaped, to 10 cm, ca. 6 mm in diam. Stem twining, 1–2 m tall, apically branched, with leaves equally arranged along stem. Cauline leaves with petiole 2.2–4.5 cm; leaf blade ovate-pentagonal or pentagonal, 4.8–8 × 4.2–10(–14) cm, both surfaces sparsely pubescent or becoming glabrous, 3-parted; central lobe ovate-rhombic, apex acuminate, subpinnately parted; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence 10–40 cm, 10–16-flowered; rachis and pedicels sparsely retrorse or spreading pubescent; proximal bracts leaflike, distal ones linear. Pedicels 2–4.5 cm, or slender to 15 cm, with 2 bracteoles at middle or below; bracteoles subulate-linear, 2.5–4.5 × ca. 0.3 mm. Sepals blue-purple or purplish white; lower sepals ca. 1.4 cm; lateral sepals 1.3–1.6 cm; upper sepal galeate or high galeate, 2–2.8 cm high, not clawed, abaxially sparsely pubescent, usually becoming glabrous, beak ca. 5 mm, lower margin oblique upward. Petals glabrous; lip ca. 5.5 mm; spur ca. 2.5 mm. Stamens glabrous; filaments entire. Carpels 5, sparsely appressed pubescent. Follicles 1.2–1.7 cm. Seeds 2.5–3 mm. Fl. Aug–Oct.

• *Picea* forests, scrub, by streams; 3200–4000 m. SW Gansu, Sichuan.

1a. Pedicels spreading pubescent 122b. var. *patentipilum*

1b. Pedicels sparsely retrorse pubescent.

2a. Sepals blue-purple; pedicels 2–4.5 cm 122a. var. *campylorrhynchum*

2b. Sepals purplish white; pedicels to 15 cm 122c. var. *tenuipes*

122a. *Aconitum campylorrhynchum* var. *campylorrhynchum*

弯喙乌头(原变种) wan hui wu tou (yuan bian zhong) Pedicels 2–4.5 cm, sparsely retrorse pubescent. Sepals blue-purple.

• *Picea* forests, scrub; 3200–4000 m. SW Gansu, Sichuan.

122b. *Aconitum campylorrhynchum* var. *patentipilum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 83. 1965.

展毛弯喙乌头 zhan mao wan hui wu tou

Pedicels spreading pubescent.

• By streams; 3200–3300 m. NW Sichuan.

122c. *Aconitum campylorrhynchum* var. *tenuipes* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 83. 1965.

细梗弯喙乌头 xi geng wan hui wu tou

Pedicels subfilamentous, to 15 cm, slender, sparsely retrorse pubescent. Sepals purplish white.

• Mountains; ca. 3600 m. Gansu (Min Xian).

123. *Aconitum lioui* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 83. 1965.

秦岭乌头 qin ling wu tou

Caudex unknown. Stem twining, usually purple, middle ca. 2.5 mm in diam., branched. Cauline leaves with petiole ca. 3.2 cm, retrorse pubescent; leaf blade pentagonal, ca. 7.5 × 9 cm, abaxially sparsely pubescent at veins, adaxially sparsely appressed

pubescent, 3-sect; central segment narrowly rhombic, shortly stipitate, apex acuminate; lateral segments nearly sessile, obliquely flabellate, unequally 2-parted. Inflorescence 2–4 cm, 2–5-flowered; rachis and pedicels densely retrorse and appressed pubescent; basal bracts 3-fid, others linear. Pedicels 1.5–2 cm, with 2 bracteoles near middle; bracteoles subulate, 3.5–5 × ca. 0.4 mm, pubescent. Sepals blue-purple when dried, abaxially pubescent; lower sepals ca. 1.3 cm; lateral sepals 1.2–1.4 cm; upper sepal galeate, ca. 1.7 cm high, with a beak ca. 5 mm, ca. 1.5 cm from base to beak, lower margin concave. Petals sparsely pubescent; limb ca. 8.5 mm; lip ca. 3.5 mm, 2-lobed; spur incurved, ca. 1.4 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 5, appressed pubescent. Fl. Sep.

• Mountains; 2900–3000 m. Shaanxi (Taibai Shan).

124. *Aconitum sungpanense* Handel-Mazzetti, Acta Horti Gothob. 13: 130. 1939.

松潘乌头 song pan wu tou

Caudex oblong, ca. 3.5 cm. Stem twining, to 2.5 m, branched, glabrous or nearly so. Middle cauline leaves slightly long petiolate; petiole 2.5–6 cm; leaf blade pentagonal, 5.8–10 × 8–12 cm, herbaceous or papery, both surfaces sparsely pubescent, 3-sect; segments nearly sessile or distinctly stipitate; central segment obliquely rhombic; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence 5–9-flowered; rachis and pedicels glabrous or sparsely retrorse or spreading pubescent; proximal bracts 3-fid, others linear. Pedicels 2–4 cm, with 2 bracteoles at middle or above; bracteoles linear-subulate, 3.5–4.5 mm. Sepals pale blue-purple, sometimes yellow-green or white, abaxially glabrous or sparsely pubescent; lower sepals 1.2–1.4 cm; lateral sepals 1.3–1.5 cm; upper sepal high galeate, 1.8–2.2 cm high, shortly beaked, middle 7–9 mm in diam., lower margin 1.4–1.5 cm, slightly concave. Petals glabrous or sparsely pubescent; lip 4–5 mm, slightly concave; spur incurved, 1–2 mm. Stamens glabrous or sparsely pubescent; filaments entire. Carpels (3–)5, glabrous or ovary sparsely appressed pubescent. Follicles 1–1.5 cm, glabrous or sparsely pubescent. Seeds ca. 3 mm. Fl. Aug–Sep. *2n* = 16*.

• Forest margins, scrub; 1400–3000 m. S Gansu, Hunan, S Ningxia, E Qinghai, S Shaanxi, S Shanxi, N and NE Sichuan.

1a. Rachis and pedicels spreading pubescent 124c. var. *villosulum*

1b. Rachis and pedicels glabrous or retrorse pubescent.

2a. Sepals pale blue-purple, sometimes yellow-green; leaf blade herbaceous 124a. var. *sungpanense*

2b. Sepals white; leaf blade papery 124b. var. *leucanthum*

124a. *Aconitum sungpanense* var. *sungpanense*

松潘乌头(原变种) *song pan wu tou* (*yuan bian zhong*)

Leaf blade herbaceous. Rachis and pedicels glabrous or retrorse pubescent. Sepals pale blue-purple, sometimes yellow-green.

• Forest margins, scrub; 1400–3000 m. S Gansu, S Ningxia, E Qinghai, S Shaanxi, S Shanxi, N Sichuan.

124b. *Aconitum sungpanense* var. *leucanthum* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 84. 1965.

白花松潘乌头 *bai hua song pan wu tou*

Leaf blade papery. Rachis and pedicels glabrous or retrorse pubescent. Sepals white.

• Scrub; 1400–1800 m. NE Sichuan (Chengkou Xian).

124c. *Aconitum sungpanense* var. *villosulum* W. T. Wang, *Bull. Bot. Res.*, Harbin 9(2): 5. 1989.

展毛松潘乌头 *zhan mao song pan wu tou*

Rachis and pedicels spreading pubescent.

• About 1600 m. Hunan (Anhua Xian).

125. *Aconitum shensiense* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 84. 1965.

陕西乌头 *shan xi wu tou*

Caudex unknown. Stem twining, branched, sparsely spreading pubescent. Middle cauline leaves slightly long petiolate; petiole ca. 2.5 cm; leaf blade cordate-pentagonal, ca. 8.3 × 10 cm, with short stipe ca. 3.5 mm, lateral segments nearly sessile, appressed pubescent, abaxially glabrous or nearly glabrous, base cordate, 3-sect; central segment narrowly ovate-rhombic, crenate and obliquely flabellate, unequally 2-parted.

Inflorescence 8–10 cm, 5–9-flowered; rachis and pedicels spreading and retrorse white pubescent; basal bracts leaflike, others narrowly lanceolate to linear.

Pedicels 1.8–2.5 cm, with 2 bracteoles at middle; bracteoles subulate, 2.5–5 × ca. 0.5 mm. Sepals spreading pubescent abaxially; lower sepals ca. 1.1 cm; lateral sepals ca. 1.3 cm; upper sepal high galeate, 1.7–1.8 cm high, not clawed, beak obliquely downward pointing, 1–1.3 cm from base to beak, lower margin concave. Petals ca. 9.5 mm; limb ca. 7.5 mm; lip ca. 4 mm, 2-lobed at apex; spur incurved, ca. 2 mm, upper part sparsely pubescent. Stamens glabrous; filaments entire. Carpels 5, glabrous. Fl. Aug.

• Mountains; ca. 1600. Shaanxi (Zhouzhi Xian).

126. *Aconitum cannabifolium* Franchet ex Finet & Gagnepain, *Bull. Soc. Bot. France* 51: 503. 1904.

大麻叶乌头 *da ma ye wu tou*

Caudex unknown. Stem twining, apically branched, retrorse pubescent or becoming glabrous. Distal leaves slightly long petiolate; petiole 2.5–6 cm, sparsely retrorse pubescent or nearly glabrous; leaf blade pentagonal, 6.8–10 × 9–11 cm, herbaceous, both surfaces nearly glabrous or adaxially sparsely pubescent,

3-sect; segments long stipitate, slender; central segment lanceolate or oblong-lanceolate, margin densely triangular-dentate, apex acuminate; lateral segments shortly stipitate or sessile, unequally 2-parted usually to base. Inflorescence 3–6-flowered; rachis and pedicels

spreading puberulent; bracts linear, small. Pedicels 1.5–3.2 cm, proximally with 2 bracteoles; bracteoles subulate, 2–3 mm. Sepals greenish purple, abaxially pubescent; lower sepals 1–1.1 cm; lateral sepals 1.4–1.6 cm; upper sepal high galeate, 2.1–2.3 cm high, shortly beaked, lower margin slightly concave, 1.4–1.6 cm.

Petals glabrous; lip ca. 1.5 mm; spur incurved, ca. 3.5 mm. Stamens glabrous; filaments entire. Carpels 3, sparsely pubescent. Follicles erect, ca. 1.5 cm. Seeds ca. 3.5 mm. Fl. Aug–Sep.

• Forests, by streams; 1300–2000 m. W Hubei, S Shaanxi, NE Sichuan.

127. *Aconitum henryi* E. Pritzl in Diels, *Bot. Jahrb. Syst.* 29: 329. 1900.

川鄂乌头 *chuan e wu tou*

Caudex carrot-shaped or obconical, 1.5–3.8 cm. Stem twining, branched, glabrous. Middle cauline leaves shortly or long petiolate; petiole 1.5–6.5 cm; leaf blade ovate-pentagonal, 4–10 × 6.5–12 cm, papery, both surfaces glabrous, or adaxially sparsely appressed pubescent, 3-sect; central segment lanceolate or rhombic-lanceolate; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence (1–)3–6-flowered; rachis and pedicels glabrous or sparsely retrorse pubescent, or spreading pubescent; bracts linear. Pedicels 1.8–3.5(–5) cm, with 2 bracteoles at middle; bracteoles linear-subulate, 3.5–6.5 mm. Sepals blue, abaxially sparsely or densely pubescent or nearly glabrous; lower sepals 1.1–1.3 cm; lateral sepals 1.3–1.8 cm; upper sepal high galeate, 2–2.5 cm high, 6–9 mm in diam. at middle, shortly beaked, lower margin 1.4–1.9 cm, slightly concave. Petals glabrous; lip ca. 8 mm, slightly concave; spur upward curved, 4–5 mm. Stamens glabrous; filaments entire. Carpels 3, glabrous, or ovary sparsely or densely pubescent. Fl. Sep–Oct.

• Forests, scrub, mountains, by streams; 1000–3100 m. S Gansu, W Henan, Hubei, NW Hunan, SE Shaanxi, S Shanxi, Sichuan, W Zhejiang.

1a. Leaf segments pinnately parted, lobules sparse, narrowly ovate or lanceolate-linear 127b. var. *compositum*

1b. Leaf segments margin sparsely or densely bluntly dentate.

2a. Rachis and pedicels glabrous or sparsely retrorse pubescent .. 127a. var. *henryi*

2b. Rachis and pedicels or only pedicels densely spreading pubescent.

3a. Segments shortly stipitate; carpels glabrous or ovary sparsely pubescent 127c. var. *villosum*

3b. Segments sessile; carpels densely pubescent. 127d. var. *pilocarpum*

127a. *Aconitum henryi* var. *henryi*

川鄂乌头(原变种) *chuan e wu tou* (yuan bian zhong)
Leaf segments with margin sparsely or densely bluntly dentate. Rachis and pedicels glabrous or sparsely retrorse pubescent.

• Forests; 1000–2000 m. W Hubei, S Sichuan.

127b. *Aconitum henryi* var. *compositum* Handel-Mazzetti, *Acta Horti Gothob.* 13: 130. 1939.

细裂川鄂乌头 *xi lie chuan e wu tou*
Leaf segments pinnately parted; lobules sparse, narrowly ovate or lanceolate-linear.

• Mountains; 2100–3100 m. S Gansu, NE Sichuan.

127c. *Aconitum henryi* var. *villosum* W. T. Wang, *Reipubl. Popularis Sin.* 27: 608. 1979.

展毛川鄂乌头 *zhan mao chuan e wu tou*

Leaf segments shortly stipitate, with margin sparsely or densely bluntly dentate. Rachis and pedicels or only pedicels densely spreading pubescent. Carpels glabrous or ovary sparsely pubescent.

• Forests, scrub, by streams; 1500–2000 m. W Henan, Hubei, NW Hunan, SE Shaanxi, S Shanxi, NE Sichuan, W Zhejiang.

127d. *Aconitum henryi* var. *pilocarpum* W. T. Wang & L. Q. Li, *Acta Phytotax. Sin.* 25: 29. 1987.

毛果川鄂乌头 *mao guo chuan e wu tou*
Leaf segments sessile, with margin sparsely or densely bluntly dentate. Rachis and pedicels or only pedicels densely spreading pubescent. Carpels densely pubescent.

• Forests, by streams; 2100–2200 m. SW Sichuan (Muli Zang Zu Zizhixian).

128. *Aconitum sczukinii* Turczaninow, *Bull. Soc. Imp. Naturalistes Moscou* 13: 61. 1840.

宽叶蔓乌头 *kuan ye wan wu tou*

Aconitum volubile Pallas ex Koelle var. *latisectum* Regel.

Caudex obconical, to 3.5 cm, to 1.2 cm in diam. Stem twining, rarely proximally suberect, branched, sparsely retrorse pubescent. Middle cauline leaves long petiolate; petiole 3.5–5.5 cm, sparsely pubescent; leaf blade ovate-pentagonal, 7–10 × 8–11 cm, abaxially glabrous, adaxially sparsely appressed pubescent, base cordate, 3-sect; segments shortly or long stipitate; central segment rhombic or rhombic-ovate, apex acuminate, below middle 3-fid; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence terminal or axillary, several flowered; rachis and pedicels densely spreading pubescent; bracts linear, small. Pedicels decurved, 1.5–2.5 cm, with 2 bracteoles near middle; bracteoles subulate, 1.5–2 mm. Sepals blue, abaxially densely pubescent; lower sepals 0.7–1 cm; lateral sepals 1.2–1.4 cm; upper sepal high galeate, 1.6–1.9 cm high, lower margin 1.4–1.6 cm, slightly concave. Petals glabrous;

limb ca. 9 mm; lip ca. 5 mm; spur incurved or subcircinate, ca. 2 mm. Stamens glabrous or sparsely pubescent. Follicles erect, ca. 2 cm. Seeds ca. 3 mm. Fl. Aug–Sep.

Grassy slopes, forests; 300–1900 m. Heilongjiang, Jilin, Liaoning [Russia (Far East)].

129. *Aconitum volubile* Pallas ex Koelle, *Spic. Acon.* 21. 1788.

蔓乌头 *wan wu tou*

Caudex unknown. Stem twining, branched, glabrous or apically sparsely retrorse pubescent. Middle cauline leaves long petiolate; petiole 3.5–6 cm; leaf blade pentagonal, 7–9 × 8–10 cm, papery, abaxially glabrous or nearly so, adaxially sparsely appressed pubescent, base cordate, 3-sect; central segment usually stipitate, rhombic-ovate; lateral segments obliquely flabellate, unequally 2-fid or nearly to base. Inflorescence terminal or axillary, 3–5-flowered; rachis and pedicels densely spreading yellowish pubescent, or retrorse and appressed pubescent; basal bracts 3-fid, others linear. Pedicels 2–3.8 cm, with 2 bracteoles above middle; bracteoles linear, 2–3 mm. Sepals blue-purple, abaxially spreading pubescent, or retrorse and appressed pubescent; lower sepals 0.8–1.3 cm; lateral sepals 1–1.5 cm; upper sepal high galeate, 1.8–2.7 cm, 1–1.5 cm from base to beak, lower margin oblique upward. Petals glabrous; limb 6–10 mm; lip 3–6 mm; spur incurved, 1.5–3 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous or ovary spreading pubescent. Follicles 1.5–1.7 cm. Seeds ca. 2.5 mm. Fl. Aug–Sep. $2n = 16^*$.

Grassy slopes, forests, forest margins; 200–1000 m. Heilongjiang, Jilin, Liaoning [Mongolia, Russia (Siberia)].

- 1a. Pedicels densely spreading yellowish pubescent; sepals abaxially spreading pubescent; ovary spreading pubescent 129a. var. *volubile*
- 1b. Pedicels and sepals abaxially retrorse and appressed pubescent; ovary glabrous 129b. var. *pubescens*

129a. *Aconitum volubile* var. *volubile*

蔓乌头(原变种) *wan wu tou* (yuan bian zhong)
Pedicels densely spreading yellowish pubescent. Sepals abaxially spreading pubescent. Ovary spreading pubescent.

Grassy slopes, forests; 200–1000 m. Heilongjiang, Jilin, Liaoning [Russia (Siberia)].

129b. *Aconitum volubile* var. *pubescens* Regel, *Bull. Soc. Imp. Naturalistes Moscou* 34: 91. 1861.

卷毛蔓乌头 *juan mao wan wu tou*

Aconitum ciliare de Candolle.

Pedicels and sepals abaxially retrorse and appressed pubescent. Ovary glabrous. $2n = 16^*$.

Forest margins. Heilongjiang, Liaoning [Korea, Russia (Far East)].

130. *Aconitum fischeri* Reichenbach, *Monogr. Acon.* t. 22. 1820.

薄叶乌头 *bao ye wu tou*

Caudex conical. Stem erect or apically slightly curved, 1–1.6 m tall, simple or apically branched, retrorse pubescent, or glabrous, with 12–18 leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, long petiolate; petiole 6.5–9 cm, retrorse pubescent; leaf blade subpentagonal, 8–12 × 12–15 cm, abaxially sparsely curved pubescent, adaxially becoming glabrous, 3-parted; central lobe rhombic, apex acuminate; lateral lobes unequally 2-parted. Inflorescence: terminal 4–6-flowered, axillary 2- or 3-flowered; rachis and pedicels slightly pubescent, glabrous or nearly so; bracts leaflike. Pedicels 1–3 cm, sparsely retrorse pubescent, sometimes glabrescent, with 2 bracteoles at middle; bracteole narrowly linear, 2.5–4 mm. Sepals purplish blue, abaxially glabrous or nearly so; lower sepals 8–11 mm; lateral sepals 1–2 cm; upper sepal high galeate, 1.4–2.5 cm high, shortly beaked, lower margin 1.2–2 cm. Petals glabrous; limb ca. 8 mm; lip ca. 4.5 mm, 2-lobed at apex; spur slightly circinate, ca. 2 mm. Stamens glabrous, rarely pubescent; filaments entire. Carpels 3, along ventral suture pubescent. Follicles ca. 1.4 cm, glabrous. Seeds ca. 2.5 mm. Fl. Aug.

Forests, grasslands, grassy slopes; 400–800 m. Heilongjiang, Jilin [Korea, Russia (Far East)].

- 1a. Stem retrorse pubescent; rachis and pedicels slightly pubescent; upper sepal 1.4–2 cm high, lower margin 1.2–1.7 cm; stamens rarely pubescent 130a. var. *fischeri*
- 1b. Stem glabrous; rachis and pedicels glabrous or nearly so; upper sepal 2.2–2.5 cm high, lower margin ca. 2 cm; stamens glabrous 130b. var. *arcuatum*

130a. *Aconitum fischeri* var. *fischeri*

薄叶乌头(原变种) *bao ye wu tou* (*yuan bian zhong*)
Stem retrorse pubescent. Rachis and pedicels slightly pubescent. Upper sepal 1.4–2 cm high, lower margin 1.2–1.7 cm. Stamens rarely pubescent.

Forests, grasslands; 400–800 m. N and W Heilongjiang [Russia (Far East)].

130b. *Aconitum fischeri* var. *arcuatum* (Maximowicz) Regel, Index Sem. Hort. Petrop. 44. 1861.

弯枝乌头 *wan zhi wu tou*

Aconitum arcuatum Maximowicz, Prim. Fl. Amur. 27. 1859; *A. fischeri* var. *arcuatum* f. *pilocarpum* S. H. Li & Y. H. Huang.

Stem glabrous. Rachis and pedicels glabrous or nearly so. Upper sepal 2.2–2.5 cm high, lower margin ca. 2 cm. Stamens glabrous. $2n = 16^*$.

Forests, grassy slopes. E Heilongjiang, Jilin [Korea, Russia (Far East)].

Alexander N. Luferov (pers. comm.) believes that this taxon is synonymous with *Aconitum sczukinii*.

131. *Aconitum raddeanum* Regel, Index Sem. Hort. Petrop. 43. 1861.

大苞乌头 *da bao wu tou*

Caudex unknown. Stem ca. 1 m tall, glabrous, apically long branched, with leaves equally arranged along stem. Middle cauline leaves shortly petiolate; petiole ca. 2 cm, glabrous; leaf blade pentagonal, ca. 8.5 × 10 cm, abaxially glabrous, adaxially sparsely appressed pubescent, 3-sect; central segment rhombic, apex acuminate, subpinnately parted; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence several flowered; rachis and pedicels glabrous; bracts leaflike. Proximal pedicels to 12.5 cm, distal ones 1–1.5 cm, glabrous, with 2 bracteoles below flower; bracteoles leaflike, 1–2 × 1.4–2.6 cm. Sepals purple-blue, abaxially glabrous; lower sepals 1.1–1.3 cm; lateral sepals ca. 1.4 cm; upper sepal high galeate, 2–2.5 cm high, shortly beaked, lower margin oblique upward, 1.5–1.6 cm. Petals glabrous; limb ca. 1.1 cm; lip ca. 3 mm, slightly concave; spur incurved, ca. 3.5 mm. Stamens glabrous; filaments entire. Carpels 3–5, densely brown pubescent. Fl. Jul.

Mountains. Heilongjiang (Yichun Shi), Jilin (Dunhua Xian) [Russia (Far East)].

132. *Aconitum fukutomei* Hayata, Icon. Pl. Formosan. 4: 1. 1914.

梨山乌头 *li shan wu tou*

Aconitum bartlettii Yamamoto; *A. bartlettii* var. *fukutomei* (Hayata) T. S. Liu & C. F. Hsieh.

Caudex fusiform, ca. 1.5 cm, ca. 5 mm in diam. Stem more than 50 cm, simple or branched, basally glabrous, apically spreading pubescent. Middle cauline leaves with petiole 0.8–2 cm, spreading pubescent; leaf blade pentagonal, 2–7 × 3.5–9.5 cm, abaxially pubescent, adaxially sparsely pubescent or glabrous, 3-sect; central segment rhombic, apex acuminate; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence corymbose, 3–9-flowered; rachis and pedicels spreading pubescent, bracts leaflike to linear. Pedicels ca. 2.5 cm, spreading pubescent, with 2 bracteoles at middle. Sepals blue-purple, both surfaces sparsely spreading pubescent; lower sepals 1.2–1.3 cm; lateral sepals 0.9–1.5 cm; upper sepal navicular, lower margin concave, 1.5–2.2 cm. Petals pubescent; limb ca. 0.9 cm; spur incurved. Stamens glabrous; filaments 2-denticulate. Carpels 3, sparsely pubescent or becoming glabrous. Follicles ca. 1.2 cm. Fl. Oct. $2n = 32^*$.

• Mountains. Taiwan.

133. *Aconitum kojimae* Ohwi ex Tamura, Acta Phytotax. Geobot. 18: 64. 1959.

锐裂乌头 *rui lie wu tou*

Caudex obconical, 3–4.5 cm, 1.2–1.6 cm in diam. Stem 20–80 cm tall, simple, basally glabrous, apically sparsely retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 2–3 cm; leaf blade pentagonal, 3–9 × 4–10 cm, both surfaces appressed pubescent at veins, base cordate, 3-

sect; central segment rhombic, apex acuminate; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence corymbose, 3–7-flowered; rachis and pedicels retrorse pubescent; proximal bracts leaflike. Pedicels 2–3 cm, with 2 bracteoles below middle; bracteoles linear, 2–6 mm, retrorse pubescent. Sepals abaxially pubescent; lower sepals 1–1.5 cm; lateral sepals 1.2–1.7 cm; upper sepal high galeate, 1.4–2.4 cm high, 1.3–1.9 cm from base to beak, lower margin slightly concave. Petals pubescent; limb 6.5–12 mm; spur incurved. Stamens pubescent; filaments 2-denticulate. Carpels 3, glabrous or sparsely pubescent. Follicles 0.7–1.1 cm. Fl. Aug.

• Mountains. S Taiwan.

- 1a. Stem simple; flower relatively small; upper sepal ca. 1.4 cm high 133a. var. *kojima*e
- 1b. Stem branched apically; flower relatively large; upper sepal 2.1–2.4 cm high 133b. var. *ramosum*

133a. *Aconitum kojima*e var. *kojima*e

锐裂乌头(原变种) rui lie wu tou (yuan bian zhong)

Stem simple. Flower relatively small. Upper sepal ca. 1.4 cm high.

• Mountains. S Taiwan.

133b. *Aconitum kojima*e var. *ramosum* Tamura, Acta Phytotax. Geobot. 18: 65. 1959.

分枝锐裂乌头 fen zhi rui lie wu tou

Stem branched apically. Flower relatively large. Upper sepal 2.1–2.4 cm high.

• S Taiwan.

134. *Aconitum formosanum* Tamura, Acta Phytotax. Geobot. 18: 64. 1959.

台湾乌头 tai wan wu tou

Aconitum bartlettii Yamamoto var. *formosanum* (Tamura) T. S. Liu & C. F. Hsieh; *A. fukutomei* Hayata var. *formosanum* (Tamura) T. Y. A. Yang & T. C. Huang.

Caudex terete, ca. 3.5 cm, 8–10 mm in diam. Stem ca. 1 m, apically branched, sparsely spreading pubescent, or basally becoming glabrous. Proximal cauline leaves withered at anthesis, middle ones long petiolate or nearly so; petiole 2–4.5 cm; leaf blade pentagonal, 4–6.5 × 7–11 cm, abaxially spreading pubescent at veins, adaxially sparsely appressed pubescent, base cordate, 3-sect or nearly to base; central segment broadly rhombic or rhombic, apex acute, 3-parted; lateral segments unequally 2-parted. Inflorescence 3–5-flowered; rachis retrorse pubescent; basal bracts leaflike, others smaller. Pedicels spreading pubescent, 2.5–5 cm, with 2 bracteoles at middle; bracteoles linear-subulate, 6.5–7 mm. Sepals abaxially sparsely spreading pubescent; lower sepals oblong, ca. 1.3 cm; lateral sepals broadly obovate, 1.4–1.5 cm; upper sepal galeate, ca. 1.5 cm

high, lower margin concave. Petals ca. 1.3 cm; claw sparsely pubescent; limb ca. 3.5 mm, sparsely pubescent; spur incurved, subglobose, ca. 1 mm. Stamens sparsely pubescent. Follicles ca. 2 cm. Seeds ca. 3.5 mm. Fl. Jul–Nov.

• Mountains. N Taiwan.

135. *Aconitum carmichaelii* Debeaux, Acta Soc. Linn. Bordeaux 33: 87. 1879.

乌头 wu tou

Caudex obconical, 2–4 cm, 1–1.6 cm in diam. Stem 0.6–1.5(–2) m, branched, apically sparsely retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole 1–2.5 cm; leaf blade pentagonal, 6–11 × 9–15 cm, thinly leathery, papery, or herbaceous, abaxially sparsely pubescent or densely pubescent at veins, adaxially sparsely appressed pubescent, base slightly cordate, 3-sect or nearly to base; central segment broadly rhombic, sometimes obovate-rhombic or rhombic; lateral segments unequally 2-parted. Inflorescence terminal, 6–10(–25) cm, many flowered; rachis and pedicels ± densely retrorse and appressed pubescent, or spreading pubescent; proximal bracts 3-fid, others narrowly ovate to lanceolate. Pedicels 1.5–3(–5.5) cm, with 2 bracteoles at middle or below; bracteoles lanceolate to linear, 3–5(–10) × 0.5–0.8(–2) mm. Sepals blue-purple, abaxially pubescent; lower sepals 1.5–1.7 cm; lateral sepals 1.5–2 cm; upper sepal high galeate, 2–2.6 cm high, 1.7–2.2 cm from base to beak, lower margin slightly concave. Petals glabrous; limb ca. 1.1 cm; lip ca. 6 mm, slightly concave; spur usually circinate, (1–)2–2.5 mm. Stamens glabrous or sparsely pubescent; filaments 2-denticulate, or entire. Carpels 3–5, sparsely or densely pubescent, rarely glabrous. Follicles 1.5–1.8 cm. Seeds 3–3.2 mm. Fl. Sep–Oct. 2n = 32*, 48*, 64*.

Forest margins, scrub, grassy slopes, mountains; 100–2200 m. Anhui, Fujian, SE Gansu, N Guangdong, N Guangxi, Guizhou, Hebei, S Henan, W Hubei, Hunan, Jiangsu, Jiangxi, S Liaoning, Nei Mongol, S and SW Shaanxi, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang [N Vietnam].

Further study is necessary to determine the placement of *Aconitum carmichaelii* var. *angustius* W. T. Wang & P. K. Hsiao (in W. T. Wang, Acta Bot. Yunnan. 15: 349. 1993).

- 1a. Rachis and pedicels spreading pubescent 135c. var. *truppelianum*
- 1b. Rachis and pedicels ± densely retrorse- and appressed pubescent.
 - 2a. Stem and abaxial leaf surfaces densely pubescent 135d. var. *pubescens*
 - 2b. Stem sparsely retrorse pubescent apically; leaves abaxially sparsely pubescent at veins.
 - 3a. Leaf blade palmately parted, central lobe acute at apex 135e. var. *tripartitum*
 - 3b. Leaf blade 3-sect, central segment acute, acuminate or long acuminate at apex.

- 4a. Leaf blade papery or herbaceous, central segment acute at apex, lobules broad; rachis long 135a. var. *carmichaelii*
- 4b. Leaf blade herbaceous, central segment acuminate or long acuminate at apex, lobules narrow; rachis short 135b. var. *hwangshanicum*

135a. *Aconitum carmichaelii* var. *carmichaelii*
 乌头(原变种) *wu tou* (yuan bian zhong)
Aconitum bodinieri H. Léveillé & Vaniot; *A. kusnezoffii* Reichenbach var. *bodinieri* (H. Léveillé & Vaniot) Finet & Gagnepain; *A. lushanense* Migo.

Stem sparsely retrorse pubescent apically. Leaves herbaceous or papery, abaxially usually sparsely pubescent at veins, 3-sect; central segment acute, acuminate, or long acuminate at apex, lobules broad. Rachis long; rachis and pedicels ± densely retrorse and appressed pubescent.

Scrub, grassy slopes; 100–2200 m. Anhui, Fujian, N Guangdong, N Guangxi, Guizhou, Hebei, S Henan, W Hubei, Hunan, Jiangsu, Jiangxi, S Liaoning, Nei Mongol, S Shaanxi, E Shandong, Shanxi, Sichuan, Yunnan, Zhejiang [N Vietnam].

135b. *Aconitum carmichaelii* var. *hwangshanicum* (W. T. Wang & P. K. Hsiao) W. T. Wang & P. K. Hsiao, *Acta Pharm. Sin.* 12: 685. 1965.

黄山乌头 *huang shan wu tou*

Aconitum chinense Siebold var. *hwangshanicum* W. T. Wang & P. K. Hsiao in B. J. Chen, *Observ. Fl. Hwangshan.* 113. 1965.

Stem sparsely retrorse pubescent apically. Leaves herbaceous, abaxially usually sparsely pubescent at veins, 3-sect; central segment acute, acuminate, or long acuminate at apex; lobules narrow. Rachis short; rachis and pedicels ± densely retrorse and appressed pubescent.

• Mountains; ca. 1000 m. S Anhui, NE Jiangxi, NW Zhejiang.

135c. *Aconitum carmichaelii* var. *truppelianum* (Ulbrich) W. T. Wang & P. K. Hsiao, *Fl. Reipubl. Popularis Sin.* 27: 268. 1979.

展毛乌头 *zhan mao wu tou*

Aconitum japonicum var. *truppelianum* Ulbrich, *Beih. Bot. Centralbl.* 37(2): 122. 1919; *A. carmichaelii* var. *fortunei* (Hemsley) W. T. Wang & P. K. Hsiao; *A. fortunei* Hemsley; *A. kitagawae* Nakai; *A. liaotungense* Nakai; *A. takahashii* Kitagawa; *A. truppelianum* (Ulbrich) Nakai.

Rachis and pedicels spreading pubescent.

• Forest margins, scrub, grassy slopes. Jiangsu, S Liaoning, Shandong, N Zhejiang.

135d. *Aconitum carmichaelii* var. *pubescens* W. T. Wang & P. K. Hsiao, *Acta Pharm. Sin.* 12: 685. 1965.

毛叶乌头 *mao ye wu tou*

Stem and leaves abaxially densely pubescent. Rachis and pedicels ± densely retrorse and appressed pubescent.

• Grassy slopes. SE Gansu, SW Shaanxi.

135e. *Aconitum carmichaelii* var. *tripartitum* W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 608. 1979.

深裂乌头 *shen lie wu tou*

Stem sparsely retrorse pubescent apically. Leaves abaxially usually sparsely pubescent at veins, palmately parted; central lobe acute at apex. Rachis and pedicels ± densely retrorse and appressed pubescent.

• Forests, scrub, grassy slopes. Jiangsu.

136. *Aconitum kusnezoffii* Reichenbach, *Monogr. Acon. t.* 21. 1820.

北乌头 *bei wu tou*

Caudex conical or carrot-shaped, 2.5–5 cm, 7–12 mm in diam. Stem (65–)80–150 cm, usually branched, glabrous, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones shortly to long petiolate; petiole 3–11 cm, glabrous; leaf blade pentagonal, 9–16 × 10–20 cm, papery or subleathery, abaxially glabrous, adaxially sparsely retrorse pubescent, base cordate, 3-sect; central segment rhombic, apex acuminate, subpinnately divided or lobed; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence terminal, 9–22-flowered; rachis and pedicels glabrous; proximal bracts 3-fid, others oblong or linear. Proximal pedicels 1.8–3.5(–5) cm, with 2 bracteoles at middle or below; bracteoles linear or subulate-linear, 3.5–5 × ca. 1 mm. Sepals purple-blue, abaxially sparsely retrorse pubescent or nearly glabrous; lower sepals oblong, 1.2–1.4 cm; lateral sepals 1.4–1.6(–1.7) cm; upper sepal galeate or high galeate, 1.5–2.5 cm high, shortly or long beaked, lower margin ca. 1.8 cm. Petals glabrous; limb 3–4 mm wide; lip 3–5 mm; spur incurved or subcircinate, 1–4 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels (4 or)5, glabrous. Follicles erect, (0.8–)1.2–2 cm. Seeds ca. 2.5 mm. Fl. Jul–Sep. $2n = 32^*$.

Grassy slopes, grasslands, forests, forest margins, by streams; 2000–2400 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi [Korea, Russia (Siberia)].

One of us (Kadota) indicates that plants with pubescent pedicels named *Aconitum kusnezoffii* var. *crispulum* W. T. Wang and *A. kusnezoffii* var. *pilosum* Y. Z. Zhao, nom. inval., are hybrid derivatives between *A. kusnezoffii* and other species. Those of var. *crispulum* have glabrous rachises and upper stems and apically retrorse pedicels, and occur in Hebei, Heilongjiang, Jilin, and Liaoning. Those of var. *pilosum* have appressed and retrorse pubescent or subglabrous rachises, upper stems, and pedicels, and occur in Nei Mongol.

1a. Segments narrow, subpinnately

divided 136a. var. *kusnezoffii*

1b. Segments broad, lobed 136b. var. *gibbiferum*

136a. *Aconitum kusnezoffii* var. *kusnezoffii*

北乌头(原变种) *bei wu tou* (yuan bian zhong)

Aconitum kusnezoffii lusus *dissectum* Regel; *A. pulcherrimum* Nakai; *A. pulcherrimum* var. *dissectum* (Regel) Nakai; *A. triphyloides* Nakai; *A. yamatsutae* Nakai. Leaf segments narrow, subpinnately divided.

Grassy slopes, forests; 2000–2400 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi [Korea, Russia (Far East, Siberia)].
136b. *Aconitum kusnezoffii* var. *gibbiferum* (Reichenbach) Regel, Index Sem. Hort. Petrop. 44. 1860.

宽裂北乌头 kuan lie bei wu tou

Aconitum gibbiferum Reichenbach, Monogr. Acon. t. 19. 1820.

Leaf segments broad, lobed.

• Liaoning.

137. *Aconitum wuchagouense* Y. Z. Zhao, Acta Phytotax. Sin. 23: 57. 1985.

五叉沟乌头 wu cha gou wu tou

Caudex obconical, ca. 7 cm, ca. 1 cm in diam. Stem 90–110 cm, sparsely appressed and retrorse pubescent.

Proximal cauline leaves long petiolate, withered at anthesis, distal ones shortly petiolate; petiole 1–3 cm; leaf blade pentagonal, 6–10 × 7–12 cm, abaxially glabrous, adaxially retrorse pubescent, palmately 3-sect; central segment rhombic, apex acuminate, subpinnately parted; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence terminal, many flowered; rachis and pedicels glabrous; proximal bracts leaflike, distal ones linear. Pedicels 1–3 cm, distally with 2 bracteoles; bracteoles linear, 5–7 mm. Sepals yellowish, abaxially pubescent; upper sepal oblong, ca. 1.4 × 0.5–0.8 cm. Petals glabrous, ca. 1.6 cm; limb 3–4 mm wide; lip ca. 6 mm, 2-lobed at apex; spur incurved, 1–2 mm. Stamens glabrous; filaments 1- or 2-denticulate. Carpels 5, glabrous. Fl. Aug.

• Forest margins; ca. 900 m. Nei Mongol (Hinggan Meng).

138. *Aconitum birobidshanicum* Voroschilov, Index Sem. Inst. Exp. Pl. Offic. URSS 31. 1943.

带领乌头 dai ling wu tou

Aconitum kusnezoffii Reichenbach subsp. *birobidshanicum* (Voroschilov) Luferov; *A. kusnezoffii* var. *birobidshanicum* (Voroschilov) S. X. Li; *A. pulcherrimum* Nakai subsp. *birobidshanicum* (Voroschilov) Voroschilov.

Caudex conical, 2.5–4 cm, to 1 cm in diam. Stem 60–120 cm, branched, glabrous. Proximal cauline leaves long petiolate, withered at anthesis; petiole 2.5–5 cm, glabrous; leaf blade 5–10 × 5.5–12 cm, abaxially glabrous, adaxially sparsely retrorse pubescent, 3-sect; central segment rhombic, apex acuminate, pinnately divided; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence several flowered; rachis and pedicels glabrous; bracts leaflike. Pedicels 2–7.5 cm, with 2 bracteoles at middle or above; bracteoles narrowly obovate, spatulate, or linear, 3.5–5.5 × 1.5–3 mm. Sepals blue-purple, abaxially glabrous; lower

sepals 0.6–1.1 cm; lateral sepals 0.9–1.5 cm; upper sepal high galeate, 1.4–2.4 cm high, 1–1.6 cm from base to beak, lower margin concave. Petals glabrous; limb 7–12 × 3–4 mm; lip 3.5–4 mm, slightly concave; spur slightly circinate, ca. 3 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous. Follicles ca. 1.6 cm. Seeds ca. 2 mm. Fl. Jul–Aug.

Grassy slopes, *Betula* forest margins. Heilongjiang [Mongolia, Russia (Far East)].

Alexander N. Luferov (pers. comm.) believes that this taxon is conspecific with *Aconitum kusnezoffii*.

139. *Aconitum bailangense* Y. Z. Zhao, Acta Phytotax. Sin. 23: 58. 1985.

白狼乌头 bai lang wu tou

Caudex conical. Stem erect, 80–150 cm tall, usually sparsely appressed and retrorse pubescent. Proximal cauline leaves withered at anthesis, and distal ones with petiole 1–7 cm; leaf blade pentagonal, 7–10 × 8–12 cm, abaxially glabrous, adaxially retrorse pubescent, palmately 3-sect; central segment rhombic, apex acuminate, pinnately parted; lateral segments obliquely flabellate, unequally 2-parted. Flower solitary; rachis and pedicels sparsely appressed and retrorse pubescent. Pedicel upward curved, 3–11 cm, distally with 2 bracteoles; bracteoles 0.8–1.5 cm. Sepals blue-purple, abaxially pubescent; lower sepals ovate-oblong, 1.2–1.7 cm; lateral sepals suborbicular, 1.3–1.8 × 1.3–1.8 cm; upper sepal high galeate, 1.5–2.2 cm high. Petals glabrous; limb 3–4 mm wide; lip ca. 4 mm, 2-lobed at apex; spur decurved, ca. 2 mm. Stamens glabrous; filaments entire or 1- or 2-denticulate. Carpels 5, glabrous. Fl. Jul–Aug.

• Grasslands. Nei Mongol (Hinggan Meng).

140. *Aconitum jaluense* Komarov, Trudy Imp. S.-Peterburgsk. Bot. Sada 18: 439. 1901.

鸭绿乌头 ya lu wu tou

Caudex conical, ca. 3 cm. Stem 45–100 cm, glabrous, usually branched, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis; middle ones with petiole 3–6 cm; leaf blade pentagonal, 7–12 × 8–16 cm, abaxially glabrous, adaxially rarely appressed pubescent, base cordate, 3-sect; central segment rhombic, apex acuminate, 3-fid; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence terminal or axillary, several or many flowered; rachis and pedicels usually densely spreading pubescent. Lower sepals oblong; lateral sepals ca. 1.5 cm; upper sepal high galeate, ca. 2 cm high, ca. 1.6 cm from base to beak. Petals glabrous; limb ca. 1.2 cm; lip ca. 6 mm, apex slightly concave; spur incurved, 2–3 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3(or 4), glabrous or pubescent. Follicles ca. 2 cm. Seeds ca. 2.5 mm. Fl. Sep. $2n = 32^*$.

Forest margins, scrub; ca. 800 m. Heilongjiang, Jilin, SE Liaoning [Korea, Russia (Far East)].

- 1a. Leaf blade truncate at base,
3-parted 140b. var. *truncatum*
1b. Leaf blade cordate at base, 3-sect.
2a. Pedicels densely spreading
pubescent 140a. var. *jaluense*
2b. Pedicels spreading pubescent only
at apex 140c. var. *glabrescens*

140a. *Aconitum jaluense* var. *jaluense*

鸭绿乌头(原变种) *ya lu wu tou* (yuan bian zhong)
Aconitum triphyllum Nakai var. *manshuricum* Nakai.
Leaf blade cordate at base, 3-sect. Pedicels densely
spreading pubescent.

Heilongjiang, Jilin [Korea, Russia (Far East)].

140b. *Aconitum jaluense* var. *truncatum* S. H. Li & Y. H.
Huang, Fl. Pl. Herb. Chin. Bor.-Orient. 3: 228. 1975.
截基鸭绿乌头 *jie ji ya lu wu tou*

Leaf blade truncate at base, 3-parted.

• Scrub; ca. 800 m. Jilin.

140c. *Aconitum jaluense* var. *glabrescens* Nakai, Bot. Mag.
(Tokyo) 43: 440. 1929.

光梗鸭绿乌头 *guang geng ya lu wu tou*

Aconitum manshuricum Nakai.

Leaf blade cordate at base, 3-sect. Pedicels spreading
pubescent only at apex.

• Forest margins. SE Liaoning.

141. *Aconitum paniculigerum* Nakai, Bot. Mag. (Tokyo) 34:
41. 1920.

圆锥乌头 *yuan zhui wu tou*

Caudex obconical, 2–3 cm. Stem 70–100 cm, apically
branched, glabrous. Proximal cauline leaves withered at
anthesis; middle ones long petiolate; petiole ca. 6 cm,
glabrous; leaf blade cordate-pentagonal, 10–15 × 13–16
cm, abaxially glabrous, adaxially sparsely appressed
pubescent, 3-sect; central segment rhombic, apex
acuminate, subpinnately parted; lateral segments
obliquely flabellate, unequally 2-parted. Inflorescence
conical, many flowered; rachis and pedicels spreading
pubescent; proximal bracts 3-fid, others linear. Pedicels
3–5.5 cm, with 2 bracteoles near middle; bracteoles
narrowly linear, ca. 5 mm. Sepals purple-blue, abaxially
sparsely pubescent; lower sepals oblong; lateral sepals
broadly obovate; upper sepal high galeate, 1.6–1.8 cm
high, lower margin erect or concave. Petals glabrous;
lip ca. 4 mm, 2-lobed at apex; spur incurved, slightly
circinate at apex, ca. 2.5 mm. Stamens glabrous;
filaments entire. Carpels (3–)5, glabrous. Follicles ca.
1.1 cm. Seeds ca. 2 mm. Fl. Aug–Sep.

Forests, forest margins, grassy spoils; 600–1500 m. NE Hebei, E Jilin,
SE Liaoning [Korea].

- 1a. Rachis and pedicels spreading
pubescent 141a. var. *paniculigerum*
1b. Rachis glabrous, pedicels sparsely
spreading pubescent distally 141b. var. *wulingense*

141a. *Aconitum paniculigerum* var. *paniculigerum*

圆锥乌头(原变种) *yuan zhui wu tou* (yuan bian zhong)
Aconitum jaluense Komarov var. *paniculigerum* (Nakai)
S. X. Li; *A. paniculigerum* var. *leiocarpum* Nakai ex
Kitagawa; *A. paniculigerum* var. *leiogynum* f.
glabrescens Nakai; *A. subalpinum* A. I. Baranov.
Rachis and pedicels spreading pubescent.

Forests, forest margins; 600–1200 m. E Jilin, SE Liaoning [Korea].

141b. *Aconitum paniculigerum* var. *wulingense* (Nakai) W.
T. Wang, Fl. Reipubl. Popularis Sin. 27: 273. 1979.

疏毛圆锥乌头 *shu mao yuan zhui wu tou*
Aconitum wulingense Nakai, Rep. Exped. Manchoukuo,
Sect. 4, 2: 157. 1935; *A. kusnezoffii* Reichenbach var.
wulingense (Nakai) W. T. Wang; *A. tokii* Nakai.
Rachis glabrous, pedicels sparsely spreading pubescent
distally.

• Grassy spoils, forests; 600–1500 m. NE Hebei.

142. *Aconitum dunhuaense* S. H. Li, Fl. Pl. Herb. Chin.
Bor.-Orient. 3: 228. 1975.

敦化乌头 *dun hua wu tou*

Caudex unknown. Stem more than 80 cm, apically
slightly S-curved, fork-branched, glabrous. Cauline
leaves with petiole 2–5 cm; leaf blade suborbicular, 3–
12 × 5–14 cm, abaxially glabrous, adaxially sparsely
appressed pubescent at veins, 3-sect; central segment
rhombic, 5–6 cm wide, subduplicato-pinnatifid,
ultimate lobes narrowly triangular, 2–4 mm wide, apex
acuminate; lateral segments obliquely flabellate,
unequally 2-parted near base. Inflorescence many
flowered. Pedicel 5–8.5 cm, proximally glabrous,
distally spreading pubescent, proximally with 2
bracteoles; bracteoles narrowly spatulate-oblancheolate,
4–8 × 1–3 mm. Sepals blue-purple, abaxially sparsely
pubescent; lower sepals ca. 1 cm; lateral sepals ca. 1.2
cm; upper sepal high galeate, ca. 2 cm, ca. 1.5 cm
from base to beak. Petals glabrous; limb 3–4 mm wide;
lip 2-lobed at apex; spur incurved, headlike. Stamens
glabrous; filaments entire. Carpels (4 or)5, sparsely
pubescent. Fl. Aug.

• Grassy slopes. Jilin (Dunhua Xian).

143. *Aconitum fusungense* S. H. Li & Y. H. Huang, Fl. Pl.
Herb. Chin. Bor.-Orient. 3: 228. 1975.

抚松乌头 *fu song wu tou*

Caudex unknown. Stem ca. 1 m, apically shortly
branched, glabrous or sparsely appressed pubescent.
Distal leaves shortly petiolate; petiole 0.5–3 cm; leaf
blade orbicular-pentagonal, 4–9 × 4.5–11 cm, abaxially
glabrous, adaxially appressed pubescent, 3-sect; central
segment ovate-rhombic, apex long acuminate, pinnately
lobed, lobules narrowly lanceolate to linear, 2–3 mm
wide; lateral segments unequally 2-parted. Inflores-

cence terminal, ca. 11 cm, 7-flowered; rachis glabrous; bracts leaflike. Pedicels 3.5–8 cm, distally spreading pubescent, with 2 bracteoles below middle; bracteoles lanceolate to linear-lanceolate, 6–9 mm. Sepals purple-blue, abaxially sparsely pubescent; lower sepals ca. 1.4 cm; lateral sepals ca. 1.3 cm; upper sepal galeate, 1.5–2 cm high, clawed, 1–1.4 cm from base to beak, lower margin concave. Petals glabrous; limb ca. 4 mm; lip ca. 5 mm, 2-lobed at apex; spur incurved, ca. 1.5 mm. Stamens glabrous; filaments 2-denticulate or entire. Carpels 5, glabrous. Fl. Jul–Aug.

• Grassy slopes; ca. 900 m. Jilin (Fusong Xian).

144. *Aconitum ningwuense* W. T. Wang, Fl. Reipubl. Popul. Sin. 27: 608. 1979.

宁武乌头 *ning wu wu tou*

Caudex unknown. Stem purplish, ca. 75 cm, shortly 2-branched below inflorescence, glabrous. Middle cauline leaves slightly long petiolate; petiole ca. 4 cm, glabrous; leaf blade pentagonal, ca. 10 × 1.25 cm, papery, abaxially glabrous, adaxially sparsely appressed pubescent, 3-sect; central segment rhombic, apex acuminate, bipinnatifid nearly to midvein, ultimate lobes lanceolate-linear or linear, 2–3.5 mm wide; lateral segments shortly stipitate, obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, ca. 7 cm, ca. 8-flowered; rachis and pedicels 3–3.7 cm, proximally with 2 bracteoles; bracteoles narrowly linear, 4–5 mm. Sepals purple, adaxially glabrous; lower sepals narrowly elliptic, ca. 1.2 cm; lateral sepals orbicular-obovate, ca. 1.3 cm; upper sepal galeate, ca. 1.8 cm high, shortly clawed, ca. 1.3 cm from base to beak. Petals glabrous; limb ca. 1.1 cm; lip ca. 6 mm, slightly concave at apex; spur circinate, ca. 4.5 mm, apex globose. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Aug.

• By streams; ca. 1500 m. Shanxi (Ningwu Xian).

145. *Aconitum villosum* Reichenbach, Uebers. Gatt. Acon. 39. 1819.

白毛乌头 *bai mao wu tou*

Caudex to 3 cm, ca. 1 cm in diam. Stem erect or apically twining, ca. 90 cm, branched, spreading and retrorse pubescent, or sparsely villous. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole ca. 4 cm; leaf blade pentagonal, ca. 7.5 × 10 cm, both surfaces appressed pubescent, base broadly cordate, 3-sect; central segment subrhombic, apex acuminate, bipinnatifid nearly to midvein; lobule linear or lanceolate-linear; lateral segments shortly stipitate, unequally 2-parted nearly to base. Inflorescence terminal on branches and stem, 2–7-flowered; rachis and pedicels densely retrorse pubescent; proximal bracts 3-fid, others linear-ovate. Pedicels 0.9–1.8 cm, with 2 bracteoles at middle; bracteoles linear, 2–3 mm. Sepals blue-purple, abaxially densely pubescent; lower sepals 0.8–1 cm; lateral sepals 1–1.3 cm; upper sepal high galeate, ca. 1.9 cm, lower margin slightly concave, 1–1.2 cm. Petals

glabrous; limb 8–10 × 2.5–4 mm; lip 3–5 mm, slightly concave at apex; spur incurved, ca. 2 mm. Stamens glabrous; filaments entire. Carpels 5, sparsely pubescent distally. Fl. Sep. $2n = 16$.

Forest margins, grasslands. E Jilin [Korea, Mongolia, Russia (Siberia)].

Alexander N. Luferov (pers. comm.) believes that the variability of this taxon lies within the range of that of *Aconitum volubile*.

- 1a. Stem erect or sometimes apically twining, spreading and retrorse pubescent 145a. var. *villosum*
 1b. Stem all or apically twining, sparsely villous 145b. var. *amurense*

145a. *Aconitum villosum* var. *villosum*

白毛乌头(原变种) *bai mao wu tou* (yuan bian zhong)

Stem erect or sometimes apically twining, spreading and retrorse pubescent.

E Jilin [Korea, Mongolia, Russia (Siberia)].

145b. *Aconitum villosum* var. *amurense* (Nakai) S. H. Li & Y. H. Huang, Fl. Pl. Herb. Chin. Bor.-Orient. 3: 131. 1975.

缠绕白毛乌头 *chan rao bai mao wu tou*

Aconitum amurense Nakai, J. Jap. Bot. 18: 603. 1942.

Stem all or apically twining, sparsely villous.

Forest margins, grasslands. E Jilin [Korea].

146. *Aconitum daxinganlinense* Y. Z. Zhao, Acta Sci. Nat. Univ. Intramongol. 14(2): 223. 1983.

大兴安岭乌头 *da xing an ling wu tou*

Aconitum villosum Reichenbach var. *daxinganlinense* (Y. Z. Zhao) S. X. Li.

Caudex obconical, ca. 2 cm, ca. 5 mm in diam. Stem erect, 20–100 cm tall, simple or branched at apex, appressed and retrorse pubescent at base, sometimes subglabrous, apically appressed and retrorse pubescent or spreading villous, sometimes sparsely pubescent. Proximal cauline leaves long petiolate, withered at anthesis, distal ones shortly petiolate; petiole villous; leaf blade suborbicular, 2–7 × 3–9 cm, abaxially spreading villous, adaxially appressed and retrorse pubescent or intermixed spreading villous, palmately 3-sect; central segment rhombic, apex acuminate, ultimate lobes lanceolate or linear, 1–3 mm wide; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence terminal or axillary, 1–5-flowered; rachis appressed and retrorse pubescent, sometimes sparsely pubescent; proximal bracts leaflike, distal ones 3-fid. Pedicels 1–3 cm, densely spreading pubescent, sometimes sparsely pubescent, with 2 bracteoles at or above middle; bracteoles linear, 2–3 mm. Sepals purple-blue, sometimes becoming white, abaxially pubescent; lower sepals elliptic or elliptic-lanceolate, 1–1.2 cm × 3–7 mm; lateral sepals broadly obovate, ca. 1.5 cm; upper sepal high galeate, 1.5–2 cm, lower margin ca. 1.8 cm. Petals glabrous, 1.3–1.8 mm; limb 3–4 mm wide; lip ca. 3.5 mm, apex 2-lobed; spur decurved, ca. 2 mm, dentate. Stamens glabrous; filaments 2-denticulate. Carpels 3–5, glabrous or sparsely pubescent. Follicles ca. 7 mm. Seeds ca. 1.5 mm. Fl. Jul–Aug, fr. Aug.

•Forests, by streams. Nei Mongol.

147. *Aconitum macrorhynchum* Turczaninow ex Ledebour, Bull. Soc. Imp. Naturalistes Moscou 15: 83. 1842.

细叶乌头 xi ye wu tou

Aconitum macrorhynchum f. *tenuissimum* (Nakai & Kitagawa) S. H. Li & Y. H. Huang; *A. macrorhynchum* var. *octocarpum* P. K. Chang & B. Y. Wang; *A. macrorhynchum* var. *viviparum* P. K. Chang & B. Y. Wang; *A. tenuissimum* Nakai & Kitagawa.

Caudex carrot-shaped, 1.2–2.8 cm, 5–10 mm in diam. Stem 68–100 cm, basally nearly glabrous, apically sparsely retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, and middle ones slightly long petiolate; petiole 5–10 cm; leaf blade orbicular-ovate, 5.5–10 × 6–12 cm, 3-sect; central segment triangular-ovate, subpinnatisect; ultimate lobes linear, 1–3 mm wide. Inflorescence terminal on stem and branches, 5–15-flowered; proximal bracts leaflike, distal ones linear. Pedicel 1.5–2.5 cm, with 2 bracteoles proximally or distally; bracteoles linear, (1.5–)2.5–4 mm. Sepals purple-blue, abaxially sparsely pubescent; lower sepals 0.9–1.1 cm; lateral sepals orbicular-obovate, 1.1–1.4 cm; upper sepal high galeate, 1.5–1.9 cm high, lower margin 1.3–1.7 cm. Petaline claw sparsely pubescent; limb glabrous; lip ca. 4.5 mm, slightly concave; spur incurved, ca. 1 mm. Stamens sparsely pubescent; filaments entire or 2-denticulate. Carpels 5(–8), pubescent. Follicles 1–1.3 cm. Seeds ca. 2.8 mm. Fl. Aug–Sep. $2n = 16^*$.

Grasslands, slopes; 200–500 m. Heilongjiang, Jilin [Russia (Far East, E Siberia)].

148. *Aconitum tchangbaischanense* S. H. Li & Y. H. Huang, Fl. Pl. Herb. Chin. Bor.-Orient. 3: 229. 1975.

长白乌头 chang bai wu tou

Aconitum villosum Reichenbach subsp.

tchangbaischanense (S. X. Li & Y. H. Huang) S. X. Li. Caudex obconical, 2.5–3.5 cm, 6–7 mm in diam. Stem 85–140 cm, basally glabrescent, apically sparsely retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 4–9 cm, glabrous; leaf blade reniform-pentagonal, 7–10 × 10–12 cm, abaxially glabrous, adaxially pubescent at veins, base cordate, 3-sect; central segment rhombic, apex long acuminate, pinnately parted nearly to midvein, ultimate lobes linear-lanceolate or linear, 2–4 mm wide, usually entire; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal or axillary, 11–14.5 cm, 7–14-flowered; rachis retrorse pubescent; proximal bracts leaflike, distal ones linear. Pedicels 2–5.5 cm, densely spreading pubescent, with 2 bracteoles near middle or above; bracteoles linear, 5–10 × 0.5–1 mm. Sepals blue, abaxially sparsely pubescent; lower sepals ca. 0.9 cm; lateral sepals ca. 1 cm; upper sepal high galeate or galeate, 1.5–2 cm high, 1.1–1.5 cm from base to beak, lower

margin slightly concave. Petals glabrous; limb ca. 1 cm × 3.5 mm; lip ca. 6 mm; spur incurved, ca. 1.5 mm. Stamens glabrous; filaments usually entire. Carpels 5, sparsely pubescent or glabrous distally.

•Grassy slopes, forest margins; 1000–1700 m. Jilin (Changbai Shan). **149. *Aconitum monanthum*** Nakai, Bot. Mag. (Tokyo) 28: 58. 1914.

高山乌头 gao shan wu tou

Caudex carrot-shaped, 1.5–2.5 cm, ca. 4 mm in diam. Stem 14–30 cm, simple or several branched, glabrous. Basal leaves 1 or 2, long petiolate; petiole 5–20 cm, base shortly sheathed; leaf blade reniform-pentagonal, 2.5–3.5 × 4–6.5 cm, both surfaces glabrous, 3-sect; central segment rhombic or broadly rhombic, dissected, ultimate lobes lanceolate-linear or narrowly lanceolate, 1.5–2 mm wide; lateral segments obliquely flabellate, unequally 2-fid nearly to base; cauline leaves 2–4, similar to basal leaves but smaller. Flower solitary, terminal, or inflorescence corymbose, 1- or 2-flowered; rachis and pedicels glabrous; bracts leaflike. Pedicels to 5 cm, with 2 bracteoles near middle; bracteoles 3-fid or linear. Sepals purple, abaxially glabrous; lower sepals 0.9–1.3 cm; lateral sepals 1–1.4 cm; upper sepal high galeate, 1.1–1.5 cm high, beak 4–5 mm, lower margin 1.2–2 cm, slightly concave. Petals glabrous; limb ca. 1 cm; lip ca. 3.5 mm, 2-lobed at apex; spur incurved, ca. 1.5 mm. Stamens glabrous; filaments entire or distally 2-denticulate. Carpels 3, glabrous. Follicles ca. 1.8 cm. Seeds ca. 3 mm. Fl. Jul–Aug.

Grassy slopes; 1200–1600 m. Jilin (Changbai Shan) [N Korea].

150. *Aconitum incisofidum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 87. 1965.

缺刻乌头 que ke wu tou

Caudex carrot-shaped, ca. 6.5 cm, ca. 1.2 cm in diam. Stem 1–1.8 m, simple, apically sparsely curved pubescent, with 14 leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, and middle ones long petiolate; petiole 3–7.5 cm; leaf blade orbicular-pentagonal, 6–12 × 9–16 cm, abaxially nearly glabrous, adaxially appressed pubescent, 3-sect nearly to base; central segment rhombic or broadly rhombic, apex acuminate, nearly bipinnatipartite; lobule narrowly triangular or lanceolate; lateral segments obliquely flabellate, unequally 2- or 3-parted. Inflorescence terminal, to 38 cm, many flowered; rachis and pedicels densely retrorse pubescent; proximal bracts leaflike, distal ones narrowly linear. Pedicels 1–5 cm, with 2 bracteoles proximally or distally; bracteoles narrowly linear, 1.5–5 mm. Sepals violet-blue, abaxially glabrous or pubescent; lower sepals ca. 1.2 cm; lateral sepals ca. 1.4 cm; upper sepal oblique upward, concave. Petals glabrous; claw sometimes geniculate at apex; lip ca. 4.5 mm, slightly concave; spur incurved, ca. 2.5 mm. Stamens glabrous; filaments 2-denticulate or entire. Carpels 3, glabrous. Follicles ca. 1.1 cm. Seeds 1.5–2 mm. Fl. Aug–Sep.

• *Abies* forests; 3700–4000 m. SW Sichuan (Daocheng Xian), NW Yunnan (Zhongdian Xian).

151. *Aconitum piepunense* Handel-Mazzetti, Symb. Sin. 7: 290. 1931.

中甸乌头 *zhong dian wu tou*

Caudex obliquely conical, ca. 6 cm, ca. 1.2 cm in diam. Stem 1.1–1.8 m, branched or simple, basally glabrescent, apically retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, and middle ones slightly long petiolate; petiole 2–5 cm, sparsely retrorse pubescent; leaf blade pentagonal, ca. 6.8 × 10 cm, abaxially glabrous, adaxially sparsely appressed pubescent, base broadly cordate, 3-parted; central lobe rhombic; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence terminal, 38–70 cm, many flowered; rachis and pedicels densely spreading yellowish pubescent, intermixed retrorse pubescent; proximal bracts leaflike, distal ones linear. Pedicels 1.5–7 cm, with 2 bracteoles at middle or above; bracteoles narrowly linear, 3.5–7 mm. Sepals blue, abaxially glabrous; lower sepals 1.2–1.4 cm; lateral sepals 1.2–1.5 cm; upper sepal galeate or high galeate, 1.5–2 cm high, shortly beaked, ca. 1.6 cm from base to beak, lower margin slightly concave. Petals glabrous, or sparsely pubescent; lip ca. 4 mm; spur incurved, ca. 1.2 cm. Stamens glabrous, sparsely pubescent; filaments usually entire, sometimes 2-denticulate. Carpels 5, glabrous, or ovary sparsely pubescent. Follicles 1–1.5 cm. Seeds ca. 3 mm. Fl. Jul–Aug. $2n = 16^*$, 32^* .

• Grassy slopes; 3000–3300 m. NW Yunnan (Zhongdian Xian).

- 1a. Petals, stamens, and ovary glabrous 151a. var. *piepunense*
1b. Petals, stamens, and ovary sparsely pubescent 151b. var. *pilosum*

151a. *Aconitum piepunense* var. *piepunense*

中甸乌头(原变种) *zhong dian wu tou* (*yuan bian zhong*)

Petals, stamens, and ovary glabrous.

• Grassy slopes; 3000–3300 m. NW Yunnan (Zhongdian Xian).

151b. *Aconitum piepunense* var. *pilosum* H. F. Comber, Notes Roy. Bot. Gard. Edinburgh 18: 225. 1934.

疏毛中甸乌头 *shu mao zhong dian wu tou*

Petals, stamens, and ovary sparsely pubescent.

• NW Yunnan.

152. *Aconitum jiulongense* W. T. Wang, Acta Bot. Yunnan. 6: 371. 1984.

九龙乌头 *jiu long wu tou*

Caudex obconical or carrot-shaped, 3.5–4 cm, 0.9–1.4 cm in diam. Stem ca. 1 m, apically spreading pubescent. Distal leaves shortly petiolate; petiole ca. 1.2 cm; leaf blade cordate-pentagonal, ca. 7 × 7 cm, papery, abaxially pilose, adaxially appressed pubescent, 3-sect; central segment narrowly rhombic, apex long

acuminate, pinnately lobed; lobes triangular, lateral segments unequally 2-parted. Inflorescence terminal, ca. 24 cm, 22-flowered; rachis and pedicels densely retrorse and appressed pubescent; proximal bracts leaflike, distal ones linear, ca. 8 mm. Pedicels 2–4 cm, with 2 bracteoles at middle or below; proximal bracteoles leaflike, 0.5–1.5 cm, others linear, 3–5 mm. Sepals blue-purple, abaxially appressed pubescent; lower sepals narrowly elliptic or linear-lanceolate; lateral sepals obliquely broadly obovate, ca. 1.6 × 1.5–1.7 cm, adaxially sparsely villous; upper sepal high galeate, 2–2.6 cm high, clawed, with a beak ca. 5 mm, lower margin 1.5–2 cm. Petaline lip ca. 6 mm, glabrous, 2-lobed at apex; spur curved, ca. 2.5 mm, pilose. Stamens glabrous; filaments entire. Carpels 3, densely appressed pubescent. Fl. Jul.

• By streams; ca. 2500 m. W Sichuan (Jiulong Xian).

153. *Aconitum ramulosum* W. T. Wang, Fl. Reipubl. Popul. Sin. 27: 608. 1979.

多枝乌头 *duo zhi wu tou*

Tuber carrot-shaped, ca. 4.5 cm, ca. 1 cm in diam. Stem ca. 1 m, from base to below inflorescence branched, branches 12–28 cm, basally glabrous, apically sparsely spreading and retrorse pubescent. Cauline leaves ca. 14, lowermost ones withered at anthesis, middle ones slightly long petiolate; petiole ca. 4.5 cm; leaf blade orbicular-pentagonal, ca. 6 × 7 cm, abaxially glabrous, adaxially sparsely pubescent at veins, 3-sect; central segment rhombic, subpinnatisect, ultimate lobes linear, ca. 2.5 mm wide; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, ca. 28 cm, ca. 10-flowered; rachis and pedicels densely retrorse and appressed pubescent. Proximal pedicels 6.5–11 cm, distal ones ca. 1.5 cm, distally with 2 bracteoles; bracteoles usually leaflike, 1–2.2 cm, distal ones narrowly linear. Sepals blue-purple, abaxially glabrous; lower sepals elliptic or narrowly oblong; lateral sepals obliquely broadly obovate; upper sepal high galeate, ca. 1.5 cm high, beaked, lower margin suberect. Petals glabrous; spur obliquely incurved, subglobose; lip slightly concave at apex. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Jul–Aug.

• NW Yunnan (Zhongdian Xian).

154. *Aconitum legendrei* Handel-Mazzetti, Acta Horti Gothob. 13: 112. 1939.

冕宁乌头 *mian ning wu tou*

Caudex obconical, ca. 3.5 cm, ca. 1.5 cm in diam. Stem 1–1.2 m, simple, basally glabrous, apically retrorse white pubescent. Proximal cauline leaves withered at anthesis, and middle ones with petiole ca. 2.5 cm; leaf blade broadly ovate or pentagonal, 7–9 × 8–11 cm, papery, both surfaces sparsely white pubescent, 3-sect; central segment rhombic or broadly rhombic, base narrowly cuneate, ultimate lobes narrowly ovate or lanceolate-linear, margin entire or 1-dentate, 2–3.5 mm wide; lateral segments obliquely flabellate, unequally 2-

parted nearly to base. Inflorescence densely many flowered; rachis and pedicels densely spreading white pubescent; proximal bracts 3-fid, distal ones lanceolate. Pedicels 0.8–2 cm, distally with 2 bracteoles; bracteoles linear, ca. 5 mm. Sepals blue, abaxially ± densely pubescent; upper sepal galeate, 1.5–2 cm high, shortly beaked, ca. 1.4 cm from base to beak, external margin suberect. Petals sparsely pubescent; lip ca. 4 mm; spur slightly incurved, ca. 1 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3–5, glabrous. Follicles erect, 1.8–2.2 cm. Seeds ca. 2 mm. Fl. Sep.

• Grassy slopes; 2500–2800 m. SW Sichuan (Mianning Xian).

155. *Aconitum delavayi* Franchet, Bull. Soc. Bot. France 33: 381. 1886.

马耳山乌头 *ma er shan wu tou*

Caudex conical, ca. 2 cm. Stem 40–70(–90) cm, branched or simple, retrorse pubescent. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 4–14 cm; leaf blade orbicular-pentagonal, 4–6 × 5–7 cm, both surfaces sparsely pubescent, becoming glabrous, 3-sect; central segment rhombic, 2-sect; ultimate lobes linear, 1.8–3 mm wide; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, 4–11-flowered; rachis and pedicels densely spreading yellow pubescent and retrorse white pubescent; proximal bracts leaflike, others 3-fid or linear. Pedicels 2–5.5 cm, with 2 bracteoles near middle; bracteoles oblong to linear, 5–12 × 0.4–5 mm, sometimes bracteoles of lowermost pedicel 3-fid. Sepals blue-purple, adaxially yellow pubescent; lower sepals 1.2–1.5 cm; lateral sepals 1.5–2 cm; upper sepal high galeate, 1.7–2.4 cm high, shortly beaked, lower margin 1.5–2 cm. Petaline claw sparsely pubescent; lip 4–5 mm, slightly concave; spur decurved, ca. 4 mm. Stamens glabrous; filaments entire. Carpels 5, densely yellow pubescent. Fl. Aug–Oct.

• Alpine grasslands, forests; 3700–3800 m. NW Yunnan.

156. *Aconitum chienningense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 609. 1979.

乾宁乌头 *qian ning wu tou*

Caudex narrowly obconical, ca. 5 cm. Stem 1–1.8 m, branched, retrorse pubescent, with leaves equally arranged along stem. Middle cauline leaves slightly long petiolate, petiole 3–5 cm; leaf blade orbicular-pentagonal, ca. 8 × 9 cm, abaxially pubescent at veins, adaxially sparsely retrorse pubescent, 3-sect; central segment rhombic, apex acuminate, pinnately parted, ultimate lobes narrowly lanceolate or lanceolate-linear; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, 5–8-flowered; rachis and pedicels densely retrorse and appressed pubescent or spreading pubescent; proximal bracts leaflike. Pedicels 1.2–2.5 cm, with 2 bracteoles at middle or above; bracteoles subulate, 4–10 mm, sometimes leaflike. Sepals blue-purple, abaxially sparsely pubescent or subglabrous; lower sepals oblong;

lateral sepals orbicular-obovate, 1.3–1.6 cm; upper sepal high galeate, 1.6–2 cm high, shortly beaked, lower margin slightly concave, 1.4–1.8 cm. Petals ca. 1.8 cm; claw and lip sparsely pubescent; limb glabrous or sparsely pubescent, ca. 9 mm; lip ca. 5 mm, slightly concave at apex; spur incurved, ca. 2 mm. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Aug.

• *Quercus* scrub, mountains, by streams; 3000–3900 m. W Sichuan, SE Xizang.

1a. Rachis and pedicels densely retrorse and appressed pubescent; petaline limb glabrous
..... 156a. var. *chienningense*

1b. Rachis and pedicels spreading pubescent; petaline limb sparsely pubescent
..... 156b. var. *lasiocarpum*

156a. *Aconitum chienningense* var. *chienningense*

乾宁乌头(原变种) *qian ning wu tou* (yuan bian zhong)

Rachis and pedicels densely retrorse and appressed pubescent. Petaline limb glabrous.

• *Quercus* scrub, by streams; 3600–3900 m. W Sichuan (Changning Xian, Dawu Xian).

156b. *Aconitum chienningense* var. *lasiocarpum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 609. 1979.

毛果乾宁乌头 *mao guo qian ning wu tou*

Rachis and pedicels spreading pubescent. Petaline limb sparsely pubescent.

• Mountains; ca. 3000 m. SE Xizang (Mainling Xian).

157. *Aconitum potaninii* Komarov, Repert. Spec. Nov. Regni Veg. 13: 234. 1914.

密花乌头 *mi hua wu tou*

Caudex unknown. Stem 1.5–2 m, branched, sparsely pubescent. Middle cauline leaves slightly long petiolate; petiole ca. 6 cm; leaf blade orbicular-pentagonal, ca. 10 × 14 cm, both surfaces appressed pubescent, 3-sect; central segment rhombic, apex acuminate, subpinnately parted, lobules narrowly triangular to linear; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence ca. 20 cm, densely many flowered; rachis and pedicels spreading pubescent and intermixed glandular pubescent; proximal bracts leaflike, distal ones linear. Pedicels 1.5–5 cm, with 2 bracteoles at middle or above; bracteoles linear. Sepals white or blue-purple, abaxially glabrous; lower sepals ca. 1.2 cm; lateral sepals ca. 1.4 cm; upper sepal galeate, distinctly clawed, ca. 1.7 cm high, sharply beaked, ca. 1.6 cm from base to beak, lower margin oblique upward, concave. Petals pubescent; lip ca. 5 mm, slightly concave; spur incurved, ca. 1.5 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3, glabrous. Fl. Aug–Sep.

• *Abies* forest margins; ca. 3700 m. W Sichuan.

158. *Aconitum dolichostachyum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 609. 1979.

长序乌头 *chang xu wu tou*

Caudex unknown. Stem ca. 1 m, apically shortly branched, glabrous. Middle cauline leaves long

petiolate; petiole ca. 7 cm, glabrous or nearly so; leaf blade cordate-pentagonal, ca. 7.5 × 10 cm, abaxially glabrous, adaxially sparsely appressed pubescent at veins, 3-sect; central segment rhombic-ovate, apex long acuminate, subpinnately parted, ultimate lobes narrowly triangular to linear-lanceolate; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence: compound ones ca. 70 cm, many flowered; terminal one 35–36 cm, 30–58-flowered; rachis and pedicels glabrous; proximal bracts leaflike, distal ones 3-fid or linear. Pedicels 1.8–6 cm, with 2 bracteoles near middle; bracteoles 5–8 mm, glabrous, rarely leaflike. Sepals purplish, abaxially glabrous, adaxially sparsely villous; lower sepals narrowly oblong, 1.1–1.3 cm × 2–4 mm; lateral sepals obliquely broadly obovate, ca. 1.2 cm; upper sepal high galeate, ca. 1.8 cm high, shortly clawed, shortly beaked, ca. 1.5 cm from base to beak, lower margin slightly concave. Petals glabrous or nearly glabrous; claw geniculate at apex; limb ca. 9 mm; lip ca. 3.5 mm, slightly concave at apex; spur incurved, ca. 2 mm. Stamens glabrous; filaments entire. Carpels 3(or 4), glabrous. Fl. Aug.

• Alpine meadows; ca. 3500 m. E Xizang (Gongbo'gyamda Xian).

159. *Aconitum ambiguum* Reichenbach, Monogr. Acon. t. 23. 1819.

兴安乌头 *xing an wu tou*

Aconitum ambiguum f. *multisectum* S. H. Li & Y. H. Huang.

Caudex unknown. Stem (28–)50–100 cm, simple or 1- or 2-branched below inflorescence, glabrous, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, and middle ones long petiolate; petiole 4–8 cm, glabrous; leaf blade orbicular-pentagonal, 4.6–7 × 6–12.5 cm, both surfaces glabrous, 3-sect; central segment rhombic, base narrowly cuneate, apex shortly acuminate, dissected nearly to midvein, ultimate lobes lanceolate to linear, 2–4 mm wide; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence (1–)3–5-flowered; rachis and pedicels glabrous; proximal bracts leaflike, distal ones 3-fid or linear. Pedicels 1–8.5 cm, distally with 2 bracteoles; bracteoles linear, 2.5–6.5 × 0.3–1 mm. Sepals purple-blue, abaxially glabrous; lower sepals 5–9 mm; lateral sepals 0.9–1.1 cm; upper sepal galeate, 1.3–1.5 cm high, shortly beaked, lower margin ca. 1.5 cm. Petals glabrous; limb ca. 7 mm; lip ca. 5 × 1 mm; spur short, ca. 1 mm. Stamens glabrous; filaments 2-denticulate. Carpels 3–5, glabrous. Fl. Aug. $2n = 32^*$. Forests, forest margins; 400–500 m. Heilongjiang [Mongolia, Russia (Far East, Siberia)].

160. *Aconitum kongboense* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 17. 1963.

工布乌头 *gong bu wu tou*

Caudex subterete, ca. 8 cm, ca. 1.5 cm in diam. Stem erect, to 1.8 m, simple or branched, apically and inflorescence densely retrorse pubescent, or spreading pubescent. Leaves long petiolate; petiole 2–15 cm; leaf

blade cordate-ovate, or ± pentagonal, ca. 15 × 15 cm, both surfaces glabrous or sparsely pubescent at veins, 3-sect; central segment rhombic, base narrowly cuneate, subpinnately parted from middle to apex, lobes linear-lanceolate or lanceolate; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Distal inflorescence to 60 cm, many flowered; proximal bracts leaflike, others lanceolate or subulate. Pedicels 1–10 cm, with 2 bracteoles at middle or above; proximal bracteoles leaflike, distal ones linear. Sepals white-purple or purplish, abaxially pubescent or glabrous; lower sepals 1.3–1.5 cm; lateral sepals 1.5 cm; upper sepal galeate or navicular, sometimes navicular-galeate, shortly clawed, 1.5–2 cm, with a triangular ca. 5 mm beak, 1.5–2 cm from base to beak, lower margin concave. Petals sparsely pubescent; limb ca. 8 mm; lip ca. 3.5 mm, apex slightly concave; spur incurved, ca. 2 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3–11, glabrous or sparsely white pubescent. Fl. Jul–Aug.

• Scrub, grasslands, mountains; 3000–4000 m. W Sichuan, Xizang, NW Yunnan.

1a. Stem and inflorescence spreading

pubescent 160b. var. *villosum*

1b. Stem and inflorescence densely retrorse

pubescent.

2a. Upper sepal galeate, sometimes

navicular-galeate, abaxially sparsely pubescent; filaments entire; carpels 3 or 4

..... 160a. var. *kongboense*

2b. Upper sepal navicular, abaxially

glabrous; filaments entire or

2-denticulate; carpels 6–11 160c. var. *polycarpum*

160a. *Aconitum kongboense* var. *kongboense*

工布乌头(原变种) *gong bu wu tou* (*yuan bian zhong*)

Aconitum lhasaense Lauener; *A. tsangpoense* Lauener; *A. viridiflorum* Lauener.

Stem and inflorescence densely retrorse pubescent.

Upper sepal galeate, sometimes navicular-galeate, abaxially sparsely pubescent. Filaments entire. Carpels 3 or 4.

• Scrub, grasslands; 3000–3700 m. W Sichuan, Xizang.

160b. *Aconitum kongboense* var. *villosum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 609. 1979.

展毛工布乌头 *zhan mao gong bu wu tou*

Aconitum rongchuense Lauener.

Stem and inflorescence spreading pubescent.

• Mountains; ca. 4000 m. W Sichuan, E Xizang.

160c. *Aconitum kongboense* var. *polycarpum* W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 25: 33. 1987.

多果工布乌头 *duo guo gong bu wu tou*

Stem and inflorescence densely retrorse pubescent. Upper sepal navicular, abaxially glabrous. Filaments entire or 2-denticulate. Carpels 6–11.

• NW Yunnan (Zhongdian Xian).

161. *Aconitum abietetorum* W. T. Wang & L. Q. Li, *Acta Phytotax. Sin.* 25: 32. 1987.

冷杉林乌头 *leng shan lin wu tou*

Caudex unknown. Stem branched, middle part sparsely spreading pubescent, apically retrorse and appressed pubescent. Middle cauline leaves long petiolate; petiole ca. 5 cm, sparsely spreading pubescent; leaf blade ca. 8 × 10 cm, papery, abaxially subglabrous, adaxially appressed pubescent, base cordate, 3-sect; central segment rhombic, pinnately parted, ultimate lobes linear or ovate; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal on stem and branches, 20–30 cm, many flowered; rachis and pedicels spreading or appressed pubescent; bracts leaflike. Pedicels 1.5–4.5 cm, with 2 bracteoles above base; proximal bracteoles leaflike, distal ones linear. Sepals deep blue, abaxially glabrous; lower sepals long elliptic or linear, ca. 1 cm × 2.5–4 mm; lateral sepals obliquely broadly obovate, ca. 1.5 × 1.2 cm; upper sepal galeate, 1.3–1.7 cm high, shortly clawed, shortly beaked, 1.4–1.7 cm from base to beak. Petals ca. 1.7 cm, glabrous; claw ca. 1.4 cm, apex slightly geniculate; limb ca. 8 mm; lip ca. 3 mm, apex 2-lobed; spur incurved, ca. 2 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous. Fl. Sep.

• *Abies* forest margins; ca. 3800 m. SW Sichuan (Muli Zang Zu Zizhixian).

162. *Aconitum pseudokongboense* W. T. Wang & L. Q. Li, *Acta Bot. Yunnan.* 8: 260. 1986.

拟工布乌头 *ni gong bu wu tou*

Caudex carrot-shaped, ca. 7.5 cm, ca. 1.3 cm in diam. Stem ca. 1 m, branched, apically retrorse pubescent. Cauline leaves long or shortly petiolate; petiole 1–9 cm, glabrous or subglabrous; leaf blade pentagonal, 5–8 × 5–9 cm, leathery, both surfaces glabrous, abaxially veins convex, adaxially veins concave, base cordate, 3-sect; central segment rhombic, apex acuminate, pinnately parted, ultimate lobes linear or lanceolate; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence ca. 40 cm, many flowered; rachis and pedicels retrorse pubescent; proximal bracts leaflike, distal ones broadly linear or linear. Pedicels 1–3 cm, with 2 bracteoles at middle or below, or at base; bracteoles linear, 1–3 mm. Sepal blue, abaxially subglabrous; lower sepals suboblong, ca. 8 mm; lateral sepals obliquely broadly obovate, ca. 1.4 × 1 cm; upper sepal galeate, ca. 1.2 cm high, ca. 1.7 cm from base to beak, beak upward curved, ca. 2.5 cm. Petals ca. 2.5 cm, glabrous; claw ca. 1.9 cm; limb ca. 7 mm; lip ca. 3 mm, 2-lobed at apex; spur curved, ca. 4 mm. Stamens pilose;

filaments 2-denticulate or entire. Carpels 3 or 4, pilose. Follicles ca. 1.1 cm. Fl. Sep–Oct.

• Forests; ca. 3500 m. Xizang (Gongbo'gyamda Xian).

163. *Aconitum polyanthum* (Finet & Gagnepain) Handel-Mazzetti, *Acta Horti Gothob.* 13: 99. 1939.

独花乌头 *du hua wu tou*

Caudex carrot-shaped, to 10 cm, ca. 1 cm in diam. Stem to 2 m, nearly glabrous, many branched; branches sparsely retrorse pubescent. Middle cauline leaves slightly long petiolate; petiole 4–7 cm, sparsely pubescent or nearly glabrous, leaf blade pentagonal, ca. 9 × 9 cm, abaxially sparsely pubescent at veins, adaxially sparsely appressed pubescent, 3-sect; central segment rhombic, apex long acuminate, bipinnately parted nearly to midvein; lobules lanceolate-linear, 1.5–2.8 mm; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, to 60 cm, ca. 55-flowered; rachis and pedicels retrorse pubescent; proximal bracts leaflike, distal ones lanceolate-linear. Pedicels 1–7 cm, with 2 bracteoles above middle; proximal bracteoles leaflike, distal ones linear to subulate, 4.5–10 mm. Sepals blue, abaxially glabrous or curved pubescent; lateral sepals ca. 9 mm; upper sepal navicular-galeate, ca. 1.4 cm high, shortly beaked, ca. 1 cm from base to beak, lower margin oblique upward; lower sepals ca. 0.8 mm. Petals glabrous, claw sparsely pubescent; limb ca. 6 × 2 mm; lip ca. 3 mm, slightly concave at apex; spur subglobose, ca. 1 mm in diam. Stamens glabrous; filaments entire. Carpels 4, glabrous. Fl. Jul.

• Scrub, mountains, by streams; 3500–4000 m. W Sichuan, E Xizang (Dengqên Xian).

1a. Sepals abaxially glabrous; petaline claw glabrous 163a. var. *polyanthum*

1b. Sepals abaxially curved pubescent; petaline claw sparsely pubescent 163b. var. *puberulum*

163a. *Aconitum polyanthum* var. *polyanthum*

多花乌头(原变种) *duo hua wu tou* (yuan bian zhong)

Aconitum napellus Linnaeus var. *polyanthum* Finet & Gagnepain, *Bull. Soc. Bot. France* 51: 513. 1904.

Sepals glabrous abaxially. Petaline claw glabrous.

• Scrub, by streams; ca. 3500 m. W Sichuan.

163b. *Aconitum polyanthum* var. *puberulum* W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, Addit. 1: 89. 1965.

毛萼多花乌头 *mao e duo hua wu tou*

Sepals curved pubescent abaxially. Petaline claw sparsely pubescent.

• Mountains; ca. 4000 m. E Xizang (Dengqên Xian).

164. *Aconitum leiostachyum* W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 609. 1979.

光序乌头 *guang xu wu tou*

Caudex carrot-shaped, ca. 4.5 cm, ca. 6 mm in diam. Stem 80–100 cm, glabrous, with leaves equally arranged along stem. Basal and most proximal cauline leaves withered at anthesis, other proximal cauline leaves long petiolate; petiole ca. 9 cm, sparsely

spreading pubescent, shortly sheathed; leaf blade pentagonal, ca. 5 × 6 cm, both surfaces sparsely pubescent, base cordate, 3-parted nearly to base; central lobe rhombic or ovate-rhombic, apex acuminate, subpinnately parted, ultimate lobes narrowly ovate or linear-lanceolate, 2–2.8 mm wide; lateral lobes obliquely flabellate, unequally 2-parted. Inflorescence ca. 35 cm, ca. 40-flowered; rachis and pedicels glabrous; distal bracts linear, others leaflike. Pedicels 1.5–6.5 cm, proximally with 2 bracteoles, glabrous; proximal bracteoles 3-fid, rhombic or cuneate, 0.8–1.5 cm, distal ones unlobed, linear, 3.5–7 mm, Sepals purple, abaxially glabrous; lower sepals ca. 1 cm; lateral sepals ca. 1.2 × 1.2 cm; upper sepal galeate, 1.2–1.4 cm high, ca. 7 mm wide, shortly beaked, 1.2–1.5 mm from base to beak, lower margin slightly concave. Petals glabrous; claw geniculate at apex; limb ca. 7 × 2.2 mm; lip ca. 3.5 mm, entire; spur obliquely incurved, subglobose, ca. 1 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous. Fl. Jul.

• Mountains; ca. 2700 m. NC Sichuan (Li Xian).

165. *Aconitum pseudogeniculatum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 610. 1979.

拟膝瓣乌头 ni xi ban wu tou

Caudex carrot-shaped, ca. 8 cm. Stem ca. 80 cm, apically shortly branched, basally spreading and apically appressed pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 4.5–6 cm, proximally pubescent; leaf blade reniform-pentagonal, 4–4.8 × 5.2–6.8 cm, herbaceous, abaxially glabrous, adaxially sparsely appressed pubescent, 3-sect or -parted nearly to 1 mm from base; central segment rhombic, pinnately parted nearly to midvein; lateral segments obliquely flabellate, unequally 2- or 3-parted. Inflorescence terminal, ca. 7 cm, 4–6-flowered; rachis and pedicels glabrous, or appressed pubescent; proximal bracts leaflike, others linear. Pedicels to 5.5 cm, with 2 bracteoles at middle or below; bracteoles narrowly linear, 3–5 mm, glabrous. Sepals blue-purple; lateral sepals obliquely broadly obovate, abaxially glabrous or appressed pubescent, adaxially sericeous-pubescent; upper sepal galeate, glabrous. Petaline claw and lip rarely pubescent, other parts glabrous; spur incurved, ca. 5 mm, subcylindric; claw geniculate at apex. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3, glabrous.

• Slopes; 2700–3500 m. W Sichuan.

1a. Rachis, pedicels, and sepals abaxially glabrous 165a. var. *pseudogeniculatum*

1b. Rachis, pedicels, and sepals abaxially appressed pubescent 165b. var. *pubipes*

165a. *Aconitum pseudogeniculatum* var. *pseudogeniculatum*

拟膝瓣乌头(原变种) ni xi ban wu tou (yuan bian zhong)

Rachis, pedicels, and sepals abaxially glabrous.

• W Sichuan (Tanba Xian).

165b. *Aconitum pseudogeniculatum* var. *pubipes* W. T. Wang, Acta Bot. Yunnan. 6: 372. 1984.

黄毛梗乌头 huang mao geng wu tou

Rachis, pedicels, and sepals abaxially appressed pubescent.

• Slopes; 2700–3500 m. W Sichuan (Meigu Xian).

166. *Aconitum richardsonianum* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 3. 1963.

直序乌头 zhi xu wu tou

Caudex terete, to 10 cm, ca. 1 cm in diam. Stem 70–120 cm, basally glabrous, apically retrorse pubescent. Middle cauline leaves long petiolate; petiole 4–9 cm, glabrous; leaf blade orbicular-pentagonal, 5–10 × 5–10 cm; central segment rhombic-obovate, 3-fid ± to middle, ultimate lobes narrowly ovate to narrowly linear-lanceolate; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence to 60 cm, many flowered, most proximal branches to 15 cm, several flowered; rachis and pedicels densely spreading yellow glandular pubescent and very sparsely white pubescent, or retrorse or ± spreading white pubescent; proximal bracts leaflike, distal ones linear. Pedicels 0.3–3 cm, with 2 bracteoles near middle; bracteoles linear, 3–5 mm. Sepals blue-purple, abaxially yellow glandular pubescent, or retrorse or ± spreading white pubescent; lower sepals ca. 0.8 cm; lateral sepals ca. 1.4 cm; upper sepal navicular or navicular-galeate, 1.6–1.8 cm high, shortly beaked, 1.5–2 cm from base to beak, adaxially glabrous, lower margin slightly concave. Petals glabrous; claw slender; spur subglobose, ca. 1.5 mm; lip ca. 4 mm, slightly concave at apex. Stamens glabrous; filaments 2-denticulate or entire. Carpels 5, densely pubescent. Fl. Aug–Sep.

• *Betula* forests, scrub, grassy slopes, by streams; 3100–4700 m. E Xizang.

1a. Rachis, pedicels, and sepals adaxially densely spreading yellow glandular pubescent and very sparsely white pubescent 166a. var. *richardsonianum*

1b. Rachis, pedicels, and sepals adaxially retrorse or ± spreading white pubescent, not yellow glandular pubescent 166b. var. *pseudosessiliflorum*

166a. *Aconitum richardsonianum* var. *richardsonianum*

直序乌头(原变种) zhi xu wu tou (yuan bian zhong)

Rachis, pedicels, and sepals adaxially densely spreading yellow glandular pubescent and very sparsely white pubescent.

• *Betula* forests, grassy slopes; 3100–4600 m. E Xizang.

166b. *Aconitum richardsonianum* var. *pseudosessiliflorum* (Lauener) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 293. 1979.

伏毛直序乌头 *fu mao zhi xu wu tou*

Aconitum pseudosessiliflorum Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 4. 1963.

Rachis, pedicels, and sepals adaxially retrorse or ± spreading white pubescent, not yellow glandular pubescent.

• Scrub, grassy slopes, by streams; 4000–4700 m. E Xizang.

167. *Aconitum gammiei* Stapf, Bull. Misc. Inform. Kew 1907: 56. 1907.

错那乌头 *cuo na wu tou*

Aconitum huizenense T. L. Ming; *A. nakaoi* Lauener; *A. parabrachypodium* Lauener.

Caudex unknown. Stem 75–100 cm tall, branched, basally retrorse pubescent, apically glabrous. Middle cauline leaves long petiolate; petiole to 6 cm; leaf blade subpentagonal, to 9 × 10 cm, both surfaces subglabrous, base cordate, 3-sect; central segment rhombic, pinnately parted to midvein, ultimate lobes narrowly triangular to linear; lateral ones obliquely flabellate, 3-sect. Inflorescence terminal, 6–9 cm, 3–5-flowered; rachis and pedicels glabrous; bracts leaflike. Pedicels 1.5–7.5 cm, with 2 bracteoles proximally or distally; bracteoles leaflike or lanceolate. Sepals blue-purple, glabrous abaxially; lower sepals elliptic; lateral sepals obliquely orbicular-obovate, 1.2–2 cm; upper sepal navicular-galeate, 1.8–2 cm high, 1.2–1.8 cm from base to beak, lower margin concave. Petals ca. 2.4 cm; limb ca. 1 cm, sparsely pubescent; lip ca. 5.5 mm. Stamens sparsely pubescent; filaments entire or 2-denticulate. Carpels 5, glabrous. Fl. Sep.

Scrub in valleys; ca. 3800 m. Xizang (Cona Xian), NE Yunnan (Huize Xian) [Bhutan, Sikkim].

Yang Qiner (pers. comm.) believes that *Aconitum huizenense* is a synonym of *A. brachypodium*.

168. *Aconitum ouvardianum* Handel-Mazzetti, Symb. Sin. 7: 285. 1931.

德钦乌头 *de qin wu tou*

Caudex carrot-shaped or terete, 4–10 cm. Stem 40–100 cm, simple or shortly branched, or tenuibranching at middle, spreading yellowish pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 2.3–4 cm, sparsely spreading pubescent; leaf blade orbicular-pentagonal, 4.7–7 × 7–10 cm, abaxially becoming glabrous, adaxially sparsely appressed pubescent, 3-sect or -parted to base 1.5–2.5(–6) mm; central segment rhombic, apex acuminate, subpinnately parted, ultimate lobes linear or lanceolate-linear, 2–3 mm wide; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, 15–20-flowered, 10–35 cm; rachis and pedicels densely spreading yellowish pubescent; proximal bracts leaflike, distal ones linear. Pedicels 2–9 cm, with 2 bracteoles at middle or above;

bracteoles filamentous or narrowly linear, 2.5–4 mm. Sepals blue-purple; lower sepals ca. 1.2 cm; lateral sepals ca. 1.4 cm; upper sepal galeate or navicular-galeate, abaxially glabrous, 1.6–2.3 cm from base to beak. Petals glabrous, or claw sparsely pubescent; lip ca. 3 mm; spur incurved, ca. 1.5 mm. Stamens glabrous; filaments entire. Carpels (3–) 5, sparsely spreading pubescent. Fl. Jul–Aug.

• Grassy slopes, forests; 3000–4000 m. SE Xizang (Zayü Xian), NW Yunnan.

1a. Stem 80–100 cm tall, simple or shortly branched; inflorescence 25–35 cm; petaline claw glabrous 168a. var. *ouvardianum*

1b. Stem ca. 40 cm tall, tenuibranching; inflorescence ca. 10 cm; petaline claw sparsely pubescent 168b. var. *pilopes*

168a. *Aconitum ouvardianum* var. *ouvardianum*

德钦乌头(原变种) *de qin wu tou* (yuan bian zhong)

Stem 80–100 cm tall, simple or shortly branched. Inflorescence 25–35 cm. Petaline claw glabrous.

• Grassy slopes; 3000–4000 m. SE Xizang (Zayü Xian), NW Yunnan.

168b. *Aconitum ouvardianum* var. *pilopes* W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 25: 32. 1987.

毛爪德钦乌头 *mao zhua de qin wu tou*

Stem ca. 40 cm tall, tenuibranching. Inflorescence ca. 10 cm. Petaline claw sparsely pubescent.

• Forests; ca. 3900 m. NW Yunnan (Zhongdian Xian).

169. *Aconitum pilopetalum* W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 25 (1): 30. 1987.

毛瓣乌头 *mao ban wu tou*

Caudex unknown. Stem ca. 40 cm, branched above base, spreading pubescent. Proximal cauline leaves withered at anthesis, and middle ones with petiole ca. 3 cm; leaf blade pentagonal, ca. 5 × 8 cm, papery, abaxially sparsely pubescent at veins, adaxially sparsely pubescent, base cordate, 3-sect; central segment broadly rhombic, apex acuminate, subpinnately parted, ultimate lobes linear or narrowly ovate; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, ca. 10 cm, many flowered; rachis and pedicels densely spreading pubescent; proximal bracts leaflike, distal ones lanceolate-linear. Pedicels 2–20 mm, with 2 bracteoles at middle; bracteoles linear, ca. 6 mm, pubescent. Sepals broadly obovate, ca. 1.1 × 1.1 cm; lower sepals obliquely elliptic or oblong, ca. 1 × 0.3–0.5 cm. Petals ca. 1.3 cm; claw ca. 1 cm, upper part pubescent; limb ca. 6 mm; lip ca. 2.5 mm, sparsely pubescent at margin, 2-lobed at apex; spur ca. 1 mm. Stamens glabrous; filaments entire. Carpels 5, glabrous. Fl. Aug.

• Scrub; ca. 4200 m. W Sichuan (Yajiang Xian).

170. *Aconitum gezaense* W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 25: 31. 1987.

格咱乌头 *ge zan wu tou*

Caudex unknown. Stem ca. 32 cm, slenderly branched from middle to below inflorescence, branches 10–20 cm, nearly glabrous or sparsely appressed pubescent. Proximal cauline leaves withered at anthesis, middle leaves long petiolate; petiole 2.5–3.5 cm, pubescent; leaf blade pentagonal, 2.5–3 × 3–4 cm, papery, abaxially sparsely pubescent, adaxially appressed pubescent, densely pubescent at veins, base cordate, 3-sect; central segment rhombic, subpinnately parted, ultimate lobes linear or narrowly ovate; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, ca. 8 cm, ca. 7-flowered; rachis and pedicels retrorse pubescent; bracts leaflike. Pedicels 2–4.5 cm, with 2 bracteoles at middle or below; bracteoles leaflike, pubescent. Sepals blue, adaxially appressed pubescent; lower sepals obliquely obovate or linear, ca. 1.1 cm × 2–5 mm; lateral sepals obliquely broadly obovate, ca. 1.4 × 1.3 cm; upper sepal galeate, ca. 1.5 cm high, shortly clawed, ca. 1.6 cm from base to beak. Petals ca. 2.1 cm; claw ca. 1.5 cm, apex geniculate, sparsely yellowish pubescent; limb ca. 9 mm; lip ca. 5 mm, 2-lobed at apex; spur slightly circinate, ca. 2 mm. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Aug.

• About 4300 m. NW Yunnan (Zhongdian Xian).

171. *Aconitum tenuicaule* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 610. 1979.

细茎乌头 xi jing wu tou

Caudex obconical or narrowly obovate, 1.3–2 cm, 4–6 mm in diam. Stem red-purple, 17–21 cm, ca. 2.5 mm in diam., simple, spreading pubescent. Proximal cauline leaves withered at anthesis, distal ones ca. 4, with petiole 0.8–4 cm; leaf blade cordate-pentagonal, 1.7–2.2 × 1.7–4 cm, abaxially glabrous, adaxially sparsely appressed pubescent, palmately 3-sect; segments 2- or 3-sect, ultimate lobes linear, ca. 1 mm wide. Inflorescence terminal, 1–4 cm, 3–7-flowered; rachis and pedicels densely yellowish pubescent; bracts leaflike. Pedicel 5–11 mm, proximally with 2 bracteoles; bracteoles subulate or narrowly linear, 3–5 mm. Sepals deep purple-blue, abaxially glabrous; lower sepals suboblong, ca. 7 mm; lateral sepals obliquely broadly obovate, ca. 1.1 cm; upper sepal navicular-galeate or navicular, from base to beak 1.3–1.5 cm, lower margin slightly concave. Petals glabrous; limb ca. 6.5 mm; lip ca. 3.5 mm; spur oblique upward, ca. 1.2 mm, subglobose. Stamens glabrous; filaments entire. Carpels 4 or 5, proximally sparsely pubescent, elsewhere glabrous. Fl. Aug.

• Alpine grasslands; ca. 4000 m. NW Yunnan (Dêqên Xian).

172. *Aconitum acutiusculum* H. R. Fletcher & Lauener, Notes Roy. Bot. Gard. Edinburgh 20: 198. 1950.

尖萼乌头 jian e wu tou

Caudex carrot-shaped, ca. 6 cm, ca. 7 mm in diam. Stem 75–120 cm tall, branched, apically and inflorescence densely curved white pubescent, or spreading yellowish glandular pubescent or pubescent. Leaf petiole 1.5–10 cm; leaf blade orbicular-

pentagonal, 4–8 × 4.5–12 cm, palmately sect; ultimate lobes narrowly lanceolate or linear, both surfaces pubescent, adaxially veins concave. Inflorescence terminal, to 45 cm, many flowered; proximal bracts 3–5-fid, distal ones lanceolate, unlobed. Pedicels 1–11.5 cm, distally with 2 bracteoles; bracteoles linear. Sepals purple-blue, abaxially sparsely pubescent; lower sepals lanceolate; upper sepal navicular-galeate, 8–10 mm. Petals ca. 1.5 cm, glabrous; claw geniculate at apex; lip oblong; spur incurved. Stamens glabrous; filaments entire. Carpels 5, sericeous-pubescent. Fl. Aug.

• Grasslands, forest margins, grassy slopes; 4000–4100 m. NW Yunnan (Dêqên Xian).

- 1a. Stem apically and inflorescence densely curved white pubescent 172a. var. *acutiusculum*
- 1b. Stem apically and inflorescence spreading yellowish glandular pubescent or pubescent 172b. var. *aureopilosum*

172a. *Aconitum acutiusculum* var. *acutiusculum*

尖萼乌头(原变种) jian e wu tou (yuan bian zhong)

Stem apically and inflorescence densely curved white pubescent.

• Grasslands, forest margins; ca. 4000 m. NW Yunnan (Dêqên Xian).

172b. *Aconitum acutiusculum* var. *aureopilosum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 85. 1965.

展毛尖萼乌头 zhan mao jian e wu tou

Aconitum benzilanense T. L. Ming.

Stem apically and inflorescence spreading yellowish glandular pubescent or pubescent.

• Grassy slopes; ca. 4100 m. NW Yunnan (Dêqên Xian).

173. *Aconitum refractum* (Finet & Gagnepain) Handel-Mazzetti, Acta Horti Gothob. 13: 108. 1939.

狭裂乌头 xia lie wu tou

Aconitum napellus Linnaeus var. *refractum* Finet & Gagnepain, Bull. Soc. Bot. France 51: 513. 1904; *A. angustisegmentum* W. T. Wang.

Caudex unknown. Stem ca. 1.5 m, many branched below inflorescence, glabrous or apically sparsely retrorse pubescent, with leaves equally arranged along stem. Middle cauline leaves slightly long petiolate; petiole ca. 3 cm, sparsely retrorse pubescent; leaf blade pentagonal, ca. 10 × 14 cm, abaxially glabrous, adaxially sparsely appressed pubescent, base shallowly cordate, 3-sect or -parted nearly to 2.5 mm from base; central segment narrowly ovate-rhombic or narrowly rhombic, margin 2–4-dentate; lateral segments unequally 2-parted nearly to base. Inflorescence terminal, to 55 cm, many flowered; rachis and pedicels densely retrorse and appressed pubescent; proximal bracts leaflike, distal ones linear or narrowly linear. Pedicels 1.2–5 cm, oblique upward, apex slightly curved, with 2 bracteoles below middle or nearly to base; bracteoles linear-subulate, 2.5–3 mm. Sepals blue,

abaxially sparsely pubescent; lower sepals ca. 1 cm; lateral sepals 1.2–1.5 cm; upper sepal navicular, 1.2–1.6 cm high, 1.3–1.6 cm from base to beak, lower margin oblique upward, curved. Petals pubescent above; lip ca. 4 mm, slightly concave; spur incurved, ca. 1 mm. Stamens glabrous; filaments entire. Carpels 3, glabrous or pubescent. Fl. Sep.

• Grassy slopes. W Sichuan, E Xizang (Qamdo Xian).

174. *Aconitum xiangchengense* W. T. Wang, Acta Bot. Yunnan. 4: 130. 1982.

乡城乌头 *xiang cheng wu tou*

Caudex unknown. Stem basally glabrous, apically densely retrorse white pubescent. Middle cauline leaves long petiolate; petiole ca. 6.5 cm, glabrous; leaf blade pentagonal, ca. 7.5 × 11.5 cm, papery, abaxially glabrous, adaxially sparsely pubescent or subglabrous, base cordate-truncate, 3-sect; central segment rhombic or cuneate-rhombic, 3-lobed, ultimate lobes triangular or ovate; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence terminal, ca. 20 cm, sparsely 5–7-flowered; rachis and pedicels densely retrorse white pubescent; proximal bracts leaflike, shortly stipitate, distal ones oblong. Pedicels 2–4.5 cm, with 2 bracteoles proximally or at base; bracteoles linear, 4–7 mm, subglabrous. Sepals white, abaxially appressed pubescent; lower sepals oblong, ca. 1.2 cm × 2.5–4 mm; lateral sepals obliquely broadly obovate, ca. 1.4 × 1.2 cm; upper sepal navicular or galeate-navicular, shortly beaked, ca. 1.8 cm from base to beak. Petals ca. 1.7 cm; claw ca. 1.3 cm, densely villous; limb ca. 8 mm; spur decurved, ca. 2 mm, glabrous; lip ca. 4 mm, apex slightly concave, pubescent. Stamens pilose; filaments entire or 2-denticulate. Carpels 3, densely appressed pubescent. Fl. Aug.

• Grasslands; ca. 3600 m. W Sichuan (Xiangcheng Xian).

175. *Aconitum sinonapelloides* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 87. 1965.

拟缺刻乌头 *ni que ke wu tou*

Caudex carrot-shaped or fusiform, 3–6 cm, 6–10 mm in diam. Stem 30–50 cm tall, simple, nearly glabrous, apically sparsely retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones with petiole 2.5–8 cm; leaf blade orbicular-pentagonal, 2–6 × 3.2–9 cm, abaxially nearly glabrous, adaxially sparsely pubescent, base cordate, 3-sect or -parted nearly to base 1–4 mm; central segment rhombic, pinnately parted; lateral segments obliquely flabellate, 2-parted nearly to base. Inflorescence 7–15 cm, many flowered; rachis and pedicels retrorse pubescent; proximal bracts leaflike, distal ones lanceolate. Pedicels 0.5–2 cm, glabrous or distally spreading pubescent, with 2 bracteoles proximally to distally or at apex; bracteoles leaflike, lanceolate, or subulate, ca. 4 mm. Sepals blue, abaxially glabrous or rarely pubescent; lower sepals ca. 1.4 cm; lateral sepals broadly obovate, 1.4–1.5 cm; upper sepal

navicular-galeate or navicular, shortly beaked, 2.7–3.1 cm from base to beak, lower margin erect or concave. Petals glabrous or pubescent; claw slender; limb ca. 7 mm, glabrous or lip sparsely pubescent at lower part; spur incurved, 1.5–3 mm. Stamens glabrous; filaments entire. Carpels 4 or 5, glabrous or sparsely pubescent or ovary densely pubescent. Fl. Aug.

• Scrub, by streams; 3000–5100 m. SW Sichuan, NW Yunnan.

- 1a. Pedicels spreading pubescent distally; ovary densely pubescent 175b. var. *weisiense*
- 1b. Pedicels glabrous; ovary glabrous or sparsely pubescent.
 - 2a. Bracteoles distal or at apex of pedicels, leaflike or lanceolate 175a. var. *sinonapelloides*
 - 2b. Bracteoles proximal on pedicels, subulate 175c. var. *subulatum*

175a. *Aconitum sinonapelloides* var. *sinonapelloides*

拟缺刻乌头(原变种) *ni que ke wu tou* (yuan bian zhong)

Aconitum napelloides Handel-Mazzetti.

Bracteoles at distal part or at apex of pedicels, leaflike or lanceolate. Pedicels glabrous. Ovary glabrous or sparsely pubescent.

• Scrub; 4500–5100 m. SW Sichuan (Muli Zang Zu Zizhixian), NW Yunnan (Zhongdian Xian).

175b. *Aconitum sinonapelloides* var. *weisiense* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 87. 1965.

展毛拟缺刻乌头 *zhan mao ni que ke wu tou*

Pedicels spreading pubescent distally. Ovary densely pubescent.

• By streams, ca. 3500 m. NW Yunnan (Weixi Lisu Zu Zizhixian).

175c. *Aconitum sinonapelloides* var. *subulatum* W. T. Wang & P. K. Hsiao in W. T. Wang, Acta Bot. Yunnan. 4: 133. 1982.

钻苞拟缺刻乌头 *zuan bao ni que ke wu tou*

Bracteoles proximal on pedicels, subulate. Pedicels glabrous. Ovary glabrous or sparsely pubescent.

• About 3000 m. SW Sichuan (Muli Zang Zu Zizhixian).

176. *Aconitum diqingense* Q. E. Yang & Z. D. Fang, Acta Bot. Yunnan. 12: 389. 1990.

迪庆乌头 *di qing wu tou*

Caudex unknown. Stem ca. 70 cm, simple or branched below inflorescence, proximally glabrous, apically sparsely retrorse pubescent, with leaves equally arranged along stem. Proximal cauline leaves long petiolate, withered at anthesis; middle ones slightly long petiolate; petiole 2–4 cm; leaf blade pentagonal, 3–4 × 3–4 cm, abaxially glabrous, adaxially appressed pubescent, base cordate, 3-sect; central segment rhombic, apex acuminate, subpinnately parted; lateral segments obliquely flabellate, unequally 2-parted.

Inflorescence 8–12 cm, ca. 12-flowered; rachis and pedicels densely retrorse pubescent; proximal bracts leaflike, distal ones lanceolate. Pedicels 1.2–3 cm, with 2 bracteoles at ± middle or below; bracteoles linear, ca. 5 mm. Sepals blue-purple; lower sepals oblong, ca. 0.8 cm; lateral sepals broadly obovate, 1–1.3 × ca. 1 cm, abaxially subglabrous, adaxially sparsely villous, apex subrounded; upper sepal galeate or navicular-galeate, ca. 7 mm high, 1–1.5 cm from base to beak, beak 1–1.5 mm, lower margin slightly concave. Petals ca. 1.7 cm; claw ca. 1.3 cm, glabrous; limb ca. 7 mm, glabrous; spur curved, 1–1.5 mm; lip ca. 3 mm, slightly concave at apex. Stamens glabrous; filaments entire. Carpels 3, densely pilose. Fl. Aug–Sep.

• Alpine meadows; 4200–4300 m. NW Yunnan (Dêqên Xian).

177. *Aconitum brevipetalum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 88. 1965.

短瓣乌头 duan ban wu tou

Caudex carrot-shaped, 2–3.4 cm, ca. 4.5 mm in diam. Stem 40–45 cm, simple, basally glabrous, apically sparsely retrorse and appressed pubescent, with 6 or 7 leaves equally arranged along stem. Most proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 2–5 cm; leaf blade orbicular-pentagonal, 4.2–5.5 × 6.5–9 cm, abaxially glabrous, adaxially sparsely appressed pubescent, 3-sect; central segment broadly rhombic or rhombic, apex acuminate, pinnately parted; lateral segments 2- or 3-parted nearly to base. Inflorescence 3–7 cm, 5-flowered; rachis and pedicels densely retrorse and appressed pubescent; bracts leaflike. Pedicels 0.6–2.4 cm, distally with 2 bracteoles; bracteoles linear, 5–8.5 × 0.6–1 mm, glabrous. Sepals pale green, abaxially glabrous; lower sepals ca. 1 cm; lateral sepals ca. 1 cm, apex slightly sharp; upper sepal navicular, ca. 5.5 mm wide, ca. 1.4 cm from base to beak, lower margin slightly concave. Petals ca. 6 mm, glabrous; claw ca. 4.6 mm, apex geniculate; lip ca. 2 mm; spur semiglobose, short. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Jul.

• By streams; ca. 4000 m. NW Yunnan (Weixi Lisu Zu Zizhixian).

178. *Aconitum handelianum* H. F. Comber, Notes Roy. Bot. Gard. Edinburgh 18: 224. 1934.

剑川乌头 jian chuan wu tou

Caudex carrot-shaped, ca. 4 cm, ca. 7 mm in diam. Stem 40–60 cm, densely pubescent or basally glabrous. Proximal cauline leaves crowded, long petiolate; petiole 6–12 cm, distal leaves shortly petiolate, pubescent; leaf blade broadly cordate or subreniform, to 4.5 × 7 cm, both surfaces glabrous, palmately 5-sect; segments subequal in size, 2- or 3-pinnately tenuisect; ultimate lobes linear, 0.5–2.5 mm wide, apex acute. Inflorescence terminal, ca. 16 cm, ca. 20-flowered; rachis and pedicels spreading yellow glandular pubescent and rarely curved white pubescent or sparsely villous; proximal bracts leaflike, distal ones linear-lanceolate. Pedicels 0.5–3 cm, with 2 bracteoles at middle;

bracteoles lanceolate-linear. Sepals dark purple, abaxially pubescent; lower sepals ca. 1.2 cm; lateral sepals ca. 1.5 × 1.5 cm; upper sepal navicular, ca. 2 × 0.9 cm, with a short beak, decurved, lower margin concave. Petals ca. 2.7 cm; claw curved, sparsely pubescent; limb ca. 7 mm; lip smaller, slightly concave; spur incurved. Stamens pubescent; filaments entire, 5–7 mm. Carpels 5, densely yellow pubescent. Follicles ca. 1.2 cm; Seeds subovate. Fl. Sep.

• Scrub, grasslands; 3800–4100 m. NW and W Sichuan, NW Yunnan.

1a. Stem densely pubescent; rachis spreading yellow glandular pubescent and rarely curved white pubescent 178a. var. *handelianum*

1b. Stem glabrous basally; rachis sparsely villous 178b. var. *laxipilosum*

178a. *Aconitum handelianum* var. *handelianum*

剑川乌头(原变种) jian chuan wu tou (yuan bian zhong)

Stem densely pubescent. Rachis spreading yellow glandular pubescent and rarely curved white pubescent.

• Scrub, grasslands; ca. 4000 m. NW Yunnan (Jianchuan Xian).

178b. *Aconitum handelianum* var. *laxipilosum* Handel-Mazzetti, Acta Horti Gothob. 13: 93. 1939.

疏毛剑川乌头 shu mao jian chuan wu tou

Stem glabrous basally. Rachis sparsely villous.

• Alpine grasslands; 3800–4100 m. NW and W Sichuan.

179. *Aconitum smirnovii* Steinberg, Fl. URSS 7: 731. 1937.

阿尔泰乌头 a er tai wu tou

Caudex narrowly obconical, 3–4 cm, ca. 1 cm in diam. Stem 70–100 cm, branched, basally glabrous, apically sparsely pubescent. Proximal cauline leaves long petiolate; petiole to 15 cm, withered at anthesis, distal ones shortly petiolate; leaf blade pentagonal, to 5 × 6.5 cm, abaxially glabrous, adaxially appressed pubescent at veins, base cordate, 3-sect or -parted nearly to base; central segment rhombic, pinnately parted nearly to midvein, ultimate lobes linear; lateral segments unequally 2-parted nearly to base. Inflorescence 8–15 cm, many flowered; rachis and pedicels spreading pubescent; proximal bracts leaflike, others linear. Pedicels 0.7–2 cm, with 2 bracteoles proximally or distally; bracteoles narrowly linear, 2.5–3 mm. Sepals blue-purple, abaxially sparsely pubescent; lower sepals ca. 0.6 cm; lateral sepals orbicular-obovate, ca. 1.2 cm; upper sepal navicular, ca. 1.4 cm from base to beak. Petals glabrous; limb ca. 8 mm; lip ca. 4.5 mm; spur ca. 1 mm. Stamens glabrous; filaments entire. Carpels 3, abaxially sparsely pubescent. Follicles 1–1.3 cm. Seeds ca. 3.5 mm. Fl. Aug–Sep.

Grassy slopes; ca. 1800 m. Xinjiang (Burqin Xian) [Mongolia, Russia (C Siberia)].

180. *Aconitum liangshanicum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 86. 1965.

凉山乌头 liang shan wu tou

Caudex obconical or carrot-shaped, 3–4 cm, 1–1.2 cm in diam. Stem 32–43 cm, simple or shortly 1-branched below inflorescence, sparsely retrorse and appressed

yellow pubescent, with 12–15 leaves. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole ca. 4.5 cm, glabrous; leaf blade pentagonal, ca. 3.8–5.8 cm, subleathery, both surfaces glabrous, 3-sect; central segment broadly rhombic, 2- or 3-parted nearly to midvein, ultimate lobes linear, 2.5–3.6 mm wide; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence 4–8 cm, 3–6-flowered; rachis and pedicels densely retrorse and appressed pubescent; proximal bracts leaflike, distal ones oblanceolate or spatulate. Pedicels 0.7–3 cm, with 2 bracteoles above middle; bracteoles linear or subulate, 3–5 × 0.5–0.8 mm. Sepals blue-purple, abaxially curved pubescent, adaxially glabrous; lower sepals ca. 0.9 cm; upper sepal navicular-galeate, ca. 7.5 mm wide, ca. 1.2 cm from base to beak. Petals ca. 1.6 cm; claw pubescent; limb ca. 9 × 1.5 mm; lip ca. 3.5 mm, sparsely pubescent, apex slightly concave; spur oblique backward, ca. 1.5 mm. Stamens sparsely pubescent; filaments entire or 2-denticulate. Carpels 5, densely appressed pubescent. Fl. Sep.

• Grassy slopes, forests; 4300–4500 m. SW Sichuan (Yuexi Xian).

181. *Aconitum tangense* C. Marquand & Airy Shaw, J. Linn. Soc., Bot. 48. 158. 1929.

堆拉乌头 *dui la wu tou*

Caudex unknown. Stem ca. 40 cm, glabrous; Leaves long petiolate; petiole 8–11 cm; leaf blade orbicular-pentagonal, to 5.5 × 6 cm, both surfaces glabrous, 5-sect; central segment rhombic, ± duplicato-pinnatisect; ultimate lobes narrowly lanceolate or linear.

Inflorescence ca. 7-flowered; rachis and pedicels glabrous; bracts leaflike. Pedicels to 4.5 cm, oblique upward, distally with 2 bracteoles; bracteoles pinnatifid, to 2 cm. Sepals glabrous abaxially, sparsely pubescent adaxially; upper sepal falcate-navicular, ca. 6 mm wide, ca. 1.5 from base to beak. Petals glabrous; claw geniculate at apex; lip slightly concave at apex; spur circinate. Stamens glabrous. Carpels 5, glabrous. Fl. Jul.

• *Rhododendron* scrub; 4200–4500 m. S Xizang (N Yadong Xian).

182. *Aconitum fangianum* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 88. 1965.

刷经寺乌头 *shua jing si wu tou*

Caudex carrot-shaped, ca. 6.5 cm, ca. 1 cm in diam. Stem ca. 70 cm, glabrous. Proximal cauline leaves withered at anthesis, distal ones shortly petiolate; petiole ca. 0.8 cm; leaf blade pentagonal, ca. 4.6 × 6 cm, abaxially glabrous, adaxially sparsely appressed pubescent at veins, 3-sect; central segment rhombic, apex acuminate, 3-parted nearly to middle; lateral segments unequally 2-parted. Inflorescence 25–30 cm, ca. 18-flowered; rachis and pedicels glabrous; proximal bracts leaflike, distal ones linear. Pedicels 6–9 cm, with 2 bracteoles at middle or above; bracteoles narrowly lanceolate or narrowly linear, 6–12 cm. Sepals purple, abaxially glabrous; lower sepals ca. 1 cm; lateral sepals 1.4–1.5 cm; upper sepal slightly oblique, navicular, ca. 6.5 mm wide, 1.7–1.8 cm from base to beak. Petals ca. 1.6 cm; claw rarely pubescent, apex subgeniculate; limb glabrous, ca. 5.5 mm; lip ca. 2.5 mm, sparsely

pubescent; spur incurved, subglobose, ca. 1 mm. Stamens glabrous; filaments entire or 2-denticulate. Carpels 3–5, glabrous. Fl. Aug.

• Grasslands; ca. 4200 m. NW Sichuan.

183. *Aconitum liljestrandii* Handel-Mazzetti, Acta Horti Gothob. 13: 108. 1939.

贡嘎乌头 *gong ga wu tou*

Caudex narrowly obconical, ca. 4 cm, ca. 1 cm in diam. Stem to 70 cm tall, apically sparsely spreading or retrorse pubescent. Proximal cauline leaves withered at anthesis, and middle ones long petiolate, petiole 2–7.5 cm, sparsely spreading pubescent; leaf blade orbicular-pentagonal, 4–5.5 × 4–8 cm, both surfaces nearly glabrous or sparsely pubescent at veins, 3-sect; central segment rhombic or ovate-rhombic, pinnately parted; ultimate lobes linear, 1–2.5 mm wide; lateral segments unequally 2-parted nearly to base. Inflorescence 12–20 cm, densely flowered; rachis and pedicels spreading white pubescent and yellowish glandular pubescent; proximal bracts leaflike, distal ones linear. Pedicels 1–3 cm, with 2 bracteoles at middle or above; bracteoles narrowly linear, 3.5–5 mm. Sepals blue-purple, abaxially glabrous, rarely sparsely pubescent; lower sepals narrowly elliptic or linear-lanceolate, 7–11 × 1–3.5 mm; lateral sepals 1.3–1.5 cm; upper sepal navicular or falcate, 1.5–1.7 cm from base to beak. Petals glabrous or sparsely pubescent; limb ca. 7 mm; lip ca. 5 mm; spur slightly decurved, ca. 1 mm. Stamens glabrous; filaments entire. Carpels 3 or 4, glabrous. Fl. Jul–Aug.

• Scrub, grassy slopes; 3800–4600 m. W Sichuan, E Xizang.

- 1a. Upper sepal navicular, ca. 7 mm wide, lower sepals narrowly elliptic, 9–11 × 2.5–3.5 mm 183a. var. *liljestrandii*
 1b. Upper sepal falcate, ca. 4.5 mm wide, lower sepals linear-lanceolate, 7–9.5 × 1–1.5 mm 183b. var. *falcatum*

183a. *Aconitum liljestrandii* var. *liljestrandii*

贡嘎乌头(原变种) *gong ga wu tou* (yuan bian zhong)

Lower sepals narrowly elliptic, 0.9–1.1 cm × 2.5–3.5 mm; upper sepal navicular, ca. 7 mm wide.

• Grassy slopes; 4200–4600 m. W Sichuan, E Xizang.

183b. *Aconitum liljestrandii* var. *falcatum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 610. 1979.

马尔康乌头 *ma er kang wu tou*

Lower sepals linear-lanceolate, 7–9.5 × 1–1.5 mm; upper sepal falcate, ca. 4.5 mm wide.

• Scrub; ca. 3800 m. W Sichuan (Barkam Xian).

184. *Aconitum pycnanthum* W. T. Wang, Acta Bot. Yunnan. 6: 372. 1984.

密序乌头 *mi xu wu tou*

Caudex unknown. Stem ca. 1 m, apically densely retrorse and appressed pubescent. Distal leaves with petiole 1.5–2 cm; leaf blade cordate-pentagonal, 5.5–7.8 × 7–9 cm, papery, abaxially sparsely appressed pubescent at veins, adaxially sparsely appressed pubescent, base cordate, 3-sect; central segment

rhombic or narrowly rhombic, apex acuminate, slightly pinnatifid; ultimate lobes broadly linear or triangular; lateral segments unequally 2-parted. Inflorescence terminal, 4–15 cm, densely 20–35-flowered; rachis and pedicels densely spreading yellowish pubescent; bracts leaflike, to 4 cm. Proximal pedicels 5–12 mm, distal ones 2–4 mm, with 2 bracteoles at middle or at base; bracteoles linear, 4–9 mm, ciliate. Sepals purple, abaxially glabrous; lower sepals oblong, ca. 7 mm; lateral sepals obliquely broadly obovate, 1.2–1.4 cm × 8.5–10 mm, adaxially sparsely villous; upper sepal navicular or navicular-galeate, 1.3–1.5 cm high, rarely clawed, with a short beak, lower margin 1.3–1.7 cm. Petals ca. 1.9 cm; claw densely villous, apex geniculate; lip ca. 4 mm, apex 2-lobed, pilose; spur slightly globose, ca. 1.7 mm, glabrous. Stamens glabrous; filaments entire or 2-denticulate. Carpels 5, glabrous. Fl. Sep.

• Grassy alpine slopes; 3900–4000 m. SW Sichuan (Muli Zang Zu Zizhixian).

185. *Aconitum bracteolosum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 610. 1979.

显苞乌头 xian bao wu tou

Caudex carrot-shaped, ca. 5.5 cm, ca. 7 mm in diam. Stem 35–40 cm tall, simple or slenderly 2-branched at base, sparsely spreading pubescent. Middle cauline leaves long petiolate; petiole ca. 5.5 cm, base narrowly sheathed, sparsely spreading pubescent; leaf blade cordate-pentagonal, ca. 5 × 5 cm, abaxially glabrous, adaxially sparsely appressed pubescent, 3-sect; central segment rhombic, subpinnately parted, ultimate lobes linear; lateral segments unequally 2-parted nearly to base. Inflorescence terminal, ca. 22 cm, ca. 17-flowered; rachis and pedicels sparsely pubescent; bracts leaflike. Distal pedicels 0.7–1.5 cm, distally with 2 bracteoles; proximal bracteoles leaflike, 2.5–3 cm, distal ones linear, to 1 cm. Sepals blue-purple; lower sepals oblong, ca. 1.2 cm; lateral sepals obliquely broadly obovate, ca. 2 cm, abaxially sparsely appressed pubescent; upper sepal navicular, abaxially glabrous, shortly beaked, ca. 2 cm from base to beak. Petaline claw densely pubescent, apex geniculate; limb ca. 9 mm; lip ca. 4 mm, slightly concave at apex, margin sparsely pubescent; spur oblique backward, ca. 1.8 mm, subglobose. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Jul.

• NW Yunnan (Zhongdian Xian).

186. *Aconitum tongolense* Ulbrich, Repert. Spec. Nov. Regni Veg. 14: 299. 1916.

新都桥乌头 xin du qiao wu tou

Caudex carrot-shaped, ca. 3 cm, 4–6 mm in diam. Stem 36–120 cm tall, sparsely retrorse pubescent. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 1–10.5 cm, sparsely retrorse pubescent; leaf blade pentagonal, ca. 5.5 × 8 cm, both surfaces appressed puberulent or abaxially glabrous,

base cordate, 3-sect; central segment ovate-rhombic, apex acuminate, subpinnately parted; ultimate lobes linear or linear-lanceolate, 2–2.8 mm wide; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence to 25 cm, 10–13-flowered; rachis and pedicels retrorse pubescent, or spreading pubescent; bracts usually leaflike. Pedicels 0.7–4 cm, with 2 bracteoles at middle; proximal bracteoles leaflike, others narrowly linear or subulate, 3–5 mm. Sepals violet-blue, abaxially glabrous or sparsely pubescent; lower sepals narrowly elliptic; lateral sepals 1–1.5 cm; upper sepal falcate, ca. 5 mm wide, 1.5–2.3 cm from base to beak, lower margin slightly concave. Petaline claw densely pubescent, apex usually geniculate; limb ca. 6 mm; lip ca. 3.5 mm, slightly concave; spur 1–1.5 cm. Stamens glabrous; filaments entire. Carpels 3, appressed pubescent. Fl. Jul–Aug.

• Grassy slopes, alpine meadows; 3800–4600 m. SW and W Sichuan, E Xizang, NW Yunnan.

1a. Inflorescence rachis and pedicels

retrorse pubescent 186a. var. *tongolense*

1b. Inflorescence rachis and pedicels

spreading pubescent 186b. var. *patentipilum*

186a. *Aconitum tongolense* var. *tongolense*

新都桥乌头(原变种) xin du qiao wu tou (yuan bian zhong)

Aconitum chenianum W. T. Wang.

Inflorescence rachis and pedicels retrorse pubescent.

• Grassy slopes; 3800–4600 m. SW and W Sichuan, NW Yunnan, E Xizang.

186b. *Aconitum tongolense* var. *patentipilum* Q. E. Yang & Z. D. Fang, Acta Bot. Yunnan. 12: 391. 1990.

展毛东俄洛乌头 zhan mao dong e luo wu tou

Inflorescence rachis and pedicels spreading pubescent.

• Alpine meadows; ca. 4100 m. NW Yunnan (Weixi Lisu Zu Zizhixian).

187. *Aconitum kagerpuense* W. T. Wang, Acta Phytotax. Sin. 31(3): 206. 1993.

卡卡波乌头 ka ka bo wu tou

Caudex unknown. Stem 36–40 cm tall, basally 1- or 2-branched, apically sparsely appressed pubescent, below middle glabrous. Basal and proximal cauline leaves withered at anthesis; middle cauline leaves long petiolate; petiole 4–8 cm, sparsely pubescent; leaf blade pentagonal, 4.2–5.2 cm, both surfaces appressed pubescent, 3-sect; central segment rhombic, ultimate lobes linear or linear-lanceolate; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence 15–17 cm, many flowered; rachis and pedicels densely or sparsely retrorse pubescent; proximal bracts leaflike, distal ones linear, 2–4 cm. Pedicels 0.3–4 cm, appressed pubescent, distally with 2 bracteoles; bracteoles leaflike or linear, 2.5–10 mm. Sepals blue, abaxially glabrous; lower sepals obliquely oblong, ca. 1.3 × 0.4 cm,

glabrous; lateral sepals obliquely broadly obovate, ca. 1.8 × 1.5 cm, adaxially yellow sericeous; upper sepal galeate, ca. 2.2 cm from base to beak. Petals ca. 1.9 cm, glabrous, claw ca. 1.8 cm, apex subgeniculate; limb ca. 0.9 cm; lip ca. 0.3 cm, 2-lobed at apex; spur incurved, ca. 1.8 mm. Stamens glabrous; filaments entire. Carpels 3, glabrous.

• About 4000 m. NW Yunnan (Dêqên Xian).

188. *Aconitum falciforme* Handel-Mazzetti, Acta Horti Gothob. 13: 94. 1939.

镰形乌头 *lian xing wu tou*

Caudex unknown. Stem ca. 30 cm, ca. 4 mm in diam., simple, basally glabrous, apically sparsely appressed pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis; middle ones long petiolate; petiole 3.5–4.5 cm; leaf blade orbicular-pentagonal, ca. 2.6 × 4.5 cm, both surfaces glabrous, 3-sect; central segment broadly rhombic, duplicato-pinnatisect; ultimate lobes linear, 1–2 mm wide; lateral segments obliquely flabellate, 3-sect. Inflorescence ca. 5 cm, densely 10-flowered; rachis and pedicels densely retrorse and appressed pubescent; proximal bracts leaflike. Pedicels 3–4 mm, with 2 bracteoles at middle; bracteoles narrowly triangular, ca. 2 mm. Sepals purple-blue, abaxially glabrous; lower sepals broadly lanceolate, ca. 1.4 cm; lateral sepals obliquely orbicular-obovate, ca. 1.5 cm, triangular-mucronate at apex; upper sepal falcate-navicular, lower margin concave, ca. 1.6 cm from base to beak. Petals ca. 1.9 cm, glabrous; limb ca. 7 mm; lip ca. 4.5 mm; spur incurved, ca. 0.8 mm, subglobose. Stamens ca. 6 mm, glabrous; filaments entire. Carpels 5, densely appressed pubescent. Fl. Aug.

• Alpine grasslands; ca. 4500 m. W Sichuan (Garzê Xian), ?Yunnan.

189. *Aconitum maowenense* W. T. Wang, Bull. Bot. Lab. North-East. Forest. Inst. 8: 21. 1980.

茂汶乌头 *mao wen wu tou*

Caudex carrot-shaped or subterete, 3–8 cm. Stem ca. 28 cm, simple, glabrous. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 1.5–2.6 cm, glabrous; leaf blade cordate-pentagonal, 4–5.5 × 4.8–6 cm, both surfaces glabrous, 3-sect; central segment rhombic, apex acute; ultimate lobes lanceolate-linear, 1.5–2 mm wide; lateral segments obliquely flabellate, unequally 2-parted to subbase. Inflorescence terminal, ca. 9 cm, ca. 14-flowered; rachis and pedicels glabrous; proximal bracts leaflike, distal ones linear, ca. 8 mm. Pedicels 0.5–1.5 cm, with 2 bracteoles above base; bracteoles narrowly lanceolate or triangular, 0.8–2.5 mm, glabrous. Sepals purple, abaxially glabrous; lower sepals elliptic, 0.8–1.1 cm; lateral sepals obliquely broadly obovate, 1.7–2 cm; upper sepal galeate-navicular, shortly beaked, ca. 1.8 cm from base to beak. Petals 1.2–2 cm; claw glabrous; limb ca. 8 mm; lip ca. 3.5 mm, 2-lobed, ciliate; spur incurved, 2–2.5

mm, glabrous. Stamens sparsely pilose at apex; filaments entire. Carpels 5, glabrous.

• About 4200 m. Sichuan (Maowen Qiang Zu Zizhixian).

190. *Aconitum chasmanthum* Stapf, Ann. Roy. Bot. Gard. (Calcutta) 10: 142. 1905.

展花乌头 *zhan hua wu tou*

Caudex carrot-shaped, ca. 7 cm, ca. 8 mm in diam. Stem ca. 50 cm, glabrous. Leaf petiole 3–5.5 cm, glabrous; leaf blade pentagonal-orbicular, 4.2–4.8 × 4–5.6 cm, both surfaces glabrous or nearly so; central segment rhombic, base narrowly cuneate, 3-parted nearly to base; lobes ± dissected; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence ca. 15 cm, densely ca. 25-flowered; rachis and pedicels spreading pubescent; proximal bracts leaflike, distal ones linear. Proximal pedicels 4–7 mm, distally with 2 bracteoles; bracteoles linear, ca. 3 mm. Sepals blue-violet, abaxially sparsely pubescent; lower sepals oblong; lateral sepals broadly obovate or orbicular-obovate, ca. 1.3 cm; upper sepal navicular-falcate or navicular, ca. 5 mm wide, narrowly beaked, ca. 1.8 cm from base to beak, lower margin slightly concave. Petals ca. 1.5 cm; claw rarely pubescent; limb glabrous, ca. 5 mm; lip ca. 2.5 mm; spur ca. 0.7 mm, semiglobose. Stamens glabrous, rarely sparsely pubescent; filaments entire. Carpels 5, sparsely pubescent. Fl. Sep.

Mountains; ca. 4600 m. SC Xizang [NW India, Mongolia, Russia (Siberia)].

191. *Aconitum prominens* Lauener, Notes Roy. Bot. Gard. Edinburgh 25: 14. 1963.

露瓣乌头 *lu ban wu tou*

Caudex carrot-shaped, ca. 5 cm, ca. 8 mm in diam. Stem to 60 cm, simple, spreading pubescent. Proximal and middle cauline leaves long petiolate; petiole 5–7 cm; leaf blade cordate-orbicular, ca. 4.5 × 6 cm, abaxially glabrous, adaxially sparsely pubescent, 3-sect; central segment rhombic, subpinnately parted, ultimate lobes lanceolate-linear; lateral segments 2-parted nearly to base. Inflorescence to 35 cm, many flowered; rachis spreading pubescent; proximal bracts leaflike. Pedicels 1–3 cm; bracteoles linear-lanceolate. Sepals dark blue, adaxially glabrous; lower sepals oblong, ca. 1.3 cm; lateral sepals ca. 1.5 cm; upper sepal falcate, ca. 5 mm wide, shortly beaked, 1.5–2 cm from base to beak, lower margin suberect. Petals glabrous; claw geniculate at apex; limb exerted; lip slightly concave at apex; spur incurved. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Jul.

• Moist places on mountains; ca. 4400 m. E Xizang.

192. *Aconitum leiwuqiense* W. T. Wang, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 8: 19. 1980.

类乌齐乌头 *lei wu qi wu tou*

Caudex carrot-shaped, 3.5–7 cm, ca. 1 cm in diam. Stem ca. 45 cm tall, simple or 1-branched, glabrous, with leaves sparsely arranged along stem. Middle

cauline leaves with petiole 2.6–4 cm, glabrous; leaf blade cordate-pentagonal, ca. 4 × 6 cm, papery, 3-sect; segments dissected, ultimate lobes linear. Inflorescence 6–11 cm, densely flowered; rachis and pedicels retrorse pubescent; bracts leaflike to lanceolate. Proximal pedicels to 6 mm, distal ones shorter, with 2 bracteoles contiguous to flower, bracteoles linear. Sepals blue, glabrous; lower sepals broadly lanceolate or suborbicular, ca. 1 cm; lateral sepals obovate, 1.2–1.7 cm; upper sepal falcate-navicular or subfalcate, 1.8–2.5 cm from base to beak. Petals glabrous; limb ca. 0.8 mm, abaxially turgid; lip ca. 4.5 mm, 2-lobed; spur short, ca. 0.8 mm. Carpels 5, glabrous. Fl. Aug.

• About 4500 m. Xizang (Riwoqê Xian).

193. *Aconitum smithii* Ulbrich ex Handel-Mazzetti, Acta Horti Gothob. 13: 98. 1939.

山西乌头 shan xi wu tou

Aconitum smithii var. *tenuilobum* W. T. Wang.

Caudex narrowly conical or carrot-shaped, 3–3.4 cm. Stem 38–80 cm, simple or branched, apically spreading pubescent, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate; petiole 5–6 cm, glabrous; leaf blade orbicular-pentagonal, 5.2–6.5 × 7–10 cm, both surfaces glabrous, 3-sect; central segment rhombic or cuneate-rhombic, 3-fid to middle, ultimate lobes narrowly ovate to linear, 1.5–3 or 3.5–5 mm; lateral segments unequally 2-parted. Inflorescence terminal, 3–7-flowered; rachis and pedicels densely spreading yellowish pubescent; basal bracts leaflike, others linear. Pedicels 0.5–2 cm, distally with 2 bracteoles; bracteoles linear, 3–4 mm. Sepals blue-purple, abaxially sparsely pubescent; lower sepals ca. 0.8 cm; lateral sepals 1.3–1.6 cm; upper sepal navicular-galeate, 1.7–2.1 cm from base to beak, lower margin arciform-curved. Petals glabrous; lip 6 mm, slightly concave; spur incurved, globose. Stamens glabrous; filaments entire. Carpels 3 or 4, glabrous or ovary sparsely pubescent abaxially. Fl. Aug–Sep.

• Grassy slopes; 2000–2700 m. W Hebei, Shanxi.

194. *Aconitum soongoricum* (Regel) Stapf, Ann. Roy. Bot. Gard. (Calcutta) 10: 141. 1905.

准噶尔乌头 zhun ga er wu tou

Aconitum napellus Linnaeus var. *alpinum* Regel lusum *soongoricum* Regel, Bull. Soc. Imp. Naturalistes Moscou 34(3): 106. 1861.

Caudex obconical, 2–4-chainlike, 2.2–3 cm, 0.7–1.2 cm in diam. Stem 26–120 cm, simple or branched, glabrous, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, and middle ones long petiolate; petiole ca. 7 cm; leaf blade pentagonal, 3–12 cm, both surfaces glabrous or nearly so, 3-sect; central segment broadly ovate, base shortly stipitate, subpinnately parted; ultimate lobes narrowly linear, linear, or lanceolate-linear, 3–5 mm wide. Inflorescence terminal, 14–30 cm, 7–30-flowered; rachis and pedicels glabrous or spreading pubescent; proximal bracts

leaflike, upper ones linear. Pedicels 1.5–3.2 cm, with 2 bracteoles above middle; bracteoles subulate, 2–3 mm. Sepals purple; lower sepals narrowly elliptic; lateral sepals ca. 1.4 cm; upper sepal navicular or navicular-galeate, ca. 1.6 cm from base to beak. Petals glabrous; limb ca. 2 cm; lip ca. 1 cm; spur incurved, ca. 2.5 mm. Stamens glabrous; filaments entire. Carpels 3, glabrous. Follicles 1.2–1.5 cm. Fl. Aug–Sep.

Mountains, forests; 1200–2200 m. Xinjiang [Kashmir; C Asia].

In FRPS, plants with rachis and pedicels spreading pubescent were treated as *Aconitum soongoricum* var. *pubescens* Steinberg. However, this varietal name was never validly published.

195. *Aconitum jeholense* Nakai & Kitagawa, Rep. Exped. Manchoukuo, Sect. 4, 1: 24. 1934.

热河乌头 re he wu tou

Caudex elliptic or obconical, ca. 1–5 cm, 4–10 mm in diam. Stem 20–120 cm tall, glabrous, sparsely retrorse pubescent, or subglabrous. Proximal cauline leaves withered at anthesis, long petiolate; petiole 1.5–9 cm; leaf blade suborbicular, 3–9 × 3–12 cm, both surfaces glabrous, 3-sect; segments dissected, ultimate lobes narrowly linear or linear, 1–2 mm wide. Inflorescence terminal, 2–40 cm, 2–35-flowered, rarely a solitary flower; rachis and pedicels glabrous, sparsely retrorse pubescent, or subglabrous; proximal bracts leaflike, distal ones linear. Pedicels 4–15 mm, distally with 2 bracteoles; bracteoles subulate. Sepals blue-purple, abaxially glabrous; lower sepals long elliptic, 6–12 × 3–5 mm, adaxially pilose; lateral sepals broadly obovate or suborbicular, 1–1.5 cm, adaxially pilose; upper sepal navicular or navicular-galeate, ca. 1.5 cm high, lower margin 1–1.5 cm. Petals glabrous; spur slightly curved; lip 2-lobed at apex. Stamens sparsely pilose; filaments 2-denticulate. Carpels 3, or 3–5, glabrous. Follicles elliptic, ca. 1 cm. Seeds oblong, ca. 3.5 mm. Fl. Aug, fr. Sep.

Grassy slopes, forests, forest margins, grasslands; 1700–3000 m. Hebei, Nei Mongol, Shandong, Shanxi [Russia (E Siberia)].

1a. Caudex ellipsoid, ca. 1 cm, ca. 4 mm in diam.;

stem 20–50 cm tall, glabrous; leaf blade 3–5 × 3–5 cm; inflorescence 2–8 cm, 2–7-flowered, rachis and pedicels glabrous; upper sepal navicular; carpels 3 195a. var. *jeholense*

1b. Caudex obconical, 2–5 cm, 5–10 mm in diam.; stem 70–120 cm tall, sparsely retrorse pubescent or subglabrous; leaf blade

4–9 × 6–12 cm; inflorescence 10–40 cm, 10–35-flowered, rachis and pedicels sparsely retrorse pubescent or subglabrous;

upper sepal navicular-galeate; carpels 3–5 195b. var. *angustius*

195a. *Aconitum jeholense* var. *jeholense*

热河乌头(原变种) re he wu tou (yuan bian zhong)

Aconitum soongoricum (Regel) Stapf var. *jeholense* (Nakai & Kitagawa) W. T. Wang.

Caudex ellipsoid, ca. 1 cm, ca. 4 mm in diam. Stem 20–50 cm tall, glabrous. Leaf blade 3–5 × 3–5 cm. Inflorescence 2–8 cm, 2–7-flowered; rachis and pedicels glabrous. Upper sepal navicular. Carpels 3.
• Grassy slopes; 1700–1800 m. Hebei, Nei Mongol, Shanxi.

195b. *Aconitum jeholense* var. *angustius* (W. T. Wang) Y. Z. Zhao, Acta Sci. Nat. Univ. Intramongol. 14(2): 222. 1983.
华北乌头 hua bei wu tou

Aconitum soongoricum (Regel) Stapf var. *angustius* W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 90. 1965.

Caudex obconical, 2–5 cm, 5–10 mm in diam. Stem 70–120 cm tall, sparsely retrorse pubescent or subglabrous. Leaf blade 4–9 × 6–12 cm. Inflorescence 10–40 cm, 10–35-flowered; rachis and pedicels sparsely retrorse pubescent or subglabrous. Upper sepal navicular-galeate. Carpels 3–5.

Forests, forest margins, grasslands; 2000–3000 m. N Hebei, S Nei Mongol, Shandong, Shanxi [Russia (E Siberia)].

196. *Aconitum karakolicum* Rapaics, Növényt. Közlem. 6: 149. 1907.

多根乌头 duo gen wu tou

Caudex 2–5 cm, 1–1.8 cm in diam., chainlike. Stem ca. 1 m tall, branched, basally glabrous, apically sparsely curved pubescent, densely leaved. Middle cauline leaves shortly petiolate; petiole 0.6–1.5 cm; leaf blade pentagonal, 7–11 × 7–14 cm, both surfaces glabrous or abaxially sparsely pubescent, 3-sect; central segment broadly rhombic, duplicato-pinnatisect; ultimate lobes narrowly linear, 1.6–2.6 mm wide; lateral segments obliquely flabellate, unequally 2-fid nearly to base. Inflorescence terminal, ± densely flowered; rachis and pedicels sparsely appressed pubescent or densely spreading pubescent; bracts lanceolate to linear. Pedicels 1.5–3 cm, with 2 bracteoles above middle; bracteoles subulate, ca. 3.5 mm. Sepals purple, abaxially sparsely pubescent; lower sepals obovate-oblong; lateral sepals 1–1.6 cm; upper sepal galeate or navicular-galeate, 1.2–2.2 cm high, clawed, 1.1–2 cm from base to beak. Petals glabrous or sparsely pubescent; lip ca. 5.5 mm; spur incurved, ca. 2 mm. Stamens sparsely pubescent; filaments entire or 2-denticulate. Carpels 3–5, glabrous. Fl. Jul–Aug.

Grassy slopes, forests; 1800–2000 m. C and NW Xinjiang [Kazakhstan].

- 1a. Inflorescence rachis and pedicels
sparsely appressed pubescent 196a. var. *karakolicum*
1b. Inflorescence rachis and pedicels
densely spreading pubescent 196b. var. *patentipilum*

196a. *Aconitum karakolicum* var. *karakolicum*

多根乌头(原变种) duo gen wu tou (yuan bian zhong)

Aconitum napellus Linnaeus var. *turkestanicum* B. Fedtschenko.

Inflorescence rachis and pedicels sparsely appressed pubescent.

Grassy slopes; ca. 1900 m. Xinjiang [Kazakhstan].

196b. *Aconitum karakolicum* var. *patentipilum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 610. 1979.

展毛多根乌头 zhan mao duo gen wu tou

Inflorescence rachis and pedicels densely spreading pubescent.

• Grassy slopes, forests; 1800–2000 m. C and NW Xinjiang.

197. *Aconitum talassicum* Popov var. *villosulum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 611. 1979.

伊犁乌头 yi li wu tou

Caudex ca. 10 m, chainlike, narrowly conical, to 7 cm, apex ca. 7 mm in diam. Stem ca. 32 cm, apically shortly branched, basally glabrous, apically ± spreading pubescent. Proximal cauline leaves withered at anthesis, middle leaves long petiolate; petiole 1.5–7 cm, distally pubescent; leaf blade pentagonal, 1.8–3.6 × 3.5–3.8 cm, papery, both surfaces pubescent, 3-sect; central segment rhombic, subpinnately parted; ultimate lobes lanceolate, linear-lanceolate, or narrowly ovate; lateral segments unequally 2-parted nearly to base. Inflorescence ca. 8 cm, ca. 7-flowered; rachis and pedicels spreading pubescent; proximal bracts leaflike, others linear. Pedicels 1–2 cm, with 2 bracteoles bordering flower; bracteoles linear, small. Sepals blue; lower sepals ca. 1.1 cm; lateral sepals obliquely broadly obovate, ca. 1.7 cm; upper sepal navicular, ca. 1.8 cm from base to beak. Petals sparsely pubescent; limb ca. 7 mm; spur decurved, ca. 1.8 mm. Stamens pubescent, ca. 6.5 mm; filaments entire or 2-denticulate. Carpels 3, densely pubescent.

• Xinjiang.

198. *Aconitum nemorum* Popov, Bull. Soc. Imp. Naturalistes Moscou, n.s., 44(3): 131. 1935.

林地乌头 lin di wu tou

Caudex 1–3 cm, 5–8 mm in diam., chainlike. Stem 40–90 cm, apically branched or simple, basally sparsely retrorse pubescent or nearly glabrous, with leaves equally arranged along stem. Proximal cauline leaves withered at anthesis, and middle ones long petiolate; petiole 3.5–6 cm; leaf blade pentagonal, 3.8–5.6(–7.2) × 4.5–8(–10) cm, both surfaces sparsely pubescent or nearly glabrous, 3-sect or -parted nearly to base; central segment broadly rhombic, subpinnatifid; lateral segments obliquely flabellate. Inflorescence terminal, 2–6-flowered; rachis and pedicels sparsely spreading pubescent; bracts linear or lanceolate. Pedicels 0.6–1.5(–4.5) cm, distally with 2 bracteoles, rarely at middle; bracteoles narrowly linear, 3.4–4.5 mm. Sepals purple, abaxially sparsely spreading pubescent; lateral sepals 1.2–1.3 cm; upper sepal galeate, 1.4–1.7 cm high, lower margin arciform-curved; lower sepals 0.8–1 cm. Petals

nearly glabrous; limb ca. 7 mm; lip ca. 4 mm; spur incurved, ca. 1 mm. Stamens glabrous; filaments entire. Carpels 3, glabrous. Fl. Jul–Aug.

Grassy slopes, *Picea* forests; 2600–3000 m. Xinjiang [C Asia].

199. *Aconitum brachypodum* Diels, Notes Roy. Bot. Gard. Edinburgh 5: 268. 1912.

短柄乌头 *duan bing wu tou*

Caudex carrot-shaped, 5.5–7 cm, 5–6.5 mm in diam. Stem 40–80 cm, simple or branched, sparsely retrorse and appressed pubescent, with leaves crowded. Proximal cauline leaves withered at anthesis, middle leaves shortly petiolate; petiole 0.8–3.2 cm; leaf blade ovate or broadly triangular-ovate, 3.5–5.8 × 3.6–8 cm, both surfaces glabrous or abaxially sparsely pubescent at veins, 3-sect; central segment broadly rhombic, base becoming narrow, long stipitate, subduplicato-pinnatisect; ultimate lobes linear, (1–)1.5–3 mm wide; lateral segments obliquely rhombic, unequally 2-fid to base. Inflorescence 7- to many flowered; rachis and pedicels densely curved and appressed pubescent, or rachis spreading pubescent; bracts leaflike. Pedicels 1–1.5 cm, with 2 bracteoles at middle or above; bracteoles broadly linear, 5–9 × 1.5–3.5 mm, or lanceolate-linear, ca. 3 × 0.8 mm, 2- or 3-lobed, sometimes undivided. Sepals purple-blue, abaxially pubescent; lower sepals 1.3–1.6 cm; lateral sepals 1.5–1.8 cm; upper sepal galeate or galeate-navicular, 2–3 cm high, clawed, shortly beaked. Petals glabrous; limb ca. 7 mm; spur incurved, shorter. Stamens sparsely pubescent; filaments entire or 2-denticulate. Carpels 5 or 3, densely oblique upward, yellow villous or appressed white pubescent. Fl. Sep–Oct.

• Grassy slopes, mountains; 2800–4300 m. Sichuan, Yunnan. This species was listed by Feng (in Fu & Jin, China Pl. Red Data Book 1: 518–519. 1992) as requiring protection and propagation because of extensive harvesting of the rhizomes for medicinal purposes. The root caudex is poisonous and used as an antipyretic and in traditional medicine.

- 1a. Inflorescence rachis spreading pubescent 199b. var. *laxiflorum*
- 1b. Inflorescence rachis and pedicels densely curved and appressed pubescent.
 - 2a. Bracteoles 2- or 3-lobed, sometimes unlobed, broadly linear, 5–9 × 1.5–3.5 mm; carpels 5, ovary densely oblique upward, yellow villous 199a. var. *brachypodum*
 - 2b. Bracteoles lanceolate-linear, ca. 3 × 0.8 mm; carpels 3, ovary densely appressed white pubescent 199c. var. *crispulum*

199a. *Aconitum brachypodum* var. ***brachypodum***
短柄乌头(原变种) *duan bing wu tou* (yuan bian zhong)
Inflorescence rachis and pedicels densely curved and appressed pubescent. Bracteoles 2- or 3-lobed, sometimes unlobed, broadly linear, 5–9 × 1.5–3.5 mm. Carpels 5, densely oblique upward, yellow villous.

• Grassy slopes; 2800–3700 m. SW Sichuan, NW Yunnan (Lijiang Naxi Zu Zizhixian).
199b. *Aconitum brachypodum* var. ***laxiflorum*** H. R. Fletcher & Lauener, Notes Roy. Bot. Gard. Edinburgh. 20: 199. 1950.

展毛短柄乌头 *zhan mao duan bing wu tou*
Inflorescence rachis spreading pubescent.

• Grassy slopes, mountain slopes; 3000–4300 m. W Sichuan, N and W Yunnan.
199c. *Aconitum brachypodum* var. ***crispulum*** W. T. Wang in W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin., Addit. 1: 97. 1965.

曲毛短柄乌头 *qu mao duan bing wu tou*
Inflorescence rachis and pedicels densely curved and appressed pubescent. Bracteoles lanceolate-linear, ca. 3 × 0.8 mm. Carpels 3, densely appressed white pubescent.

• Mountains; ca. 3700 m. NW Sichuan (Jinchuan Xian).
200. *Aconitum sessiliflorum* (Finet & Gagnepain) Handel-Mazzetti, Acta Horti Gothob. 13: 88. 1939.

缩梗乌头 *suo geng wu tou*
Aconitum napellus Linnaeus var. *sessiliflorum* Finet & Gagnepain, Bull. Soc. Bot. France 51: 513. 1904; *A. rotundifolium* Karelin & Kirilov var. *sessiliflorum* (Finet & Gagnepain) Rapais.

Caudex unknown. Stem 65–120(–150) cm, simple, or 1-branched below inflorescence, basally glabrous, apically sparsely retrorse pubescent, with crowded leaves. Proximal cauline leaves withered at anthesis, middle ones slightly long petiolate or shortly petiolate; petiole 1.5–3.5 cm, glabrous; leaf blade pentagonal-orbicular, ca. 5 × 8 cm, both surfaces glabrous or sparsely pubescent, base deeply cordate, 3-sect; segments sessile; central segment broadly rhombic, subpinnatisect; ultimate lobes linear-lanceolate, 2.5–3 mm wide; lateral segments obliquely flabellate, unequally 2-parted. Inflorescence terminal, 10–30 cm, 9–20-flowered; rachis and pedicels retrorse pubescent; proximal bracts leaflike or 3-fid, others linear or spatulate-linear. Pedicels 0.3–3 cm, with 2 bracteoles ± bordering flower; bracteole oblong or palmate, 7–10 × 2.5–4 mm. Sepals blue-purple, abaxially sparsely pubescent; lower sepals narrowly ovate; lateral sepals 1.5–1.6 cm; upper sepal galeate, 2–2.5 cm high, shortly beaked. Petals glabrous; lip ca. 5 mm; spur incurved, ca. 2 mm. Stamens sparsely pubescent; filaments entire. Carpels 5, densely appressed pubescent. Fl. Aug. $2n = 16^*$.

• Scrub, grassy slopes; 3500–4100 m. W Sichuan, ?Yunnan.
201. *Aconitum glabrisepalum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 611. 1979.

无毛乌头 *wu mao wu tou*
Plants glabrous throughout. Caudex carrot-shaped, 3–4.5 cm, 7–10 mm in diam. Stem ca. 64 cm, simple, glabrous, with leaves equally arranged and crowded along stem. Proximal cauline leaves withered at

anthesis, middle ones slightly long or shortly petiolate; petiole ca. 3.5 cm; leaf blade orbicular-pentagonal, 3.8–5 × 5.5–6.5 cm, thinly leathery, 3-sect; central segment broadly obovate, dissected; ultimate lobes linear, 1.5–3 mm wide; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence ca. 20 cm, ca. 10-flowered; proximal bracts leaflike, others linear. Pedicels 1–4 cm, distally with 2 bracteoles; bracteoles subulate-linear, 2–3.5 × 0.5–0.7 mm. Sepals blue-purple; lower sepals ca. 0.9 cm; lateral sepals ca. 1.3 cm; upper sepal navicular-galeate or navicular, 5–8 mm wide, 1.2–1.4 cm from base to beak, lower margin concave. Petals glabrous; limb ca. 8 mm; lip ca. 3.5 mm, apex slightly concave; spur curved, ca. 1.5 mm. Filaments entire. Carpels 5. Fl. Sep.

• Slopes. W Sichuan (Kangding Xian).

202. *Aconitum polyschistum* Handel-Mazzetti, Acta Horti Gothob. 13: 100. 1939.

多裂乌头 duo lie wu tou

Caudex subfusiform, ca. 3 cm. Stem 56–100 cm, branched, sparsely retrorse and appressed pubescent, basally usually becoming glabrous, with crowded leaves. Middle cauline leaves shortly petiolate; petiole ca. 5 mm; leaf blade ovate, ca. 6.5 × 4 cm, both surfaces glabrous, 3-sect; central segment ovate, long stipitate, subpinnatisect; ultimate lobes linear, 1–1.5 mm wide; lateral segments unequally 2-parted. Inflorescence terminal, 15–28 cm, 12–30-flowered; rachis and pedicels densely retrorse pubescent; proximal bracts leaflike or 3-fid, others linear. Pedicels 0.5–3 cm, with 2 bracteoles above middle; bracteoles linear or linear-subulate, 1.5–3 mm. Sepals purple-blue, abaxially densely pubescent; lower sepals narrowly elliptic, ca. 1.2 cm; lateral sepals ca. 1.4 cm; upper sepal galeate-navicular, clawed, 1.5–1.7 cm from base to beak. Petals glabrous; lip ca. 4 mm; spur short, recurved. Stamens pubescent; filaments entire. Carpels 3, densely appressed pubescent. Follicles to 1.9 cm, pubescent. Seeds ca. 3 mm. Fl. Aug–Oct.

• Grassy slopes; 2600–3600 m. NW and W Sichuan.

203. *Aconitum flavum* Handel-Mazzetti, Acta Horti Gothob. 13: 86. 1939.

伏毛铁棒锤 fu mao tie bang chui

Aconitum anthora Linnaeus var. *gilvum* Maximowicz; *A. gilvum* (Maximowicz) Handel-Mazzetti.

Caudex carrot-shaped, ca. 4.5 cm, ca. 8 mm in diam. Stem 35–100 cm, usually simple, basally glabrous, apically retrorse and appressed pubescent, with crowded leaves. Proximal cauline leaves withered at anthesis; middle ones shortly petiolate; petiole 3–4 mm; leaf blade broadly ovate, 3.8–5.5 × 3.6–4.5 cm, both surfaces glabrous, or margin pubescent, base shallowly cordate, 3-sect; segments dissected, ultimate lobes linear. Inflorescence 8–18 cm, 12–25-flowered; rachis and pedicels densely appressed pubescent; proximal bracts similar to leaves, those above middle linear. Petals 4–8 mm, with 2 bracteoles at apex; bracteoles

linear, 3–6 mm. Sepals yellow and greenish or dark purple, abaxially pubescent; lower sepals obliquely oblong-ovate, ca. 1–1.4 cm; lateral sepals ca. 1.5 cm; upper sepal galeate-navicular, 1.5–1.6 cm high, shortly clawed, lower margin oblique upward. Petals sparsely pubescent; limb ca. 7 mm; lip ca. 3 mm; spur backward curved, ca. 1 mm. Stamens glabrous or sparsely pubescent; filaments entire. Carpels 5, glabrous or sparsely pubescent. Follicles glabrous, 1.1–1.7 cm. Seeds ca. 2.5 mm. Fl. Aug. $2n = 16^*$.

• Grassy slopes, forests; 2000–3700 m. Gansu, Nei Mongol, S Ningxia, Qinghai, NW Sichuan, N Xizang.

204. *Aconitum yinschanicum* Y. Z. Zhao, Fl. Intramongol., ed. 2, 2: 568. 1991.

阴山乌头 yin shan wu tou

Aconitum flavum Handel-Mazzetti var. *galeatum* W. T. Wang.

Caudex obconical, 3–5 cm, 0.5–1 cm in diam. Stem 50–100 cm, sparsely retrorse pubescent. Proximal cauline leaves long petiolate, withered at anthesis, distal ones shortly petiolate; petiole 3–4 mm; leaf blade suborbicular, 2–4 × 2–4 cm, abaxially glabrous, adaxially sparsely retrorse pubescent, 3-sect; segments dissected, ultimate lobes linear, 1–3 mm wide. Inflorescence terminal, sometimes branched proximally, many flowered; rachis and pedicels densely appressed and retrorse pubescent; proximal bracts leaflike, those above middle linear. Pedicels 5–10 cm, distally with 2 bracteoles; bracteoles linear-lanceolate, 3–5 mm. Sepals blue-purple, abaxially retrorse pubescent; lower sepals oblong-lanceolate, 8–10 mm; lateral sepals broadly obovate, ca. 1.8 cm; upper sepal galeate, 1.7–2 cm high. Petals glabrous; limb ca. 4 mm; lip ca. 5 mm; spur incurved, ca. 2 mm. Stamens pubescent; filaments entire. Carpels 5, glabrous or sparsely pubescent. Follicles 1–1.5 cm, glabrous. Seeds obovate, ca. 3 mm. Fl. and fr. Aug–Sep.

• Alpine grasslands, by streams; ca. 2000 m. S Nei Mongol (Liangcheng Xian).

205. *Aconitum pendulum* Busch, Izv. Imp. S-Peterburgsk. Bot. Sada 5: 135. 1905.

铁棒锤 tie bang chui

Aconitum szechenyianum J. Gáy.

Caudex obconical. Stem 26–100 cm, simple or branched, glabrous, apically sparsely pubescent and densely leaved. Proximal cauline leaves withered at anthesis, middle leaves shortly petiolate; petiole 4–5 mm; leaf blade broadly ovate, 3.4–5.5 × 4.5–5.5 cm, both surfaces glabrous, 3–5-sect; segments dissected, ultimate lobes 1–2.2 mm wide. Inflorescence 6–20 cm, 8–35-flowered; rachis and pedicels densely spreading yellow pubescent; proximal bracts leaflike or 3-fid, distal ones linear. Pedicels 2–6 mm, distally with 2

bracteoles; bracteoles lanceolate-linear, 4–5 mm, sparsely pubescent. Sepals yellow, usually greenish, sometimes blue, abaxially ± spreading pubescent; lower sepals obliquely oblong, ca. 1 cm; lateral sepals orbicular-obovate, 1.2–1.6 cm; upper sepal navicular-falcate or falcate, clawed, lower margin 1.6–2 cm, arciform-curved. Petals glabrous or sparsely pubescent; limb ca. 8 mm; lip 1.5–4 mm; spur incurved, ca. 1 mm. Stamens glabrous or sparsely pubescent; filaments entire. Carpels 5, glabrous or ovary spreading pubescent. Follicles 1.1–1.4 cm. Seeds ca. 3 mm. Fl. Jul–Sep. $2n = 16^*$.

• Grassy slopes, forest margins; 2800–4500 m. S Gansu, W Henan, Qinghai, S Shanxi, W Sichuan, Xizang, NW Yunnan.

206. *Aconitum chilienshanicum* W. T. Wang, Acta Phytotax. Sin. 12: 157. 1974.

祁连山乌头 *qi lian shan wu tou*

Plants glabrous throughout. Caudex ± fusiform, ca. 3.5 cm. Stem 23–33 cm, basally sparsely leaved, apically leaves crowded. Distal leaves shortly petiolate; petiole 2–10 mm, base sheathed; leaf blade orbicular-pentagonal, 2–3 × 2.3–5 cm, 3-sect; segments dissected, ultimate lobes linear, 1–2 mm wide. Inflorescence terminal, 4–6 cm, densely flowered; bracts leaflike. Pedicels to 9 mm, distally with 2 bracteoles; bracteoles narrowly linear. Sepals yellow; lateral sepals oblong or oblong-lanceolate, 1.5–1.6 cm; upper sepal navicular, 1.5–1.9 cm from base to beak, lower margin concave. Petals glabrous; lip ca. 5 mm, apex 2-lobed; spur obliquely incurved, globose, 0.8–1.2 mm. Stamens glabrous; filaments entire. Carpels 3. Fl. Jul–Aug.

• Alpine grasslands; 3400–3900 m. Gansu (Sunan Yugur Zu Zizhixian), NE Qinghai.

207. *Aconitum ludlowii* Exell, J. Bot. 64: 218. 1926.

江孜乌头 *jiang zi wu tou*

Caudex subterete or narrowly obconical, 6–8 cm, 0.7–1.5 cm in diam. Stem (0.6–)1–1.5 m, simple or branched, glabrous, or only near inflorescence retrorse pubescent, with distal leaves crowded. Proximal cauline leaves withered at anthesis, long petiolate; petiole to 8 cm, distal leaves shortly petiolate; leaf blade suborbicular, to 7 × 8 cm, both surfaces glabrous or nearly so, base broadly cordate, 3-sect; segments dissected; ultimate lobes linear. Inflorescence 10–15 cm, 15–20-flowered; rachis and pedicels densely retrorse and appressed pubescent; proximal bracts leaflike, others linear. Proximal pedicels 4–8 mm, distal ones to 2 mm, distally with 2 bracteoles, linear, 3.5–4.5 × ca. 0.7 mm. Sepals blue, abaxially pubescent; lower sepals narrowly oblong, ca. 1.2 cm; lateral sepals ca. 1.5 cm; upper sepal falcate, ca. 1.5 cm from base to beak. Petals arciform-curved, glabrous; limb ca. 6.5 mm; lip ca. 3 mm; spur incurved, ca. 1 mm. Stamens pubescent;

filaments subentire. Carpels 5, glabrous. Follicles 1.4–1.7 cm. Seeds ca. 3.5 mm. Fl. and fr. Jul.

• By streams; ca. 4000 m. Xizang (Gyangzê Xian).

208. *Aconitum coreanum* (H. Léveillé) Rapais, Növényt. Közlem. 6: 154. 1907.

黄花草乌头 *huang hua wu tou*

Aconitum delavayi Franchet var. *coreanum* H. Léveillé, Bull. Acad. Int. Géogr. Bot. 11: 300. 1902.

Caudex obovate or fusiform, ca. 2.8 cm. Stem 30–100 cm, simple or branched, sparsely retrorse pubescent, with leaves crowded. Proximal cauline leaves withered at anthesis, middle leaves slightly long petiolate; petiole 1.4–4.5 cm, glabrous, base narrowly sheathed; leaf blade broadly rhombic-ovate, 4.2–6.4 × 3.6–6.4 cm, both surfaces nearly glabrous, 3-sect; segments dissected; ultimate lobes linear or linear-lanceolate. Inflorescence terminal, 2–7-flowered; rachis and pedicels densely retrorse pubescent; proximal bracts pinnatifid, others linear. Proximal pedicel 0.8–2 cm, with 2 bracteoles at middle; bracteoles narrowly ovate to linear, 1.5–2.6 mm. Sepals yellowish, abaxially densely curved pubescent; lower sepals obliquely elliptic-ovate; lateral sepals obliquely broadly obovate; upper sepal navicular-galeate or galeate, 1.5–2 cm high, shortly beaked, lower margin 1.4–1.7 cm. Petals glabrous; claw smaller; limb ca. 6.5 mm; spur capitate, short. Stamens sparsely pubescent; filaments entire. Carpels 3, densely appressed pubescent. Follicles ca. 1 cm. Seeds 2–2.5 mm. Fl. Aug.

Grassy slopes, forests; 200–900 m. N Hebei, E Heilongjiang, Jilin, Liaoning [Korea, Mongolia, Russia (Far East)].

209. *Aconitum anthoroideum* de Candolle, Syst. Nat. 1: 366. 1818.

拟黄花草乌头 *ni huang hua wu tou*

Caudex obovate or terete, 1–7 cm, 5–10 mm in diam. Stem 20–100 cm, branched or simple, basally nearly glabrous or sparsely retrorse pubescent, apically sparsely spreading pubescent, with leaves equally arranged along stem. Proximal cauline leaves long petiolate, withered at anthesis, middle ones shortly petiolate; petiole 0.5–2.5 cm; leaf blade pentagonal, 2–7 × 2.4–7 cm, abaxially nearly glabrous, adaxially sparsely curved pubescent, 3-sect; central segment broadly rhombic, pinnately parted; ultimate lobes linear, 1–3(–5) mm wide; lateral segments obliquely flabellate, unequally 2-parted nearly to base. Inflorescence terminal, 2–11 cm, 2–12-flowered; rachis and pedicels densely yellowish pubescent; proximal bracts leaflike, others linear. Pedicels 0.6–12 mm, with 2 bracteoles at flower; bracteoles linear, 3–4 × ca. 0.5 mm. Sepals yellowish, abaxially spreading pubescent; lower sepals 1.1–1.4 cm; lateral sepals 1–1.6 cm; upper sepal galeate, 1.2–1.7 cm, beak 2–5.5 mm, 1.2–1.4 cm from base to

beak, lower margin slightly concave. Petals glabrous; claw geniculate at apex; limb ca. 7 × 1.4 cm; lip ca. 4 mm, slightly concave; spur subglobose, ca. 1.2 mm. Stamens glabrous; filaments entire. Carpels 4 or 5, densely yellowish villous. Follicles ca. 1.3 cm. Seeds ca. 3.5 mm. Fl. Aug–Sep. $2n = 32+1-2b$.

Scrub, grassy slopes; 1400–2000 m. N Xinjiang [Mongolia, Russia]. Alexander N. Luferov (pers. comm.) believes that this taxon is conspecific with *Aconitum anthora* Linnaeus.

210. *Aconitum polycarpum* Chang ex W. T. Wang in W. T. Wang & P. K. Hsiao, *Acta Phytotax. Sin.*, *Addit.* 1: 64. 1965.

多果乌头 *duo guo wu tou*

Caudex fusiform, ca. 5 cm. Stem 55–95 cm, 3–4 mm in diam., basally sparsely retrorse pubescent, apically densely so, with leaves arranged equally along stem. Proximal cauline leaves withered at anthesis, long petiolate; petiole 3–5.5 cm, sparsely appressed pubescent; leaf blade pentagonal, 4.5–7 × 6–8.5 cm, both surfaces sparsely appressed pubescent at veins, 3-parted nearly to base 5–8 mm; central lobe broadly rhombic; lateral lobes obliquely flabellate, unequally 2-

parted to above middle. Inflorescence 3–7-flowered; rachis and pedicels retrorse pubescent; bracts leaflike. Pedicels oblique upward, 3–6 cm, with 2 bracteoles above middle; proximal bracteoles ± leaflike, 0.8–1.2 × 0.4–0.8 cm, middle bracteoles obovate or elliptic, ca. 5 mm, distal ones linear-lanceolate, 3–3.5 mm, sparsely pubescent. Sepals green, margin dark purple, both surfaces sparsely pubescent; lower sepals 8.5–9.5 cm; lateral sepals 1.8–2 cm; upper sepal navicular, 0.9–1.3 cm wide, without distinct beak, lower margin erect or slightly concave, 2.2–2.9 cm. Petals ca. 2.5 cm; claw slender, densely spreading pubescent; limb small, glabrous, hatchet-shaped, ca. 3.5 × 2 mm; lip ca. 0.8 mm, subtriangular, entire. Stamens densely spreading pubescent distally; filaments usually 2-denticulate; anthers globose, ca. 1 mm, glabrous. Carpels 7–9, densely yellowish pubescent. Fl. Sep.

• Alpine grasslands; ca. 4000 m. NW Yunnan (Bijiang Xian). This species belongs to *Aconitum* sect. *Sinaconitum* W. T. Wang, characterized by its upper sepal navicular; petal limb small, with secretory tissue abaxially, not spurred; lip indistinct; filament oblong basally, filiform apically, densely puberulous, and carpels 7–9.

3. *Aconitum* subgen. *Gymnaconitum* (Stapf) Rapaics, *Növényt. Közlem.* 6: 139. 1907.

露蕊乌头亚属 *lu rui wu tou ya shu*

Aconitum sect. *Gymnaconitum* Stapf, *Ann. Roy. Bot. Gard. (Calcutta)* 10: 178. 1905.

Herbs annual, with taproots. Leaves palmately 3-sect; segments dissected. Sepals clawed; upper sepal navicular. Petals not spurred; lip large, flabellate, margin denticulate. Carpels 6–13.

• One species.

211. *Aconitum gymnantrum* Maximowicz, *Bull. Acad. Imp. Sci. Saint-Petersbourg* 23: 308. 1877.

露蕊乌头 *lu rui wu tou*

Aconitum gymnantrum f. *leucanthum* W. T. Wang.

Herbs annual. Roots subterete, 5–14 cm, 1.5–4.5 mm in diam. Stem (6–)25–55(–100) cm, usually branched, sparsely or densely pubescent, basally sometimes becoming glabrous, with leaves equally arranged along stem. Basal leaves 1–3(–6), and most proximal cauline leaves usually withered at anthesis, proximal cauline leaves long petiolate; petiole 4–7 cm, distal leaves shortly petiolate; petiole 1–5 cm, base narrowly sheathed; leaf blade broadly ovate or triangular-ovate, 3.5–6.4 × ca. 4.5 cm, abaxially sparsely villous or glabrescent at veins, adaxially sparsely appressed pubescent, 3-sect;

segments 2- to 3-pinnately parted; ultimate lobes narrowly ovate to narrowly lanceolate. Inflorescence 6–16-flowered; rachis and pedicels pubescent; basal bracts leaflike, other proximal ones 3-fid, those above middle lanceolate to linear. Pedicels 1–5(–9) cm, with 2 bracteoles at distal part or at apex, leaflike to linear, 0.5–1.5 cm. Sepals blue-purple, rarely white, abaxially sparsely pubescent, long clawed; lower sepals ca. 1.2 cm; lateral sepals 1.5–1.8 cm; upper sepal navicular, ca. 1.8 cm, clawed. Petals pubescent; spur headlike, short, sparsely pubescent. Stamens sparsely pubescent; filaments entire. Carpels 6–13, pubescent. Follicles 0.8–1.2 cm. Seeds obovate-globose, ca. 1.5 mm. Fl. Jun–Aug. $2n = 16^*$.

• Grassy slopes, grasslands, by streams; 500–3800 m. S Gansu, Qinghai, W Sichuan, Xizang, ?Yunnan.

11. DELPHINIUM Linnaeus, *Sp. Pl.* 1: 530. 1753.

翠雀属 *cui que shu*

Wang Wencai (王文采 Wang Wen-tsai); Michael J. Warnock

Chienia W. T. Wang.

Herbs perennial, rarely biennial or annual. Stem(s) erect or ascending, or much reduced. Leaves basal and/or cauline; leaf blade palmately divided. Inflorescence racemose or corymbose, sometimes only 1-flowered. Pedicels usually 2-bracteolate. Flowers bisexual, zygomorphic. Sepals 5, petaloid and variously colored, upper one spurred. Petals 2, sessile, free, spurred; spur nectariferous. Staminodes 2, each usually with a slender claw and an expanded limb. Stamens numerous; filaments lanceolate-linear, 1-veined; anthers ellipsoid. Carpels 3(or 4–10); ovaries many

ovulate. Styles without a distinct stigma. Follicles narrowly oblong, reticulate. Seeds obpyramidal, tetrahedral, or obovoid, narrowly winged along angles, transversely rugose, squamulose winged, lamellate, or concave reticulate. About 350 species: N hemisphere, also a few species in equatorial Africa; 173 species (150 endemic) in China.

In order to reduce the length of the species descriptions and keep them as parallel as possible, section descriptions are included in the treatment.

Delphinium is represented in China by an extraordinary number of taxa, many of these with very narrow geographic distributions. The present senior author (Wang) is the primary architect of this treatment of the genus for China, and the circumscription of the species represents his concept of the species boundaries. While the junior author (Warnock) would be more comfortable consolidating some of the species, he does not have the detailed familiarity with the entire range of variation among the Chinese *Delphinium* species to accomplish a major revision successfully. In addition, it seems clear that hybridization is a significant complicating factor in the taxonomy of Chinese *Delphinium*. During a brief field trip by the junior author to China, hybrids were seen between *D. bulleyanum* and *D. delavayi*, *D. ceratophorum* and *D. grandiflorum*, and *D. coleopodum* and *D. delavayi*. It is likely that searching would reveal additional hybrids. In fact, it is possible that some of the taxa recognized in the present account are actually hybrids.

- 1a. Leaf blade pinnately compound; plants annual; petals enlarged distally; seeds transversely lamellate
 (5. *D. sect. Anthriscifolium*) 173. *D. anthriscifolium*
- 1b. Leaf blade palmately parted (simple or compound); plants perennial; petals not enlarged distally; seeds narrowly winged along angles, or transversely rugose or squamulose winged.
- 2a. Sepals and staminodes yellow (4. *D. sect. Oligophyllon*) 172. *D. biternatum*
- 2b. Sepals and staminodes blue, purple, black, brown, or white (if sepals yellow, then staminodes black).
- 3a. Petals and staminodes wholly or partly black to brown.
- 4a. Staminode limb weakly differentiated from claw (limb less than 2 × as wide as claw and less than 45° angle from claw), adaxially glabrous or ciliate (1. *D. sect. Aconitoides*).
- 5a. Spur pendulous; yellow, glandular hairs absent from stem.
- 6a. Inflorescence tapered cylindrical, usually at least 16 cm 6. *D. trichophorum*
- 6b. Inflorescence ovoid to globose, usually less than 16 cm.
- 7a. Spur less than 1.7 cm 1. *D. forrestii*
- 7b. Spur at least 1.7 cm 5. *D. oxycentrum*
- 5b. Spur within 45° of horizontal; yellow, glandular hairs present on stem.
- 8a. Stem less than 20 cm; inflorescence less than 3 × as long as wide, ca. 4-flowered 3. *D. xichangense*
- 8b. Stem 20–50(–70) cm; inflorescence at least 3 × as long as wide, (6–)10–20-flowered.
- 9a. Bracteoles at least 1.2 cm; raceme dense 2. *D. leiophyllum*
- 9b. Bracteoles less than 1.2 cm; raceme lax 4. *D. wrightii*
- 4b. Staminode limb distinct from claw in width (limb at least 2 × as wide as claw) and orientation (limb at least 45° from claw), usually adaxially barbate (2. *D. sect. Elatopsis*).
- 10a. Inflorescence less than 3 × as long as wide, usually 1- or few flowered (to 40-flowered in *D. densiflorum*).
- 11a. Carpels 4 or 5.
- 12a. Leaf base abruptly narrowed and cuneate 14. *D. brunonianum*
- 12b. Leaf base not narrowed.
- 13a. Leaf lobes separate for less than 90% of blade radius.
- 14a. Spur subulate, ca. 2.5 mm in diam. at base 34. *D. lingbaoense*
- 14b. Spur conic, (3–)4–7 mm in diam. at base.
- 15a. Stem 6–10 cm; spur less than 9 mm 13. *D. lacostei*
- 15b. Stem 40–50 cm; spur more than 9 mm 15. *D. yechengense*
- 13b. Leaf lobes separate for at least 90% of blade radius.
- 16a. Flower solitary; carpels 4 20. *D. chumulangmaense*
- 16b. Flowers 2–6; carpels 5 (rarely 4).
- 17a. Spur conic or narrowly so, less than 2 cm, base 4–5 mm in diam.
- 18a. Filaments glabrous 17. *D. glaciale*
- 18b. Filaments pilose 18. *D. pseudoglaciale*
- 17b. Spur subulate or cylindrical-subulate, more than 2 cm, base ca. 3 mm in diam.
- 19a. Inflorescence with yellow, glandular hairs; petal apex emarginate; staminode limb suboblong, 2-cleft; filaments glabrous 32. *D. pylzowii*
- 19b. Inflorescence without glandular hairs; petal apex entire; staminode limb suborbicular, emarginate; filaments sparsely pilose 33. *D. motingshanicum*

- 11b. Carpels 3.
- 20a. Leaf lobes separate for less than 90% of blade radius.
- 21a. Carpels hairy only on ventral suture, glabrous elsewhere 24. *D. wardii*
- 21b. Carpels evenly hairy throughout exposed surfaces.
- 22a. Spur conic or conic-tubular, base 5–12 mm in diam.
- 23a. Bracteoles blue-purple, navicular-lanceolate 41. *D. purpurascens*
- 23b. Bracteoles not blue-purple, flat.
- 24a. Bracteoles more than 0.5 mm from flowers; spur base 7–12 mm in diam. 16. *D. chrysotrichum*
- 24b. Bracteoles ca. 0.5 mm from flowers; spur base ca. 5 mm in diam. 19. *D. viscosum*
- 22b. Spur cylindrical or subulate, base 2–4(–4.5) mm in diam.
- 25a. Bracteoles ca. 1 mm from flowers.
- 26a. Bracteoles elliptic 39. *D. albocoeruleum*
- 26b. Bracteoles linear or narrowly so.
- 27a. Staminodes yellow barbate 27. *D. chenii*
- 27b. Staminodes white barbate.
- 28a. Spur less than 1 cm 12. *D. pulanense*
- 28b. Spur more than 1 cm 61. *D. wentsaii*
- 25b. Bracteoles more than 1 mm from flowers.
- 29a. Staminode limb emarginate at apex 28. *D. yangii*
- 29b. Staminode limb 2-lobed to middle.
- 30a. Sepal margin white 27. *D. chenii*
- 30b. Sepal margin not white.
- 31a. Lateral and lower sepals obovate or broadly so 30. *D. pseudopulcherrimum*
- 31b. Lateral and lower sepals elliptic or ovate.
- 32a. Stem less than 50 cm 25. *D. smithianum*
- 32b. Stem ca. 50 cm 40. *D. siwanense*
- 20b. Leaf lobes separate for at least 90% of blade radius.
- 33a. Bracteoles ca. 1 mm from flower.
- 34a. Bracteoles linear, 1–1.7 mm wide 29. *D. batangense*
- 34b. Bracteoles narrowly elliptic, 3–3.5 mm wide 38. *D. henryi*
- 33b. Bracteoles more than 1 mm from flower.
- 35a. Bracteoles leaflike, 3-cleft.
- 36a. Spur longer than lateral sepals.
- 37a. Sepals 2–3 cm, spur subulate 35. *D. candelabrum*
- 37b. Sepals 1.4–1.5 cm, spur cylindrical 37. *D. calophyllum*
- 36b. Spur shorter than or equaling lateral sepals.
- 38a. Inflorescence 1-flowered; staminodes undivided 23. *D. chungbaense*
- 38b. Inflorescence 2- or 3-flowered; staminodes 2-lobed.
- 39a. Sepals 1.9–2 cm, spur subcylindric, shorter than sepals, ca. 1.2 cm; filaments pilose 36. *D. pseudocandelabrum*
- 39b. Sepals 1.2–1.5 cm, spur subulate, subequaling sepals, 1.2–1.4 cm; filaments glabrous 22. *D. qinghaiense*
- 35b. Bracteoles undivided, linear or lanceolate.
- 40a. Inflorescence 1-flowered; spur shorter than lateral sepals.
- 41a. Spur cylindrical, 1–1.3 cm 21. *D. tangkulaense*
- 41b. Spur cylindrical-subulate or subulate, 1.7–2.6 cm 35. *D. candelabrum*
- 40b. Inflorescence 2–7-flowered; spur longer than lateral sepals.
- 42a. Lower sepals obovate, apex rounded 30. *D. pseudopulcherrimum*
- 42b. Lower sepals ovate, elliptic-ovate, or narrowly elliptic, apex narrowed.
- 43a. Central leaf segment 2- or 3-subpinnately dissected, ultimate lobules narrowly ovate to linear 32. *D. pylzowii*
- 43b. Central leaf segment 3-parted, ultimate lobules ovate or narrowly so.
- 44a. Lateral sepals equaling or longer than spur; seeds not densely squamulose winged 22. *D. qinghaiense*
- 44b. Lateral sepals shorter than spur or, if equaling spur (*D. siwanense*), seeds densely squamulose winged.
- 45a. Sepals 2–2.2 cm, spur 3.5–3.8 cm 26. *D. malacophyllum*
- 45b. Sepals 1.1–1.8 cm, spur 1.6–2.4 cm.

- 46a. Stem 28–30 cm; sepal margin white; spur 2–2.4 cm 31. *D. yajiangense*
- 46b. Stem 38–120 cm; sepal margin not white; spur 1.6–1.8 cm 40. *D. siwanense*
- 10b. Inflorescence at least 3 × as long as wide, usually more than 6-flowered.
- 47a. Spur ca. 10 mm, much shorter than lateral sepals.
- 48a. Carpels pubescent.
- 49a. Basal leaves absent at anthesis 8. *D. nordhagenii*
- 49b. Basal leaves present at anthesis.
- 50a. Raceme 20–40-flowered 7. *D. densiflorum*
- 50b. Raceme less than 20-flowered 12. *D. pulanense*
- 48b. Carpels glabrous.
- 51a. Stem 30–38 cm; bracteoles sessile, linear-lanceolate 9. *D. tetragynum*
- 51b. Stem 20–23 cm; bracteoles shortly stalked, obovate, elliptic, or linear 10. *D. taxkorganense*
- 47b. Spur at least 9 mm, equaling or longer than lateral sepals, rarely slightly shorter than them
(*D. subspathulatum*, *D. vestitum*, and *D. wuqiaense*).
- 52a. Leaves all basal, or 1 or 2 proximal cauline leaves present.
- 53a. Leaf blade cleft to base, ultimate lobules linear to narrowly lanceolate 67. *D. erlangshanicum*
- 53b. Leaf blade cleft less than 80% to base, ultimate lobules not linear.
- 54a. Hairs of bracteole margin 1.5–2.2 mm 46. *D. iliense*
- 54b. Hairs of bracteole margin ca. 0.8 mm.
- 55a. Rachis with yellow, glandular hairs 57. *D. kaschgaricum*
- 55b. Rachis without yellow, glandular hairs.
- 56a. Lateral sepals at least 1.2 cm 58. *D. zhangii*
- 56b. Lateral sepals less than 1.2 cm 44. *D. kansuense*
- 52b. Leaves both basal and cauline, cauline leaves evenly distributed.
- 57a. Leaf blade lobed less than 50% to base.
- 58a. Stem without glandular hairs; spur cylindrical-conic, slightly shorter than lateral sepals,
1.1–1.3 cm, base 5–6 mm in diam. 11. *D. vestitum*
- 58b. Stem with yellow, glandular hairs; spur subulate, slightly longer than lateral sepals,
1.9–2.6 cm, base 3–4 mm in diam. 43. *D. nangziense*
- 57b. Leaf blade lobed more than 50% to base.
- 59a. Bracteoles borne proximally on pedicel 51. *D. maackianum*
- 59b. Bracteoles borne near middle of pedicel or distally.
- 60a. Bracteoles navicular-ovate 48. *D. naviculare*
- 60b. Bracteoles flat, not navicular.
- 61a. Pedicels glabrous.
- 62a. Sepals abaxially densely puberulent 62. *D. mollifolium*
- 62b. Sepals abaxially glabrous.
- 63a. Bracteoles contiguous to flowers 65. *D. korshinskyanum*
- 63b. Bracteoles remote from flowers.
- 64a. Bracteoles narrowly lanceolate or linear-oblong, margin long ciliate 46. *D. iliense*
- 64b. Bracteoles narrowly linear, margin not ciliate 59. *D. sinoelatum*
- 61b. Pedicels hairy.
- 65a. Bracteoles 2–3 mm wide.
- 66a. Stem with dense, yellow, glandular hairs 45. *D. hillcoatiae*
- 66b. Stem without yellow, glandular hairs.
- 67a. Bracteoles remote from flowers.
- 68a. Stem simple; pedicels to 8 cm; spur slightly shorter than sepals 42. *D. subspathulatum*
- 68b. Stem branched; pedicels to 2.7 cm; spur slightly longer than sepals 49. *D. ellipticovatum*
- 67b. Bracteoles contiguous to flowers.
- 69a. Raceme rachis without glandular hairs; bracteoles lanceolate-oblong or
lanceolate, 8–10 mm 50. *D. winklerianum*
- 69b. Raceme rachis with yellow, glandular hairs; bracteoles linear, 10–14 mm 64. *D. tabatae*
- 65b. Bracteoles ca. 1 mm wide.
- 70a. Sepals abaxially without yellow, glandular hairs.
- 71a. Carpels glabrous 63. *D. eglandulosum*
- 71b. Carpels pubescent.
- 72a. Pedicels and sepals abaxially strigose; carpels densely strigose ... 54. *D. tianshanicum*
- 72b. Pedicels and sepals abaxially puberulent; carpels puberulent.

- 73a. Petals sparsely ciliate, apex 2-lobed 47. *D. aktoense*
 73b. Petals glabrous, apex emarginate 66. *D. trisectum*
 70b. Sepals abaxially with yellow, glandular hairs.
 74a. Central primary leaf lobes and secondary lobes of lateral primary lobes long
 acuminate or caudate at apex 60. *D. shawurense*
 74b. Central primary leaf lobes and secondary lobes of lateral primary lobes acute
 or acuminate at apex.
 75a. Bracteoles contiguous to flowers.
 76a. Petals 2-lobed; carpels densely puberulent 52. *D. tarbagataicum*
 76b. Petals entire; carpels glabrous 53. *D. elatum*
 75b. Bracteoles remote from flowers.
 77a. Spur shorter than or equaling lateral sepals 55. *D. wuqiaense*
 77b. Spur longer than lateral sepals 56. *D. kunlunshanicum*
 3b. Petals and staminodes not black to brown, similar in color to sepals (blue, purple, or white) (3. *D.*
 sect. *Delphinastrum*).
 78a. Cauline leaf petiole sheath 8–15 mm wide 139. *D. coleopodium*
 78b. Cauline leaf petiole sheath less than 8 mm wide, or cauline leaves absent.
 79a. Carpels at least 4.
 80a. Staminode limb cleft for at least 30% of its length.
 81a. Inflorescence less than 3 × as long as wide 162. *D. caeruleum*
 81b. Inflorescence at least 3 × as long as wide.
 82a. Stem at least 40 cm 154. *D. pseudomosoyense*
 82b. Stem less than 40 cm.
 83a. Spur less than 1 cm 8. *D. nordhagenii*
 83b. Spur at least 1 cm 69. *D. humilium*
 80b. Staminode limb cleft for less than 30% of its length.
 84a. Inflorescence more than 3 × as long as wide.
 85a. Staminode limb white barbate 68. *D. kingianum*
 85b. Staminode limb yellow barbate 153. *D. sinopentagynum*
 84b. Inflorescence less than 3 × as long as wide.
 86a. Staminode limb narrowly obovate; spur at least 2.4 cm, base at least 3 mm in diam. 161. *D. beesianum*
 86b. Staminode limb broadly obovate or suborbicular; spur to 2.6 cm, base to 4 mm in diam.
 87a. Staminodes white barbate 163. *D. huangzhongense*
 87b. Staminodes yellow barbate 162. *D. caeruleum*
 79b. Carpels 3.
 88a. Sepals abaxially corniculate near apex.
 89a. Corniculate projection 2.5–3.5 mm, 2-cleft 105. *D. campylocentrum*
 89b. Corniculate projection less than 2.5 mm, not 2-cleft.
 90a. Spur ca. 1.3 cm 111. *D. sparsiflorum*
 90b. Spur more than 1.3 cm.
 91a. Sepals yellow pubescent abaxially 132. *D. leiostachyum*
 91b. Sepals white pubescent abaxially.
 92a. Inflorescence pubescent 106. *D. sutchuenense*
 92b. Inflorescence glabrous.
 93a. Petals apically 2-lobate 117. *D. taliense*
 93b. Petals apically entire or emarginate.
 94a. Spur ca. 2.4 cm.
 95a. Filaments pilose 120. *D. ceratophoroides*
 95b. Filaments glabrous 131. *D. dolichocentroides*
 94b. Spur less than 2.4 cm.
 96a. Basal leaves present at anthesis 128. *D. ceratophorum*
 96b. Basal leaves absent at anthesis 136. *D. yunnanense*
 88b. Sepals abaxially not or very shortly (less than 0.5 mm) corniculate near apex.
 97a. Spur U-shaped or spirally recurved (more than 180°).
 98a. Pedicels glabrous.
 99a. Inflorescence less than 3 × as long as wide; leaf blade lobed ca. 50% to base 96. *D. maoxianense*
 99b. Inflorescence at least 3 × as long as wide; leaf blade lobed more than 50% to base.
 100a. Leaf blade lobed less than 90% to base 92. *D. potaninii*

- 100b. Leaf blade lobed at least 90% to base 113. *D. glabricaule*
- 98b. Pedicels hairy.
- 101a. Leaf blade lobed ca. 50% to base 95. *D. sinovitifolium*
- 101b. Leaf blade lobed more than 50% to base.
- 102a. Leaf lobes long acuminate or caudate at apex 103. *D. pseudotongolense*
- 102b. Leaf lobes shortly acuminate at apex.
- 103a. Stem proximally glabrous.
- 104a. Raceme with only yellow, glandular hairs; petals undivided 100. *D. wenchuanense*
- 104b. Raceme with both appressed, white hairs and yellow, glandular hairs; petals
2-lobed 101. *D. bulleyanum*
- 103b. Stem proximally hairy.
- 105a. Stem sparsely pubescent proximally 99. *D. angustirhombicum*
- 105b. Stem hispid proximally.
- 106a. Leaf blade strongly divided, with many lobules; lateral sepals 1.5–1.8 cm;
carpels hairy 97. *D. spirocentrum*
- 106b. Leaf blade less divided, with few lobules; lateral sepals ca. 1.1 cm; carpels
glabrous 98. *D. gonggaense*
- 97b. Spur straight, upcurved, or recurved to 180°, neither U-shaped nor spirally curved.
- 107a. Leaf blade lobed up to 90% to base.
- 108a. Sepals hairy on both surfaces.
- 109a. Stem, raceme rachis, and pedicels densely appressed puberulent; bracteoles 10–18
mm; spur subcylindric 70. *D. pachycentrum*
- 109b. Stem and raceme rachis glabrous, pedicels glabrous proximally, puberulent distally;
bracteoles ca. 5 mm; spur subulate 75. *D. yuchuanii*
- 108b. Sepals adaxially glabrous.
- 110a. Spur shorter than or equaling lateral sepals.
- 111a. Inflorescence less than 3 × as long as wide 92. *D. potaninii*
- 111b. Inflorescence ca. 3 × as long as wide.
- 112a. Spur ca. 9 mm, upcurved 77. *D. orthocentrum*
- 112b. Spur more than 10 mm, usually horizontal or recurved.
- 113a. Leaf primary lobes cleft ca. 50% of blade radius 116. *D. aemulans*
- 113b. Leaf primary lobes cleft less than 50% of blade radius.
- 114a. Bracteoles less than 0.8 mm wide 88. *D. longipedicellatum*
- 114b. Bracteoles 1.2–2 mm wide.
- 115a. Bracteoles more than 0.5 mm from flowers 72. *D. gyalanum*
- 115b. Bracteoles ca. 0.5 mm from flowers 76. *D. micropetalum*
- 110b. Spur longer than lateral sepals, rarely subequaling them.
- 116a. Bracteoles ca. 1 mm from flowers.
- 117a. Basal leaves 4–8, present at anthesis; cauline leaves 1–3, borne proximally on
stem.
- 118a. Stem ca. 40 cm, spreading hispid throughout; raceme ca. 20 cm; spur
1.7–2 cm 127. *D. yongningense*
- 118b. Stem less than 40 cm, sparsely strigose near base, glabrous elsewhere; raceme
less than 20 cm; spur 2.4–2.6 cm 133. *D. brevisepalum*
- 117b. Basal leaves usually wilted at anthesis; cauline leaves at least 3, evenly arranged
along stem.
- 119a. Bracteoles narrowly lanceolate 79. *D. delavayi*
- 119b. Bracteoles linear.
- 120a. Spur more than 1.8 cm; pedicels more than 1 cm 80. *D. umbrosum*
- 120b. Spur ca. 1.8 cm; pedicels ca. 1 cm 89. *D. pseudocyananthum*
- 116b. Bracteoles more than 1 mm from flowers.
- 121a. Leaf cleft less than 60% of blade radius.
- 122a. Raceme glabrous 121. *D. hamatum*
- 122b. Raceme puberulent.
- 123a. Inflorescence yellow glandular puberulent; ovaries pubescent 122. *D. hueizeense*
- 123b. Inflorescence white puberulent; ovaries glabrous 123. *D. calthifolium*
- 121b. Leaf cleft ca. 60% of blade radius.
- 124a. Leaf blade lobed more than 85% of blade radius.

- 125a. Pedicels glabrous.
 - 126a. Staminode limb 2-cleft to middle.
 - 127a. Middle cauline leaves with central lobe broadly rhombic, 3-cleft; pedicels ascending-spreading, forming an obtuse angle with rachis 134. *D. tenii*
 - 127b. Middle cauline leaves with central lobe lanceolate, often undivided, or with 1 or 2 lobules; pedicels erect-spreading, forming an acute angle with rachis.
 - 128a. Raceme laxly 3–10-flowered; spur 1.7–2.4 cm; petals glabrous, emarginate at apex 136. *D. yunnanense*
 - 128b. Raceme densely 18–30-flowered; spur 1.3–1.5 cm; petals ciliate at margin, 2-lobed at apex 137. *D. pseudoyunnanense*
 - 126b. Staminode limb entire or emarginate at apex.
 - 129a. Stem at least 80 cm, ca. 10-leaved 74. *D. cheilanthum*
 - 129b. Stem less than 80 cm, up to 6-leaved.
 - 130a. Sepals ca. 1.8 cm, spur 2.6–3 cm; staminode limb entire at apex 119. *D. liangshanense*
 - 130b. Sepals 1–1.4 cm, spur 1.8–2.5 cm; staminode limb emarginate at apex 134. *D. tenii*
- 125b. Pedicels hairy.
 - 131a. Raceme rachis glabrous.
 - 132a. Stem ca. 70 cm; raceme to 22 cm, ca. 8-flowered 156. *D. obcordatilimbum*
 - 132b. Stem 11–30 cm; raceme 3–16 cm, 1–5-flowered.
 - 133a. Stem ca. 30 cm; raceme 3–5-flowered; sepals 0.75–0.9 cm, spur ca. 1.9 cm; staminode limb 2-parted for more than 50% of its length 85. *D. yanwaense*
 - 133b. Stem 11–18 cm; raceme 1- or 2-flowered; sepals 1.6–1.7 cm, spur ca. 2.8 cm; staminode limb entire 124. *D. pseudohamatum*
 - 131b. Raceme rachis hairy.
 - 134a. Pedicels without glandular hairs.
 - 135a. Stem 75–95 cm; basal and lower cauline leaves wilted at anthesis.
 - 136a. Staminode limb emarginate 73. *D. hsinganense*
 - 136b. Staminode limb 2-lobed.
 - 137a. Bracteoles narrowly lanceolate 79. *D. delavayi*
 - 137b. Bracteoles subulate 136. *D. yunnanense*
 - 135b. Stem 3–17 cm; basal leaves present at anthesis.
 - 138a. Stem 15–17 cm; leaf blade central lobe 3-parted; raceme 2–5-flowered 129. *D. yulungshanicum*
 - 138b. Stem 3–8 cm; leaf blade central lobe 3-dentate or 3-lobed; raceme 1- or 2-flowered 130. *D. hui*
 - 134b. Pedicels with yellow, glandular hairs.
 - 139a. Leaf blade central lobe lanceolate, undivided or indistinctly 3-lobed 87. *D. hirtifolium*
 - 139b. Leaf blade central lobe rhombic or obovate-rhombic, usually distinctly 3-lobed.
 - 140a. Leaf blade primary lobes dissected, ultimate lobules narrowly ovate to linear-lanceolate; carpels glabrous 140. *D. kantzeense*
 - 140b. Leaf blade primary lobes less divided, ultimate lobules triangular; carpels puberulent.
 - 141a. Stem 11–30 cm; raceme 3- or 4-flowered 126. *D. pergameneum*
 - 141b. Stem more than 40 cm; raceme 5–15-flowered.
 - 142a. Stem long hispid proximally 79. *D. delavayi*
 - 142b. Stem puberulent proximally 144. *D. incislobulatum*
 - 124b. Leaf blade lobed ca. 85% of blade radius.
 - 143a. Stem glabrous below inflorescence.
 - 144a. Pedicels glabrous 92. *D. potaninii*
 - 144b. Pedicels hairy.
 - 145a. Pedicels with only yellow, glandular hairs.
 - 146a. Inflorescence less than 3 × as long as wide 93. *D. eriostylum*
 - 146b. Inflorescence ca. 3 × as long as wide 118. *D. lasiantherum*
 - 145b. Pedicels with only white hairs or with both white hairs and yellow, glandular hairs.
 - 147a. Pedicels with only appressed, white hairs 78. *D. altissimum*

- 164b. Leaves both basal and cauline, sometimes basal and lower cauline leaves wilted at anthesis (in some alpine plants, lower internodes are very short and leaves may falsely appear to be all basal).
- 170a. Leaf blade primary lobes lobed for ca. 50% of their length, ultimate lobules ovate or narrowly so.
- 171a. Inflorescence less than 3 × as long as wide, or 1-flowered.
- 172a. Leaf blade 1.3–2.6 cm wide.
- 173a. Stem subglabrous; bracteoles leaflike, palmately 3-sect 35. *D. candelabrum*
- 173b. Stem hispid; bracteoles linear, undivided 145. *D. pseudothibeticum*
- 172b. Leaf blade 2.8–7 cm wide.
- 174a. Pedicels 3.5–10 cm 164. *D. davidii*
- 174b. Pedicels 1–2 cm.
- 175a. Spur ca. 2 cm; filaments glabrous 38. *D. henryi*
- 175b. Spur ca. 1.5 cm; filaments sparsely hairy 109. *D. conaense*
- 171b. Inflorescence or branches ca. 3 × as long as wide.
- 176a. Staminode limb entire or emarginate at apex.
- 177a. Bracteoles ca. 1 mm from flowers, narrowly lanceolate; raceme with yellow, glandular hairs 143. *D. thibeticum*
- 177b. Bracteoles more than 1 mm from flowers, narrowly linear or subulate; raceme without glandular hairs.
- 178a. Raceme rachis and pedicels densely retrorsely puberulent 155. *D. majus*
- 178b. Raceme rachis glabrous, pedicels puberulent only at apex 156. *D. obcordatilimbum*
- 176b. Staminode limb 2-lobed to 2-parted.
- 179a. Bracteoles ca. 1 mm from flowers.
- 180a. Staminode limb with white hairs; leaf blade central segment undivided or indistinctly 3-lobed 114. *D. trifoliolatum*
- 180b. Staminode limb with yellow or yellowish hairs; leaf blade central segment distinctly 3-lobed or 3-cleft.
- 181a. Stem ca. 10-leaved; basal leaves wilted at anthesis; carpels glabrous . 115. *D. wangii*
- 181b. Stem 1–3-leaved; basal leaves green at anthesis; carpels hairy.
- 182a. Stem spreading hispid 127. *D. yongningense*
- 182b. Stem retrorsely pubescent or puberulent.
- 183a. Leaf blade 4.5–6 cm; raceme 7–10-flowered; filaments with a few hairs 142. *D. medogense*
- 183b. Leaf blade 2.5–4 cm; raceme 2–4-flowered; filaments glabrous 146. *D. taipaicum*
- 179b. Bracteoles more than 1 mm from flowers.
- 184a. Pedicels glabrous.
- 185a. Stem hispid 108. *D. rangtangense*
- 185b. Stem glabrous.
- 186a. Spur 1.8–2 cm, longer than sepals 110. *D. giraldii*
- 186b. Spur 0.6–1.1 cm, subequaling sepals 111. *D. sparsiflorum*
- 184b. Pedicels hairy.
- 187a. Pedicels with only yellow, glandular hairs 107. *D. pseudocampylocentrum*
- 187b. Pedicels with white hairs (yellow, glandular hairs present or not).
- 188a. Inflorescence glabrous; sepals 0.7–0.8 cm 112. *D. angustipaniculatum*
- 188b. Inflorescence hairy; sepals (0.9–)1.1–1.8 cm.
- 189a. Spur subulate-cylindric, 0.9–1 cm 71. *D. caudatolobum*
- 189b. Spur subulate, 1.3–2.2 cm 104. *D. muliense*
- 170b. Leaf blade primary lobes lobed for more than 50% of their length, ultimate lobules lanceolate, narrowly so, or linear.
- 190a. Inflorescence less than 3 × as long as wide, or 1-flowered.
- 191a. Bracteoles elliptic or elliptic-ovate; calyx urceolate; sepals longer than spur 152. *D. likiangense*
- 191b. Bracteoles linear or subulate; calyx open; sepals shorter than spur.
- 192a. Bracteoles ca. 1 mm from flowers 147. *D. pomeense*
- 192b. Bracteoles more than 1 mm from flowers.
- 193a. Staminode limb 2-cleft to middle.
- 194a. Stem long branched proximally 171. *D. maximowiczii*
- 194b. Stem simple or shortly branched distally.
- 195a. Ultimate leaf lobules narrowly ovate; spur 1.8–3 cm 35. *D. candelabrum*

- 195b. Ultimate leaf lobules narrowly linear; spur ca. 2.5 cm.
- 196a. Stem simple; inflorescence 1-flowered; lateral sepals subequalling spur 150. *D. nortonii*
- 196b. Stem branched distally; inflorescence 2–5-flowered; lateral sepals shorter than spur.
- 197a. Lateral sepals at least 1.7 cm; bracteoles borne proximally on pedicel, or absent 164. *D. davidii*
- 197b. Lateral sepals less than 1.7 cm; bracteoles borne near middle of pedicel or distally 170. *D. pseudocaeruleum*
- 193b. Staminode limb emarginate or 2-lobulate at apex.
- 198a. Pedicels with spreading, white hairs (yellow, glandular hairs present or not).
- 199a. Pedicels white puberulent only 169. *D. mollipilum*
- 199b. Pedicels white puberulent and yellow glandular puberulent.
- 200a. Spur 2.5–3.1 cm; lateral sepals 2.4–3.6 cm; staminode limb ca. 13 × 10 mm 167. *D. grandilimbum*
- 200b. Spur 3.3–3.8 cm; lateral sepals 1.4–1.6 cm; staminode limb ca. 6 × 5 mm 168. *D. pumilum*
- 198b. Pedicels with retrorse or appressed, white hairs, or glabrous (yellow, glandular hairs present or not).
- 201a. Stem proximally branched.
- 202a. Stem base retrorsely puberulent 171. *D. maximowiczii*
- 202b. Stem base glabrous 134. *D. tenii*
- 201b. Stem simple or branched distally.
- 203a. Sepals slightly shorter than spur; pedicels bracteolate above middle 159. *D. grandiflorum*
- 203b. Sepals distinctly shorter than spur; pedicels bracteolate near middle 166. *D. tatsienense*
- 190b. Inflorescence ca. 3 × as long as wide.
- 204a. Lateral sepals longer than spur.
- 205a. Bracteoles ca. 1 mm from flowers, elliptic or elliptic-ovate; calyx urceolate; sepals 2–2.5 cm 152. *D. likiangense*
- 205b. Bracteoles more than 1 mm from flowers, subulate; calyx open; sepals 1.1–1.8 cm.
- 206a. Raceme puberulent; staminode limb broadly obovate 160. *D. kamaonense*
- 206b. Raceme glabrous; staminode limb obovate-oblong.
- 207a. Spur 1.3–1.5 cm; raceme 18–30-flowered 137. *D. pseudoyunnanense*
- 207b. Spur 1.8–2 cm; raceme 5–9-flowered 141. *D. pycnocentrum*
- 204b. Lateral sepals shorter than or equaling spur.
- 208a. Spur subequalling lateral sepals, 1–1.4 cm, abruptly upcurved 138. *D. yuanum*
- 208b. Spur usually longer than lateral sepals, (1.2–)1.5–3 cm, horizontal or recurved, rarely slightly upcurved.
- 209a. Staminode limb glabrous; sepals ± forward pointing 151. *D. souliei*
- 209b. Staminode limb barbate; sepals ± spreading.
- 210a. Bracteoles ca. 1 mm from flower.
- 211a. Raceme dense, pedicels densely yellow glandular puberulent 116. *D. aemulans*
- 211b. Raceme ± sparse, pedicels only white puberulent, rarely mixed with a few yellow, glandular hairs.
- 212a. Cauline leaf blade ultimate lobules pungent at apex 143. *D. thibeticum*
- 212b. Cauline leaf blade ultimate lobules acute or slightly obtuse at apex.
- 213a. Raceme at least 5-flowered; bracteoles lanceolate, 1–1.6 mm wide; spur 1.9–2.7 cm 143. *D. thibeticum*
- 213b. Raceme 2–4-flowered; bracteoles oblong-ovate, 3–3.5 mm wide; spur 1.4–2 cm 146. *D. taipaicum*
- 210b. Bracteoles more than 1 mm from flowers.
- 214a. Raceme glabrous.
- 215a. Carpels glabrous 135. *D. shuichengense*
- 215b. Carpels hairy.
- 216a. Stem glabrous 156. *D. obcordatilimbum*
- 216b. Stem hairy proximally, glabrous distally.
- 217a. Pedicels yellow pubescent near apex 125. *D. autumnale*

- 217b. Pedicels glabrous 132. *D. leiostachyum*
- 214b. Raceme ± hairy.
- 218a. Raceme sparsely puberulent.
- 219a. Staminode limb suborbicular, apex entire 125. *D. autumnale*
- 219b. Staminode limb obovate, apex usually emarginate or 2-lobed, rarely entire.
- 220a. Raceme dense; ovary sparsely pubescent 141. *D. pycnocentrum*
- 220b. Raceme lax; ovary densely pubescent.
- 221a. Stem more than 50 cm 136. *D. yunnanense*
- 221b. Stem to 50 cm 160. *D. kamaonense*
- 218b. Raceme densely puberulent.
- 222a. Staminode limb broadly obovate or suborbicular 159. *D. grandiflorum*
- 222b. Staminode limb narrowly obovate or oblong.
- 223a. Bracteoles narrowly oblong, 11–18 × 3–4 mm 157. *D. weiningense*
- 223b. Bracteoles linear or subulate, 2.5–7 × 0.2–1 mm.
- 224a. Sepals abaxially only puberulent, spur 1.6–2.2 cm; petals glabrous; staminode limb emarginate at apex 155. *D. majus*
- 224b. Sepals abaxially puberulent and villous, spur 2.4–2.8 cm; petals ciliate at apex; staminode limb erose at apex 158. *D. nangchienense*

1. Delphinium sect. **Aconitoides** W. T. Wang, Acta Phytotax. Sin. 10: 7. 1962.

短距翠雀花组 duan ju cui que hua zu

Herbs perennial, rhizomatous. Stem single from rootstock. Leaves mostly proximal on stem; leaf blade palmately divided; primary lobes 2- or 3-lobulate. Petals black-brown, not distally enlarged. Staminodes black-brown, indistinctly differentiated into a claw and a narrow limb; limb adaxially glabrous or ciliate. Carpels 3. Seeds narrowly winged along angles.

• Six species: SW China.

1. Delphinium forrestii Diels, Notes Roy. Bot. Gard. Edinburgh 5: 265. 1912.

短距翠雀花 duan ju cui que hua

Stem robust, 18–35 cm tall, hispid or puberulent, usually simple. Leaf blade 4.7–9 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe obovate-cuneate or obovate-rhombic, 3-lobed, distally irregularly dentate, apex acute; ultimate lobules ovate; proximal leaves withered. Raceme cylindrical-globose, (5–)10–15 cm, densely 9–19-flowered, retrorsely or spreading hispid; proximal bracts leaflike, distal ones elliptic or oblanceolate. Pedicels 1.5–2(–5) cm; bracteoles distal, lanceolate, 9–15 mm, strigose. Sepals bluish gray or green, abaxially strigose and yellow glandular puberulent; spur pendulous, conic-subulate, 1.3–1.6 cm, usually slightly shorter than upper sepal, base 3–5 mm in diam.; other sepals smaller, 1.1–1.5 cm. Petals emarginate at apex, glabrous. Staminode limb 3–4 mm, emarginate or 2-lobed, glabrous, rarely sparsely white ciliate. Filaments glabrous. Ovaries sparsely puberulent or subglabrous. Fl. Aug–Oct.

• Forest margins, stony places near *Rhododendron* thicket margins, grassy slopes, gravelly slopes, alpine slopes, screes, cliffs; 3100–4900 m. SW Sichuan, SE Xizang, N Yunnan.

1a. Stem densely retrorsely hispid; sepals bluish gray or tinged greenish, abaxial hairs 1.2–2 mm 1a. var. *forrestii*

1b. Stem distally glabrous, proximally sparsely puberulent, often glabrescent; sepals green, abaxial hairs 0.1–0.2 mm 1b. var. *viride*

1a. Delphinium forrestii var. **forrestii**

短距翠雀花(原变种) duan ju cui que hua (yuan bian zhong)

Delphinium aconitoides Chen; *D. fengii* W. T. Wang; *D. mairei* Ulbrich.

Stem densely retrorsely hispid. Sepals bluish gray or tinged greenish, abaxial hairs 1.2–2 mm.

• Stony places near *Rhododendron* thicket margins, gravelly slopes, cliffs; 3800–4900 m. SW Sichuan, N Yunnan.

1b. Delphinium forrestii var. **viride** (W. T. Wang) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 352. 1979.

光茎短距翠雀花 guang jing duan ju cui que hua
Delphinium mairei Ulbrich var. *viride* W. T. Wang, Acta Bot. Sin. 10: 73. 1962, based on *D. viride* Chen, Bull. Fan Mem. Inst. Biol., n.s., 1: 165. 1948, not Watson (1888).

Stem distally glabrous, proximally sparsely puberulent, often glabrescent. Sepals green, abaxial hairs 0.1–0.2 mm.

• Forest margins, grassy slopes; 3100–4100 m. SE Xizang (Chawalong), NW Yunnan (Dêqên Xian).

2. Delphinium leiophyllum (W. T. Wang) W. T. Wang, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 8: 23. 1980.

光叶翠雀花 guang ye cui que hua

Delphinium forrestii Diels var. *leiophyllum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 611. 1979.

Stem 30–50 cm tall, proximally sparsely yellow glandular puberulent or glabrous, simple. Leaf blade 7–10 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe rhombic-obovate, 3-lobed, distally incised dentate, apex acute; ultimate lobules ovate; proximal leaves withered. Raceme 11–20 cm, densely 15–20-flowered, yellow glandular puberulent; proximal bracts leaflike, distal ones lanceolate. Pedicels 0.8–5 cm; bracteoles distal, linear-lanceolate, 12–15 mm. Sepals purplish blue, abaxially puberulent; spur cylindrical-subulate, 1–1.9 cm, base 3–4 mm in diam.; other sepals 1.1–1.7 cm. Petals 2-lobed, ciliate. Staminode limb narrowly ovate, 2-lobed, ciliolate. Filaments glabrous. Ovaries sparsely puberulent. Fl. Aug–Oct.

• Scrub, gravelly slopes; 4400–4700 m. SE Xizang.

3. *Delphinium xichangense* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 1. 1986.

西昌翠雀花 *xi chang cui que hua*

Stem ca. 5.5 cm tall, spreading pubescent and yellow glandular puberulent, simple. Leaf blade 2.5–4.5 cm wide, base deeply cordate; primary lobes separate for less than 60% of blade radius; central lobe flabellate-obtrapezoid or obtrapezoid, 3-lobulate, distally entire or 1-dentate, apex acute; ultimate lobules ovate; proximal leaves withered or not. Corymb ca. 2.2 cm, ca. 4-flowered, spreading puberulent and yellow glandular puberulent; proximal bracts leaflike, distal ones long elliptic. Pedicels 0.8–1.2 cm; bracteoles distal, lanceolate-linear, ca. 8 mm. Sepals purplish, abaxially pilose and yellow glandular puberulent; spur narrowly conic, ca. 1.1 cm, base ca. 5.5 mm in diam.; other sepals ca. 1.2 cm. Petals 2-lobulate, glabrous. Staminode limb oblanceolate-spatulate, 2-lobulate, glabrous. Filaments glabrous. Ovaries distally puberulent. Fl. Oct.

• Alpine meadows; ca. 3800 m. SW Sichuan (Xichang Shi).

4. *Delphinium wrightii* Chen, Bull. Fan Mem. Inst. Biol., n.s., 1: 166. 1948.

狭序翠雀花 *xia xu cui que hua*

Stem (30–)40–50(–70) cm tall, hispid and yellow glandular puberulent, simple. Leaf blade 6–10 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe obtrapezoid, 3-lobulate, distally few dentate, apex acute; ultimate lobules ovate; proximal leaves usually not withered. Raceme 10–24 cm, ± remotely 6–13-flowered, hispid and yellow glandular puberulent; proximal bracts leaflike, distal ones ovate-lanceolate or oblong. Pedicels 0.2–1.8 cm; bracteoles distal, narrowly ovate or broadly lanceolate, 8–11 mm. Sepals purple, abaxially hispid; spur subhorizontal, subulate or conic-tubular, 1.1–2 cm, recurved, base 2.5–6 mm in diam.; other sepals 1.4–1.6 cm. Petals emarginate and ciliate or glabrous at apex. Staminode limb ovate, 2-lobed, ciliate. Filaments glabrous. Ovaries densely puberulent. Fl. Aug–Oct.

• Scrub, grassy slopes; ca. 3400 m. SW Sichuan, NE Yunnan.

1a. Spur subulate, 1.6–2 cm, base 2.5–4 mm in diam.; petals distally ciliate 4a. var. *wrightii*

1b. Spur conic-tubular, 1.1–1.5 cm, base 4–6 mm in diam.; petals glabrous 4b. var. *subtubulosum*

4a. *Delphinium wrightii* var. *wrightii*

狭序翠雀花(原变种) *xia xu cui que hua* (yuan bian zhong)

Spur subulate, 1.6–2 cm, base 2.5–4 mm in diam. Petals distally ciliate. Fl. Aug–Sep.

• Grassy slopes; ca. 3400 m. SW Sichuan (Muli Zang Zu Zizhixian).

4b. *Delphinium wrightii* var. *subtubulosum* W. T. Wang, Bull. Bot. Res., Harbin 16: 155. 1996.

粗距狭序翠雀花 *cu ju xia xu cui que hua*

Spur conic-tubular, 1.1–1.5 cm, base 4–6 mm in diam.

Petals glabrous. Fl. Sep–Oct.

• NE Yunnan (Qiaojia Xian).

5. *Delphinium oxycentrum* W. T. Wang, Acta Bot. Sin. 10: 73. 1962.

尖距翠雀花 *jian ju cui que hua*

Stem 45–70 cm tall, glabrous, simple or 1-branched distally. Leaf blade 6–11 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe broadly rhombic, 3-lobulate, distally incised dentate, apex acute; ultimate lobules ovate; proximal leaves usually not withered. Raceme subglobose, 5.5–7.5 cm, densely 9–12-flowered, glabrous; proximal bracts leaflike, distal ones spatulate-oblong or narrowly oblong. Pedicels 2–4 cm; bracteoles distal, lanceolate to lanceolate-linear, 8–10 mm, glabrous or sparsely strigose. Sepals greenish and purple along veins, subglabrous or sparsely ciliate; spur pendulous, subulate, 2.6–4.2 cm; other sepals 1.4–1.8 cm. Petals 2-lobed, glabrous. Staminode limb ovate, 2-lobed, glabrous. Filaments glabrous. Ovaries glabrous. Fl. Aug–Sep.

• Grassy slopes near forests; ca. 4000 m. SW Sichuan (Daocheng Xian, Gongga Shan).

6. *Delphinium trichophorum* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 166. 1893.

毛翠雀花 *mao cui que hua*

Stem (25–)30–65 cm tall, hispid or subglabrous, usually simple. Leaf blade 4–20 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe obovate-rhombic, 3-lobulate, distally incised dentate, apex acute; ultimate lobules ovate; proximal leaves usually not withered. Raceme tapered cylindrical, (6–)14–24 cm, 11–50- or more flowered, hispid, white and yellow glandular puberulent, or subglabrous; proximal bracts leaflike, distal ones narrowly ovate or lanceolate, small. Pedicels 0.5–4 cm; bracteoles distal, colored like sepals, ovate or broadly lanceolate, 8–13 mm, strigose. Sepals bluish or purple, abaxially strigose; spur pendulous, cylindrical-subulate or conic-subulate, 1.7–2.4 cm, base 3–8 mm in diam.; other sepals 1–1.8

cm. Petals emarginate or 2-lobed, usually glabrous. Staminate limb ovate, 3–4 mm, 2-lobed, glabrous or white ciliate. Filaments glabrous. Ovaries glabrous or densely puberulent. Fl. Jul–Oct. $2n = 16^*$.

• Grassy slopes; 2100–4600 m. C and S Gansu, E Qinghai, W Sichuan, E Xizang.

1a. Spur conic-subulate, base 6–8 mm in diam. 6c. var. *platycentrum*

1b. Spur cylindrical-subulate, base 3–5 mm in diam.

2a. Stem and raceme ± densely hispid; ovary densely puberulent 6a. var. *trichophorum*

2b. Stem and raceme subglabrous or with sparse hairs; ovary glabrous 6b. var. *subglaberrimum*

6a. *Delphinium trichophorum* var. *trichophorum*

毛翠雀花(原变种) *mao cui que hua* (yuan bian zhong)

Delphinium pellucidum Busch; *D. purdomii* Craib.

Stem and raceme ± densely hispid. Spur cylindrical-subulate, base 3–5 mm in diam. Ovaries densely puberulent.

• Grassy slopes; 2100–4600 m. C and S Gansu, E Qinghai, W Sichuan, E Xizang.

6b. *Delphinium trichophorum* var. *subglaberrimum* Handel-Mazzetti, Acta Horti Gothob. 13: 48. 1939.

光果毛翠雀花 *guang guo mao cui que hua*

Stem and raceme subglabrous or with sparse hairs. Spur cylindrical-subulate, base 3–5 mm in diam. Ovaries glabrous.

• Grassy slopes; 4000–4400 m. W Sichuan.

6c. *Delphinium trichophorum* var. *platycentrum* W. T. Wang, Acta Bot. Sin. 10: 75. 1962.

粗距毛翠雀花 *cu ju mao cui que hua*

Stem, raceme rachis, and pedicels hispid. Spur conic-subulate, base 6–8 mm in diam. Ovaries densely puberulent.

• Grassy slopes; ca. 4000 m. SW Sichuan (Muli Zang Zu Zizhixian).

2. *Delphinium* sect. *Elatopsis* Huth, Bot. Jahrb. Syst. 20: 391. 1895.

密花翠雀花组 *mi hua cui que hua zu*

Herbs perennial, rhizomatous. Stem single (or multiple) from rootstock. Leaves mostly on proximal 1/2 of stem, near middle, or distal; leaf blade palmately divided; primary lobes 2- or 3-lobulate. Petals black-brown, distally not enlarged. Staminate lobes black-brown, distinctly differentiated into a claw and an expanded, broad limb; limb adaxially yellow or white barbate. Carpels 3–5(–7). Seeds narrowly winged along angles or transversely squamulose winged. About 85 species: temperate regions of Asia and Europe; 61 species (49 endemic) in China.

7. *Delphinium densiflorum* Duthie ex Huth, Bot. Jahrb. Syst. 20: 393. 1895.

密花翠雀花 *mi hua cui que hua*

Delphinium brunonianum Royle var. *densum* Maximowicz.

Stem 30–46 cm tall, sparsely pubescent or glabrescent, simple. Leaf blade 6–7 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe rhombic-ovate, 3-lobulate, distally dentate, apex acute; ultimate lobules ovate; proximal leaves usually not withered. Raceme 5–14 cm, densely 10–40-flowered, pubescent; bracts lanceolate. Pedicels 2–2.5 cm; bracteoles distal, linear-oblong, 1.4–1.5 cm. Sepals persistent, bluish gray, abaxially pubescent; spur conic, 8–10 mm, base 4–5 mm in diam.; other sepals 2–2.4 cm. Petals 2-lobed, ciliate distally. Staminate limb ovate, 2-cleft, long barbate. Filaments glabrous. Carpels 3; ovaries pubescent. Fl. Jul–Aug.

Scrub, river banks, alluvial fans; 3300–4500 m. C Gansu (Tianzhu Zang Zu Zizhixian), Qinghai, ?Xizang [N India, Nepal].

8. *Delphinium nordhagenii* Wendelbo, Nytt Mag. Bot. 3: 227. 1954.

叠裂翠雀花 *die lie cui que hua*

Stem ca. 28 cm tall, puberulent and yellowish glandular puberulent, simple. Leaf blade 8–10 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe flabellate-obovate, 3-lobulate,

distally few dentate, apex acute; ultimate lobules ovate; proximal leaves usually withered. Raceme 4–13 cm, 4–6-flowered, puberulent and yellowish glandular puberulent; bracts leaflike or lanceolate. Pedicels 2.8–6.8 cm; bracteoles distal, oblong-lanceolate, 1–1.8 cm. Sepals blue, abaxially puberulent; spur conic or saccate, 5–6 mm, base 6–7 mm in diam.; other sepals ca. 2 cm. Petals 2-lobed, glabrous, sometimes not black-brown. Staminate limb narrowly elliptic, 2-cleft, yellow barbate. Filaments pilose or glabrous. Carpels (3–)5(–10); ovaries puberulent. Fl. Jul.

Gravelly slopes; 4700–5500 m. SW Xinjiang, W Xizang [N Pakistan].

1a. Leaf blade teeth broadly triangular

or deltoid 8a. var. *nordhagenii*

1b. Leaf blade teeth triangular . 8b. var. *acutidentatum*

8a. *Delphinium nordhagenii* var. *nordhagenii*

叠裂翠雀花(原变种) *die lie cui que hua* (yuan bian zhong)

Leaf blade teeth broadly triangular or deltoid.

Gravelly slopes; 4900–5500 m. SW Xinjiang (Hotan Xian), W Xizang [N Pakistan].

8b. *Delphinium nordhagenii* var. *acutidentatum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 611. 1979.

尖齿翠雀花 *jian chi cui que hua*

Leaf blade teeth triangular.

• Gravelly slopes; ca. 4700 m. SW Xizang (Burang Xian).

9. *Delphinium tetragynum* W. T. Wang, Bull. Bot. Res., Harbin 3(1): 26. 1983.

四果翠雀花 *si guo cui que hua*

Stem 30–38 cm tall, sparsely pubescent, branched. Leaf blade 5–8 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe broadly rhombic, 3-lobulate, distally lobulate-dentate, apex acute; ultimate lobules ovate; proximal leaves usually not withered. Raceme ca. 6 cm, ca. 5-flowered, pubescent; proximal bracts leaflike, 3-parted, distal ones linear, undivided, ca. 1 cm. Pedicels 1–3.5 cm; bracteoles distal, lanceolate-linear, ca. 1 cm. Sepals blue, abaxially pubescent; spur conic, ca. 8 mm, base ca. 4 mm in diam.; other sepals ca. 1.8 cm. Petals 2-lobed, long ciliate. Staminode limb oblong, 2-cleft, densely yellow barbate, margin long ciliate. Filaments glabrous. Carpels 4, glabrous. Fl. Jul–Aug.

• Gravelly slopes; ca. 4500 m. SW Xinjiang (Taxkorgan Tajik Zizhixian).

10. *Delphinium taxkorganense* W. T. Wang, Acta Bot. Yunnan. 15: 349. 1993.

塔什库尔干翠雀花 *ta shi ku er gan cui que hua*
Stem 20–30 cm tall, branched. Leaf blade 3–5 cm wide, base deeply cordate; primary lobes separate for less than 60% of blade radius; central lobe cuneate-obovate, 3-lobulate, distally with 1 or 2 rounded teeth, apex rounded; ultimate lobules ovate; proximal leaves usually withered. Raceme ca. 9 cm, ca. 6-flowered, puberulent and sparsely glandular puberulent; bracts leaflike, proximal ones long petiolate. Pedicels 1.5–6.5 cm; bracteoles distal, narrowly obovate, elliptic, or linear, 1.1–1.8 cm. Sepals blue, abaxially puberulent; spur saccate-conic, 6–7 mm, base 4–5 mm in diam.; other sepals 1.4–1.6 cm. Petals 2-lobed, pubescent. Staminode limb ovate, 2-cleft, densely yellow barbate. Filaments glabrous. Carpels 4 or 5, glabrous. Fl. Aug.

• Rocks near glaciers; ca. 4700 m. SW Xinjiang (Taxkorgan Tajik Zizhixian).

11. *Delphinium vestitum* Wallich ex Royle, Ill. Bot. Himal. Mts. 1: 55. 1834.

浅裂翠雀花 *qian lie cui que hua*
Stem 26–35 cm tall, retrorsely hispidulous and hispid, simple or 1-branched. Leaf blade 4–9 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe broadly rhombic, 3-lobulate, distally lobulate and dentate, apex acute; ultimate lobules lanceolate-linear or linear; proximal leaves usually not withered. Raceme 8–15 cm, 4–9-flowered, hispidulous, sparsely yellow glandular puberulent; proximal bracts leaflike, distal ones lanceolate. Pedicels 1.9–2.9 cm; bracteoles distal, narrowly lanceolate, 6–8 mm. Sepals persistent, purplish blue, abaxially

hispidulous; spur tubular-conic, 1.1–1.3 cm, base 5–6 mm in diam.; other sepals ca. 1.5 cm. Petals 2-lobed, glabrous. Staminode limb narrowly ovate, 2-cleft, yellow barbate. Filaments glabrous or pilose. Carpels 3; ovaries densely puberulent. Fl. Aug–Sep.

Forest margins; ca. 3400 m. S Xizang (Nyalam Xian) [?Bhutan, NW India, Kashmir, Nepal].

12. *Delphinium pulanense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 611. 1979.

普兰翠雀花 *pu lan cui que hua*

Stem ca. 15 cm tall, puberulent and yellow glandular puberulent, simple. Leaf blade 4–9 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic-obovate, 3-cleft to middle, distally few dentate, apex acute; ultimate lobules lanceolate-linear or linear; proximal leaves usually not withered. Raceme ca. 6 cm, densely ca. 15-flowered, puberulent and yellow glandular puberulent; bracts leaflike. Pedicels to 2 cm; bracteoles distal, linear, 1.2–2 cm. Sepals deep blue, abaxially pubescent; spur cylindrical, 7–8 mm, base ca. 3 mm in diam.; other sepals 1.4–1.5 cm. Petals emarginate, glabrous. Staminode limb obovate, 2-lobed, white barbate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent. Fl. Jul–Aug.

• Gravelly slopes; ca. 5000 m. SW Xizang (Burang Xian).

13. *Delphinium lacostei* Danguy, J. Bot. (Morot), sér. 2, 1: 50. 1908.

帕米尔翠雀花 *pa mi er cui que hua*

Stem 6–10 cm tall, pubescent distally, simple. Leaf blade 2–4 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe broadly cuneate or broadly obovate, 3-lobulate, distally few dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually not withered. Corymb ca. 2 cm, 2- or 3-flowered; bracts lanceolate, 3-lobed or undivided. Pedicels ca. 1.5 cm, pubescent; bracteoles borne near middle of pedicel, linear, 8–10 mm. Sepals blue, abaxially pubescent; spur conic, 4–6 mm, base 3–5 mm in diam.; other sepals 1.5–2.3 cm. Petals 2-lobed, long ciliate. Staminode limb suboblong, 2-cleft nearly to middle, yellow barbate, long ciliate. Filaments glabrous. Carpels 5; ovaries densely pubescent. Fl. Sep. Gravelly slopes; ca. 4500 m. SW Xinjiang [Kyrgyzstan, N Pakistan].

14. *Delphinium brunonianum* Royle, Ill. Bot. Himal. Mts. 1: 56. 1834.

囊距翠雀花 *nang ju cui que hua*

Stem 10–22(–34) cm tall, puberulent, often mixed with yellow, glandular hairs, simple. Leaf blade 5–9 cm wide, base abruptly cuneate; primary lobes separate for at least 60% of blade radius; central lobe broadly rhombic, 3-lobulate, distally incised dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually not withered. Corymb 4–9 cm, 2–4-flowered, puberulent and yellow glandular puberulent; bracts leaflike or oblong. Pedicels 5.5–7 cm; bracteoles distal,

elliptic or oblong, 1.7–2 cm. Sepals persistent, blue-purple, abaxially sericeous; spur saccate or conic, 6–10 mm, base 6–9 mm in diam.; other sepals 2–2.5 cm. Petals 2-lobed, pilose. Staminode limb oblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 4 or 5; ovaries sparsely puberulent. Fl. Aug.

Grassy or gravelly places; 4500–6000 m. S Xizang [Afghanistan, Kashmir, Nepal, N Pakistan].

15. *Delphinium yechengense* Chang Y. Yang & B. Wang, *Acta Phytotax. Sin.* 30: 82. 1992.

叶城翠雀花 *ye cheng cui que hua*

Stem 40–50 cm tall, sparsely puberulent, branched. Leaf blade 6–10 cm wide, base deeply cordate; primary lobes separate for at least 60% of blade radius; central lobe obovate-rhombic or flabellate-obovate, 3-lobulate, distally lobulate-dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually not withered. Corymb ca. 8 cm, 2–4-flowered, sparsely puberulent and sparsely glandular puberulent; proximal bracts leaflike, distal ones undivided, lanceolate or linear. Pedicels 2.5–10 cm; bracteoles distal, lanceolate, 6–8 mm. Sepals purple-blue, abaxially pubescent and sparsely glandular puberulent; spur conic, 1.1–1.4 cm, base ca. 7 mm in diam.; other sepals 2–2.5 cm. Petals 2-lobed, long ciliate. Staminode limb elliptic-ovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 5; ovaries densely puberulent. Fl. Jul–Aug.

• Slopes; 3800–4300 m. SW Xinjiang.

16. *Delphinium chrysotrichum* Finet & Gagnepain, *Bull. Soc. Bot. France* 51: 488. 1904.

黄毛翠雀花 *huang mao cui que hua*

Stem (5–)11–20 cm tall, puberulent, simple or 1- or 2-branched. Leaf blade 2–8 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe flabellate-obovate, 3-lobulate, distally incised dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually not withered. Corymb 4–8 cm, 2–4-flowered, puberulent, sometimes mixed with yellow, glandular hairs; bracts leaflike. Pedicels 3.4–8 cm; bracteoles distal, shortly petiolate, broadly rhombic or elliptic, 0.7–2 cm, 3-lobed or undivided. Sepals persistent, purple, abaxially yellow pubescent; spur conic or conic-subulate, 1.3–2.4 cm, base 7–12 mm in diam.; other sepals 1.5–2.5 cm. Petals 2-lobed, glabrous or pilose. Staminode limb oblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, ovaries puberulent. Fl. Aug–Sep.

• Grassy or gravelly slopes; 3000–5000 m. W Sichuan, E Xizang, NW Yunnan.

- 1a. Stem and petioles spreading puberulent; pedicels spreading puberulent and yellow glandular puberulent 16a. var. *chrysotrichum*
- 1b. Stem and petioles retrorsely appressed puberulent; pedicels appressed puberulent, not glandular puberulent 16b. var. *tsarongense*

16a. *Delphinium chrysotrichum* var. *chrysotrichum*

黄毛翠雀花(原变种) *huang mao cui que hua* (*yuan bian zhong*)

Delphinium tsarongense Handel-Mazzetti var.

patentipilum W. T. Wang.

Stem and petioles spreading puberulent. Leaf blade to 3.2 × 5.2 cm. Pedicels spreading puberulent and yellow glandular puberulent.

• Gravelly slopes; 4200–5000 m. W Sichuan, E Xizang.

16b. *Delphinium chrysotrichum* var. *tsarongense* (Handel-Mazzetti) W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 367. 1979.

察瓦龙翠雀花 *cha wa long cui que hua*

Delphinium tsarongense Handel-Mazzetti, *Akad. Wiss. Wien Sitzungsber., Math.-Naturwiss. Kl., Abt. 1*, 59: 245. 1922.

Stem and petioles retrorsely appressed puberulent. Leaf blade to 4 × 8 cm. Pedicels appressed puberulent, not glandular puberulent.

• Grassy or gravelly slopes; 3000–4600 m. SE Xizang (Chawalong, Zayü Xian), NW Yunnan (Dêqên Xian).

17. *Delphinium glaciale* J. D. Hooker & Thomson, *Fl. Ind.* 53. 1855.

冰川翠雀花 *bing chuan cui que hua*

Stem ca. 6 cm tall, puberulent, simple. Leaf blade 1–4 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic, 2 × dissected, distally dentate, apex apiculate; ultimate lobules oblong or triangular; proximal leaves usually not withered. Corymb 3.3–9 cm, 2- or 3-flowered; rachis nearly absent; bracts leaflike. Pedicels 2.8–3.5 cm, densely spreading puberulent; bracteoles borne near middle of pedicel, leaflike or undivided, elliptic, 1–1.2 cm. Sepals persistent, blue-purple, abaxially puberulent; spur conic or narrowly conic, 1–1.4 cm, base 4–5 mm in diam.; other sepals 2.2–2.8 cm. Petals 2-lobed, adaxially yellow pilose. Staminode limb suboblong, long ciliate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 5; ovaries puberulent. Fl. Aug–Sep.

Gravelly slopes; ca. 5300 m. C Xizang (Xainza Xian) [Bhutan, Nepal, Sikkim].

18. *Delphinium pseudoglaciale* W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 612. 1979.

拟冰川翠雀花 *ni bing chuan cui que hua*

Stem ca. 5 cm tall, puberulent, few branched. Leaf blade 2–4 cm wide, base abruptly cuneate; primary lobes separate for at least 90% of blade radius; central lobe broadly obovate-rhombic, ca. 3 × dissected, distally dentate, apex apiculate; ultimate lobules narrowly ovate or lanceolate-linear; proximal leaves usually not withered. Corymb 5–9 cm, 2–4-flowered; rachis nearly absent; bracts leaflike. Pedicels 3.5–9 cm, densely puberulent, sparsely yellow glandular puberulent; bracteoles borne near middle of pedicel, leaflike or linear, ca. 1 cm. Sepals persistent, white,

abaxially puberulent and yellow glandular puberulent; spur conic-subulate, ca. 1.9 cm, base ca. 4 mm in diam.; other sepals ca. 2 cm. Petals emarginate, adaxially yellow pilose. Staminode limb trapezoid, 2-cleft nearly to middle, sparsely yellow barbate. Filaments pilose.

Carpels 5, puberulent. Fl. Aug–Sep.

• Gravelly slopes; ca. 4900 m. S Xizang (Namling Xian).

19. *Delphinium viscosum* J. D. Hooker & Thomson var. ***chrysostrichum*** Brühl ex Huth, Bot. Jahrb. Syst. 20: 401. 1895.

黄粘毛翠雀花 huang zhan mao cui que hua

Stem ca. 30 cm tall, retrorsely puberulent and yellow glandular puberulent, branched. Leaf blade 5–8 cm wide, base broadly cordate; primary lobes separate for less than 60% of blade radius; central lobe cuneate-obovate, 3-lobulate or 3-dentate, distally dentate, apex acute; ultimate lobules narrowly ovate or lanceolate-linear; proximal leaves usually not withered. Corymb 4–7.5 cm, 3- or 4-flowered; rachis short or absent, puberulent; bracts leaflike or linear. Pedicels 2.5–5 cm, retrorsely puberulent and yellow glandular puberulent; bracteoles contiguous to flower or nearly so, lanceolate or narrowly oblong, 7–10 mm. Sepals blue-purple, abaxially pubescent; spur conic-tubular, ca. 1.7 cm, straight, base 5–6 mm in diam.; other sepals 1.8–1.9 cm. Petals 2-lobed, distally ciliate. Staminode limb oblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Aug–Sep.

Grassy slopes; ca. 3200 m. SE Xizang [?Bhutan, Nepal, Sikkim].

Delphinium viscosum var. *viscosum* occurs in India and Nepal.

20. *Delphinium chumulangmaense* W. T. Wang, Acta Phytotax. Sin., Addit. 1: 98. 1965.

珠峰翠雀花 zhu feng cui que hua

Stem ca. 6.5 cm tall, puberulent, simple. Leaf blade 1–2 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic, 3-lobulate, distally few dentate, apex acute; ultimate lobules narrowly ovate or lanceolate-linear; proximal leaves usually not withered. Flower solitary, terminal, nearly closed; bracteoles ca. 3.5 cm from flower, linear-lanceolate, ca. 8 mm. Sepals purplish, abaxially puberulent; spur conic-subulate, ca. 1.3 cm, base ca. 4 mm in diam.; other sepals 1.5–1.9 cm. Petals 2-lobed, glabrous. Staminode limb oblong, 2-parted, long ciliate, yellow barbate. Filaments glabrous. Carpels 4; ovaries densely puberulent. Fl. Jul.

• Gravelly slopes; ca. 5000 m. S Xizang (Qomolangma Feng).

21. *Delphinium tangkulaense* W. T. Wang, Acta Phytotax. Sin., Addit. 1: 99. 1965.

唐古拉翠雀花 tang gu la cui que hua

Delphinium chrysostrichum Finet & Gagnepain var. *pygmaeum* Ostenfeld; *D. tangkulaense* f. *xanthanthum* W. T. Wang & S. K. Wu.

Stem 4.8–10 cm tall, puberulent, simple or 1-branched. Leaf blade 1–4 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe flabellate-rhombic, 3-cleft, distally few lobulate or few dentate, apex acute; ultimate lobules narrowly

ovate or lanceolate-linear; proximal leaves usually not withered. Flower solitary, terminal, nearly closed; pedicel 3–4 cm, puberulent, sometimes with yellow, glandular hairs; bracteoles borne near middle of pedicel, lanceolate, 7–9 mm. Sepals blue-purple, sometimes yellow, abaxially puberulent; spur cylindrical or cylindrical-subulate, 1–1.3 cm, base ca. 3.5 mm in diam.; other sepals 1.6–2.7 cm. Petals 2-lobed, pilose. Staminode limb trapezoid, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Jul–Aug. $2n = 16^*$.

• Slopes, sandy lake banks; 4700–5500 m. SW Qinghai, N Xizang.

22. *Delphinium qinghaiense* W. T. Wang, Acta Phytotax. Sin. 29: 458. 1991.

青海翠雀花 qing hai cui que hua

Stem 6–10 cm tall, puberulent, branched. Leaf blade 1–2 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 2- or 3-sect, distally dentate, apex acute; ultimate lobules lanceolate-linear or linear; proximal leaves usually withered. Corymb 5–6 cm, 2- or 3-flowered; bracts leaflike. Pedicels 3.5–6 cm, puberulent; bracteoles borne near middle of pedicel, leaflike or lanceolate-linear, ca. 5 mm. Sepals blue, abaxially puberulent; spur subulate, 1.2–1.4 cm, base ca. 3 mm in diam.; other sepals 1.4–1.8 cm. Petals emarginate, glabrous. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Aug–Sep.

• Slopes; 4300–5000 m. SW Qinghai.

23. *Delphinium chungbaense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 612. 1979.

仲巴翠雀花 zhong ba cui que hua

Stem ca. 13 cm tall, glabrous or distally puberulent, simple or 1-branched. Leaf blade 1–2 cm wide, base deeply cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 2 or 3 × dissected, distally dentate, apex acute; ultimate lobules narrowly oblong or lanceolate; proximal leaves usually not withered. Flower solitary, terminal, nearly closed. Pedicel robust, 7–10 cm, puberulent; bracteoles proximal, leaflike, ca. 8 mm. Sepals purplish blue, abaxially puberulent; spur cylindrical, 0.9–1.4 cm, base ca. 3 mm in diam.; other sepals 1.2–1.7 cm. Petals acute, glabrous. Staminode limb oblong, undivided, yellow barbate, margin ciliate, apex rounded, denticulate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent. Fl. Jul–Aug.

• Gravelly slopes; ca. 5600 m. SW Xizang (Zhongba Xian).

24. *Delphinium wardii* C. Marquand & Airy Shaw, J. Linn. Soc., Bot. 48: 157. 1929.

堆拉翠雀花 dui la cui que hua

Stem 9–15 cm tall, puberulent, simple. Leaf blade 2–4 cm wide, base cordate-subtruncate; primary lobes separate for less than 60% of blade radius; central lobe shortly obtuse-trapezoid, 3-lobulate, distally few rounded dentate, apex acute; ultimate lobules narrowly oblong or lanceolate; proximal leaves usually not withered.

Flowers solitary, or 2 in a monochasium. Pedicels ca. 7 cm, puberulent and yellowish glandular puberulent; bracteoles borne near middle of pedicel, oblong, ca. 9 mm. Sepals blue, abaxially puberulent; spur subulate, 1.7–2 cm, base ca. 4 mm in diam.; other sepals 2.5–2.8 cm. Petals unequally 2-lobed, pilose. Staminode limb elliptic, 2-lobed, barbate, margin ciliate. Filaments glabrous. Carpels 3; ovaries pubescent only along ventral suture. Fl. Sep.

• Scrub; ca. 4200 m. S Xizang (Yadong Xian).

25. *Delphinium smithianum* Handel-Mazzetti, Acta Horti Gothob. 13: 49. 1939.

宝兴翠雀花 *bao xing cui que hua*

Stem 10–15 cm tall, puberulent, simple or 1-branched. Leaf blade 2–5 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally few dentate, apex acute; ultimate lobules narrowly oblong or lanceolate; proximal leaves usually not withered. Corymb ca. 4 cm, 2–4-flowered; bracts leaflike. Pedicels 3–4 cm, densely retrorsely puberulent distally; bracteoles borne near middle of pedicel or distally, 3-cleft or undivided, lanceolate, 0.9–1.3 cm. Sepals persistent, blue, abaxially puberulent; spur cylindrical, 2–2.3 cm, base ca. 4 mm in diam.; other sepals 1.5–2.3 cm. Petals emarginate, glabrous. Staminode limb oblong, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Jul–Aug.

• Gravelly slopes; 3500–4600 m. W Sichuan, NW Yunnan (Zhongdian Xian).

26. *Delphinium malacophyllum* Handel-Mazzetti, Acta Horti Gothob. 13: 52. 1939.

软叶翠雀花 *ruan ye cui que hua*

Stem 10–30 cm tall, puberulent, simple or few branched. Leaf blade 2–6 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-lobulate, distally entire or 1-denticulate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually not withered. Corymb 4–8 cm, 2–5-flowered; bracts leaflike. Pedicels 2.5–7 cm, retrorsely puberulent; bracteoles proximal, linear, ca. 4 mm. Sepals deep blue, abaxially sericeous puberulent; spur subulate, 3.5–3.8 cm, base ca. 2.5 mm in diam.; other sepals 2–2.3 cm. Petals undivided or 2-lobed, glabrous. Staminode limb suboblong, 2-cleft, yellow barbate. Filaments glabrous or sparsely ciliate. Carpels 3; ovaries densely sericeous. Fl. Aug.

• Alpine meadows; 3900–4300 m. SW Gansu, NW Sichuan.

27. *Delphinium chenii* W. T. Wang, Acta Phytotax. Sin. 6: 369. 1957.

白缘翠雀花 *bai yuan cui que hua*

Delphinium albomarginatum Chen, Bull. Fan Mem. Inst. Biol., Peiping, n.s., 1: 170. 1948, not Simonova (1924).

Stem 14–38 cm tall, puberulent or sometimes glabrescent, few branched or simple. Leaf blade 2–5 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe cuneate-rhombic, 3-cleft, distally few dentate, apex acute; ultimate lobules narrowly oblong or lanceolate; proximal leaves withered. Corymb 3.5–7 cm, 2–4-flowered; bracts leaflike. Pedicels 2.4–3.8 cm, retrorsely puberulent; bracteoles distal, oblong or linear, 4–6 mm. Sepals persistent, abaxially sparsely puberulent; upper sepal bluish, spur subulate, 1.6–2.2 cm, base 2–3 mm in diam.; other sepals white at margin, 1.4–1.8 cm. Petals obtuse or emarginate, glabrous. Staminode limb oblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Aug.

• Forest margins; 3900–5000 m. SW Sichuan (Daocheng Xian), NW Yunnan (Zhongdian Xian).

28. *Delphinium yangii* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 3. 1986.

竟生翠雀花 *jing sheng cui que hua*

Stem ca. 9 cm tall, retrorsely appressed puberulent, branched. Leaf blade 2–3.5 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe broadly rhombic or obovate-rhombic, 3-lobulate, distally 1- or 2-dentate or entire, apex acute; ultimate lobules narrowly oblong or lanceolate; proximal leaves usually withered. Corymb 3–6 cm, 1–3-flowered; bracts leaflike. Pedicels 3.2–7 cm, appressed puberulent; bracteoles distal, linear, 6–10 mm. Sepals blue, abaxially densely puberulent; spur narrowly cylindrical, 1.9–2.1 cm, nearly straight, base 3–4.5 mm in diam.; other sepals 2.1–2.6 cm. Petals undivided, glabrous. Staminode limb narrowly obovate, emarginate, white barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Jul–Aug.

• Alpine meadows; 4200–4500 m. NW Yunnan (Zhongdian Xian).

29. *Delphinium batangense* Finet & Gagnepain, Bull. Soc. Bot. France 51: 478. 1904.

巴塘翠雀花 *ba tang cui que hua*

Delphinium pulcherrimum W. T. Wang, Acta Phytotax. Sin. 6: 370. 1957.

Stem 15–35 cm tall, puberulent or glabrescent, usually 1-branched. Leaf blade 3–4 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate, apex long acuminate; ultimate lobules linear or triangular; proximal leaves withered. Corymb 4–9 cm, 2–4-flowered; bracts leaflike. Pedicels 4–8 cm, appressed puberulent; bracteoles distal, lanceolate, 0.8–1.2 cm. Sepals blue-purple, abaxially sparsely puberulent; spur subulate, 2.1–2.4 cm, base 2.5–3 mm in diam.; other sepals 1.8–2.3 cm. Petals emarginate, glabrous. Staminode limb elliptic, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely pubescent. Fl. Aug–Sep.

• Grassy slopes; 3400–4200 m. SW Sichuan, NW Yunnan (Dêqên Xian).

30. *Delphinium pseudopulcherrimum* W. T. Wang, Acta Phytotax. Sin., Addit. 1: 100. 1965.

宽萼翠雀花 kuan e cui que hua

Stem 20–25 cm tall, sparsely puberulent, branched. Leaf blade 4–6 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, subpinnately parted, distally dissected, apex acute; ultimate lobules linear-lanceolate; proximal leaves withered. Corymb 7.5–12 cm, (1 or) 2–6-flowered, densely retrorsely puberulent; bracts leaflike. Pedicels 1.4–5.5 cm; bracteoles distal, linear or narrowly oblong, 4–12(–18) mm. Sepals persistent, blue-purple, abaxially sparsely puberulent; spur subulate, 1.8–2.2 cm, base ca. 3 mm in diam.; other sepals 2–2.4 cm. Petals emarginate, glabrous. Staminode limb broadly elliptic, 2-lobed, yellowish barbate. Filaments glabrous or pilose. Carpels 3; ovaries densely puberulent. Fl. Aug–Sep.

• Grassy slopes; 4000–5000 m. S Xizang (Lhasa Shi).

31. *Delphinium yajiangense* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 5. 1986.

雅江翠雀花 ya jiang cui que hua

Stem 28–30 cm tall, appressed puberulent, simple or branched. Leaf blade 2–4 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted, distally sparsely incised lobulate or 1–3-dentate, apex acute; ultimate lobules linear-lanceolate; proximal leaves usually withered. Corymb ca. 9 cm, 4- or 5-flowered, densely retrorsely puberulent; bracts leaflike. Pedicels 2.5–7 cm; bracteoles distal, narrowly elliptic, oblanceolate, or linear, 2.5–3 mm. Sepals blue, white at margin, abaxially yellow pilose; spur subulate, 2–2.4 cm, nearly straight or slightly recurved, base 3–3.2 mm in diam.; other sepals 0.9–1.1 cm. Petals undivided, glabrous. Staminode limb ovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely appressed puberulent. Fl. Aug.

• Alpine meadows; ca. 4400 m. W Sichuan (Yajiang Xian).

32. *Delphinium pylzowii* Maximowicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg, Sér. 3, 23: 307. 1877.

大通翠雀花 da tong cui que hua

Stem (10–)20–55 cm tall, puberulent, branched or rarely simple. Leaf blade 2–5 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic, 2- or 3-subpinnately dissected, distally incised, apex acute; ultimate lobules lanceolate or linear; proximal leaves withered. Corymb 3–12 cm, 2–6-flowered, densely puberulent, often mixed with yellow, glandular hairs; bracts leaflike or undivided, subulate. Pedicels 4.5–9 cm; bracteoles borne near middle of pedicel, linear or subulate, 3–7 mm. Sepals blue-purple or bluish gray, persistent, abaxially puberulent; spur subulate, 2.1–2.4 cm, base ca. 3 mm in diam.; other sepals 1.5–2 cm. Petals emarginate, glabrous. Staminode limb suboblong,

2-cleft, yellow barbate. Filaments glabrous. Carpels 3 or 5; ovaries puberulent. Fl. Jul–Aug. $2n = 16^*$.

• Grassy slopes, alpine meadows; 2300–4500 m. W Gansu, E and S Qinghai, NW Sichuan, E Xizang.

1a. Carpels 5; sepals blue-purple 32a. var. *pylzowii*

1b. Carpels 3; sepals bluish gray 32b. var. *trigynum*

32a. *Delphinium pylzowii* var. *pylzowii*

大通翠雀花(原变种) da tong cui que hua (yuan bian zhong)

Sepals blue-purple. Carpels 5.

• Grassy slopes; 2300–3000 m. W Gansu, E Qinghai.

32b. *Delphinium pylzowii* var. *trigynum* W. T. Wang, Acta Bot. Sin. 10: 78. 1962.

三果大通翠雀花 san guo da tong cui que hua

Delphinium labrungense Ulbrich ex Rehder & Kobuski. Sepals bluish gray. Carpels 3.

• Alpine meadows; 3500–4500 m. SW Gansu, S Qinghai, NW Sichuan, E Xizang.

33. *Delphinium motingshanicum* W. T. Wang & M. J. War-nock, Guihaia 17: 3. 1997.

磨顶山翠雀花 mo ding shan cui que hua

Stem ca. 45 cm tall, proximally densely appressed puberulent, distally sparsely so, 2-branched. Leaf blade 3–5 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe narrowly oblanceolate, 3-parted, distally incised, apex acute; ultimate lobules oblong-linear; proximal leaves usually not withered. Raceme 5–25 cm, 5–8-flowered; rachis sparsely puberulent. Pedicels 7–11.5 cm, proximally sparsely puberulent, distally densely puberulent and mixed with sparse, spreading, longer hairs; bracteoles borne near middle of pedicel, shortly petiolate, oblong or long elliptic, 1–1.4 cm. Sepals purple-blue, abaxially appressed puberulent and pubescent, base villous; spur cylindrical-subulate, ca. 2.2 cm, base ca. 3 mm in diam.; other sepals 1.4–1.6 cm. Petals entire, glabrous. Staminode limb suborbicular, distally emarginate, yellow barbate. Filaments sparsely pilose. Carpels 4 or 5, ovaries densely pubescent. Fl. Jun.

• Gravelly slopes; ca. 4600 m. NW Yunnan (Dêqên Xian).

34. *Delphinium lingbaoense* S. Y. Wang & Q. S. Yang, Acta Bot. Bor.-Occid. Sin. 9: 42. 1989.

灵宝翠雀花 ling bao cui que hua

Stem ca. 1.4 m tall, glabrous proximally, very sparsely puberulent distally, branched. Leaf blade 10–12 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic or rhombic-obovate, 3-lobulate, distally incised, apex acuminate; ultimate lobules oblong-linear; proximal leaves withered. Corymb 2–8 cm in diam., 2–5-flowered; bracts 3-lobed. Pedicels 2–3.5 cm, densely pubescent; bracteoles borne near middle of pedicel, subulate, 2–3.5 mm. Sepals blue-purple, abaxially appressed puberulent; spur subulate, 1.7–2.2 cm, straight or slightly recurved, base ca. 2.5 mm in diam.; other sepals 2–2.2 cm. Petals 2-lobed, glabrous. Staminode limb elliptic, 2-lobed,

yellowish barbate. Filaments glabrous. Carpels 4 or 5; ovaries pubescent. Fl. Aug–Sep.

• Scrub; 1700–2000 m. W Henan (Lingbao Xian).

35. *Delphinium candelabrum* Ostenfeld in Hedin, South Tibet, 6: 80. 1922.

奇林翠雀花 *qi lin cui que hua*

Stem 6–20 cm tall, glabrous proximally, puberulent distally, simple or 1–3-branched. Leaf blade 1–4 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft, distally incised, apex acute; ultimate lobules narrowly ovate, lanceolate, or broadly linear; proximal leaves usually withered. Corymb 4–6 cm, 1–3(–6)-flowered; bracts leaflike. Pedicels 2.5–5 cm, densely puberulent; bracteoles borne near middle of pedicel or distally, leaflike or undivided, linear, 6–12 mm. Sepals blue-purple, abaxially puberulent; spur subulate, 1.8–3 cm, nearly straight or slightly recurved, base 2.5–3(–4) mm in diam.; other sepals 1.8–3 cm. Petals 2-lobed or undivided, glabrous. Staminode limb orbicular-ovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Jul–Aug.

• Grassy or gravelly slopes; 4100–5300 m. SW Gansu, E and SE Qinghai, NW Sichuan, NE and S Xizang

- 1a. Corymb 2- or 3(–6)-flowered; upper sepal 1.5–1.8 × 0.8–1.1 cm, spur 2–2.1 cm, other sepals 1.8–2 cm; petals distally 2-lobed 35a. var. *candelabrum*
- 1b. Corymb 1(or 2)-flowered; upper sepal 1.8–2.5 × 1.2–2.2 cm, spur 1.8–3 cm, other sepals 2.2–3 cm; petals undivided 35b. var. *monanthum*

35a. *Delphinium candelabrum* var. *candelabrum*

奇林翠雀花(原变种) *qi lin cui que hua* (*yuan bian zhong*)

Corymb 2- or 3(–6)-flowered. Upper sepal 1.5–1.8 × 0.8–1.1 cm, spur 2–2.1 cm; other sepals 1.8–2 cm. Petals distally 2-lobed.

• Grassy or gravelly slopes; 5100–5300 m. S Xizang.

35b. *Delphinium candelabrum* var. *monanthum* (Handel-Mazzetti) W. T. Wang, *Acta Bot. Sin.* 10: 78. 1962.

单花翠雀花 *dan hua cui que hua*

Delphinium monanthum Handel-Mazzetti, *Acta Horti Gothob.* 13: 50. 1939.

Corymb 1(or 2)-flowered. Upper sepal 1.8–2.5 × 1.2–2.2 cm, spur 1.8–3 cm; other sepals 2.2–3 cm. Petals undivided. Staminodes sometimes blue. $2n = 16^*$.

• Gravelly slopes; 4100–5000 m. SW Gansu, E and SE Qinghai, NW Sichuan, NE Xizang.

36. *Delphinium pseudocandelabrum* W. T. Wang, *Bull. Bot. Res.*, Harbin 3(1): 28. 1983.

石滩翠雀花 *shi tan cui que hua*

Stem ca. 15 cm tall, pilose distally, densely leafy and branched. Leaf blade 3–4 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic or subcuneate, 3-cleft,

distally 2- or 3-cleft, apex acute; ultimate lobules narrowly triangular or linear; proximal leaves usually withered. Corymb ca. 7 cm, ca. 3-flowered; bracts leaflike. Pedicels ca. 7 cm, puberulent; bracteoles distal, petiolate, blade 3-cleft, ca. 1.5 cm. Sepals yellowish, abaxially pubescent; spur cylindric, ca. 1.2 cm, base ca. 2.5 mm in diam.; other sepals 1.9–2 cm. Petals undivided, obtuse, glabrous. Staminode limb elliptic-ovate, 2-lobed, yellowish barbate. Filaments sparsely pilose. Carpels 3; ovaries pubescent. Fl. Jul.

• Stony and gravelly slopes; ca. 5000 m. S Qinghai (Nangqên Xian).

37. *Delphinium calophyllum* W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 613. 1979.

美叶翠雀花 *mei ye cui que hua*

Stem ca. 15 cm tall, puberulent, 1-branched. Leaf blade 2.5–4 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic-cuneate, 2- or 3-cleft, distally 3-lobulate, apex acute; ultimate lobules lanceolate or lanceolate-linear; proximal leaves usually withered. Corymb ca. 4 cm, ca. 3-flowered; bracts leaflike. Pedicels 2.2–4 cm, densely spreading puberulent; bracteoles distal, leaflike, ca. 1 cm. Sepals blue-purple, abaxially puberulent, yellowish puberulent; spur cylindric-subulate, ca. 1.7 cm, base ca. 2.5 mm in diam.; other sepals 1.3–1.5 cm. Petals emarginate, glabrous. Staminode limb suboblong, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent. Fl. Jul.

• Alpine slopes. E Qinghai (Henan Mongol Zu Zizhixian).

38. *Delphinium henryi* Franchet, *Bull. Soc. Philom. Paris*, sér. 8, 5: 177. 1893.

川陕翠雀花 *chuan shan cui que hua*

Delphinium henryi f. *concolor* W. T. Wang.

Stem 15–40(–70) cm tall, densely retrorsely puberulent, simple or branched. Petiole densely retrorsely puberulent; leaf blade 2–7 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-lobulate, distally 2 or 3 × dissected, apex acute; ultimate lobules narrowly triangular to linear; proximal leaves usually withered. Corymb 2–7 cm, 2–4-flowered; bracts leaflike. Pedicels 1.7–3.4(–5) cm, densely retrorsely puberulent; bracteoles distal, elliptic or lanceolate, 8–10 mm. Sepals persistent, blue-purple, abaxially puberulent; spur subulate, 1.5–2.2 cm, base 2.5–4 mm in diam.; other sepals 1.3–2.1 cm. Petals 2-lobed, glabrous. Staminode limb rarely blue-purple, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Aug–Sep.

• Grassy slopes; 1400–2200 m. SW Henan, W Hubei, S Shaanxi, NE Sichuan.

39. *Delphinium alboceruleum* Maximowicz, *Bull. Acad. Imp. Sci. Saint-Petersbourg*, Sér. 3, 23: 307. 1877.

白蓝翠雀花 *bai lan cui que hua*

Stem (10–)30–60(–100) cm tall, puberulent or mixed with yellow, glandular hairs, usually branched. Leaf blade 2–10 cm wide, base cordate; primary lobes

separate for at least 75% of blade radius; central lobe rhombic, subpinnately cleft, distally 1- or 2-denticulate, apex acute; ultimate lobules narrowly triangular or narrowly ovate; proximal leaves usually withered. Corymb 3–8 cm, 3–7-flowered; proximal bracts leaflike. Pedicels 3–12 cm; bracteoles distal, spatulate-linear, 0.6–1.4 cm. Sepals persistent, abaxially puberulent; spur cylindrical-subulate or subulate, 1.7–3.3 cm, base 2.5–4 mm in diam.; other sepals 1.4–2.5 cm. Petals emarginate, glabrous. Staminode limb ovate, 2-lobed or 2-cleft, yellow barbate. Filaments pilose. Carpels 3; ovaries densely puberulent, Fl. Jul–Sep. $2n = 16^*$.

• *Juniperus* forests, scrub, grassy slopes, alpine meadows; 1500–4900 m. Gansu, N Ningxia, E Qinghai, NW Sichuan, NE Xizang.

- 1a. Stem and pedicels retrorsely puberulent only; spur cylindrical-subulate or subulate, 1.7–3.3 cm 39a. var. *albocoeruleum*
1b. Stem and pedicels retrorsely puberulent and yellowish glandular puberulent; spur shorter, subulate, 1.7–2 cm 39b. var. *przewalskii*

39a. *Delphinium albocoeruleum* var. *albocoeruleum*

白蓝翠雀花(原变种) bai lan cui que hua (yuan bian zhong)

Delphinium albocoeruleum var. *pumilum* Huth; *D. caucasicum* C. A. Meyer var. *tanguticum* Maximowicz ex Huth; *D. rockii* Munz; *D. tanguticum* Huth.

Stem and pedicels retrorsely puberulent. Spur cylindrical-subulate or subulate, 1.7–3.3 cm.

• *Juniperus* forests, grassy slopes; 3600–4900 m. Gansu, E Qinghai, NW Sichuan, NE Xizang.

39b. *Delphinium albocoeruleum* var. *przewalskii* (Huth) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 381. 1979.

贺兰翠雀花 he lan cui que hua

Delphinium przewalskii Huth, Bot. Jahrb. Syst. 20: 407. 1895.

Stem and pedicels retrorsely puberulent and yellowish glandular puberulent. Spur subulate, 1.7–2 cm.

• Slopes; 1500–2000 m. N Ningxia (Helan Shan).

40. *Delphinium siwanense* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 162. 1893.

细须翠雀花 xi xu cui que hua

Stem 35–150 cm tall, spreading pubescent or glabrous, branched or simple. Leaf blade 4–14 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic or narrowly so, 3-lobulate, distally undivided, apex acute; ultimate lobules lanceolate or linear; proximal leaves usually withered. Corymb umbelliform, 2–4 cm, 2–5-flowered; bracts 3-sect or undivided, linear. Pedicels 1.8–3 cm, spreading puberulent and yellow glandular puberulent or only appressed puberulent; bracteoles borne near middle of pedicel, subulate, 2.5–9 mm. Sepals purple-blue or blue, abaxially puberulent; spur subulate (subcylindrical), 1.6–2.1(–2.4) cm, straight or slightly recurved, base 2.6–4 mm in diam.; other sepals 1.3–1.7(–2) cm. Petals entire or emarginate, glabrous.

Staminode limb ovate, 2-lobed, yellowish barbate, long ciliate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Jul–Sep.

• Forest margins, scrub, grassy slopes; 1300–2100 m. C and S Gansu, N Hebei, S Nei Mongol, S Ningxia, S Shaanxi, Shanxi.

- 1a. Stem spreading pubescent; pedicels spreading puberulent and yellow glandular puberulent; bracteoles 3.5–9 mm 40a. var. *siwanense*
1b. Stem glabrous; pedicels only appressed puberulent; bracteoles 2.5–5 mm 40b. var. *albopuberulum*

40a. *Delphinium siwanense* var. *siwanense*

细须翠雀花(原变种) xi xu cui que hua (yuan bian zhong)

Delphinium leptopogon Handel-Mazzetti; *D. siwanense* var. *leptopogon* (Handel-Mazzetti) W. T. Wang.

Stem spreading pubescent. Pedicels spreading puberulent and yellow glandular puberulent; bracteoles 3.5–9 mm.

• Forest margins, scrub, grassy slopes; 1900–2000 m. C and S Gansu, N Hebei, S Nei Mongol, S Ningxia, S Shaanxi, Shanxi.

40b. *Delphinium siwanense* var. *albopuberulum* W. T. Wang, Acta Phytotax. Sin. 31: 208. 1993.

冀北翠雀花 ji bei cui que hua

Stem glabrous. Pedicels only appressed puberulent; bracteoles 2.5–5 mm.

• Scrub by rivers, grassy slopes; 1300–2100 m. N Hebei (Longguan).

41. *Delphinium purpurascens* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 612. 1979.

紫苞翠雀花 zi bao cui que hua

Stem 24–60 cm tall, sparsely puberulent, simple or 1-branched distally. Leaf blade 4–7 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe cuneate-rhombic, 3-lobulate, distally few dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually not withered. Corymb 5–8 cm, 2–4-flowered, puberulent; bracts leaflike or narrowly ovate. Pedicels 3.4–8 cm; bracteoles distal, blue-purple, navicular-lanceolate, 1.2–1.8 cm. Sepals bluish, abaxially pubescent; spur tubular-conic, 1.3–1.6 cm, or saccate and ca. 1 cm, base 5–8 mm in diam.; other sepals 1.8–2 cm. Petals emarginate, adaxially yellow pilose. Staminode limb narrowly obovate, 2-cleft to middle, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Aug–Sep.

• Slopes; 3800–4700 m. S Xizang (Nyalam Xian).

42. *Delphinium subspathulatum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 612. 1979.

匙苞翠雀花 chi bao cui que hua

Stem 42–53 cm tall, hispidulous, simple. Leaf blade 7–10 cm wide, base deeply cordate; primary lobes separate for at least 60% of blade radius; central lobe subrhombic, 3-lobulate, distally incised dentate, apex

acute; ultimate lobules lanceolate; proximal leaves usually withered. Raceme 13–16 cm, 5–8-flowered, appressed puberulent; proximal bracts leaflike, distal ones oblong. Pedicels 1.7–8 cm; bracteoles distal, narrowly oblong or spatulate-oblong, 0.9–1.1 cm. Sepals persistent, blue-purple, abaxially sparsely puberulent; spur subulate-cylindric, 1.1–1.3 cm, base 2.6–3 mm in diam.; other sepals 1.2–1.4 cm. Petals emarginate, glabrous. Staminode limb ovate, 2-lobed, yellow barbate. Filaments pilose. Carpels 3; ovaries densely puberulent. Fl. Aug–Sep.

• Forest margins; ca. 3800 m. S Xizang (Nyalam Xian).

43. *Delphinium nangiense* W. T. Wang, Acta Phytotax. Sin. 32: 467. 1994.

朗孜翠雀花 lang zi cui que hua

Stem ca. 65 cm tall, sparsely yellowish glandular puberulent, simple. Leaf blade 6–9 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe cuneate-rhombic or obovate-rhombic, 3-lobulate, distally rounded 2–4-dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually withered. Raceme 13–14.5 cm, 4–8-flowered, yellowish glandular puberulent and retrorsely puberulent; proximal bracts leaflike, distal ones lanceolate-linear. Pedicels 1.8–4.2 cm; bracteoles distal, linear, 9–10 mm. Sepals purple-blue, abaxially sparsely yellowish puberulent near apex; spur subulate, 1.9–2.6 cm, base 3–4 mm in diam.; other sepals 2–2.4 cm. Petals 2-lobed, pilose. Staminode limb suboblong, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent only along ventral suture. Fl. Sep–Oct.

• Scrub; ca. 4500 m. S Xizang (Lhasa Shi).

44. *Delphinium kansuense* W. T. Wang, Acta Phytotax. Sin., Addit. 1: 100. 1965.

甘肃翠雀花 gan su cui que hua

Stem 36–50 cm tall, puberulent, simple. Leaf blade 5–6 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic-obovate, inconspicuously 3-lobulate, distally few denticulate, apex acute; ultimate lobules ovate-lanceolate; proximal leaves not withered. Raceme elongated, 9–35 cm, 4–10-flowered, densely retrorsely appressed or spreading puberulent; bracts leaflike or linear-lanceolate. Pedicels 1–4.5 cm; bracteoles distal, lanceolate, 3.5–8.5 mm. Sepals persistent, blue-purple, abaxially puberulent; spur subulate, ca. 1.8 cm, base ca. 2.2 mm in diam.; other sepals 8–10 mm. Petals acuminate, glabrous. Staminode limb oblong, 2-cleft, white barbate. Filaments pilose. Carpels 3; ovaries densely puberulent. Fl. Jul–Sep.

• Grassy slopes; ca. 3000 m. SC Gansu, NE Qinghai.

1a. Raceme retrorsely appressed puberulent; bracts and bracteoles densely puberulent abaxially 44a. var. *kansuense*

1b. Raceme spreading puberulent; bracts and bracteoles sparsely puberulent abaxially 44b. var. *villosiusculum*

44a. *Delphinium kansuense* var. *kansuense*

甘肃翠雀花(原变种) gan su cui que hua (yuan bian zhong)

Raceme retrorsely appressed puberulent. Bracts and bracteoles densely puberulent abaxially. Fl. Jul–Aug.

• Grassy slopes; ca. 3000 m. SC Gansu

44b. *Delphinium kansuense* var. *villosiusculum* W. T. Wang & M. J. Warnock in W. T. Wang et al., Phytologia 79: 383. 1996.

粘毛甘肃翠雀花 zhan mao gan su cui que hua

Raceme spreading puberulent. Bracts and bracteoles sparsely puberulent abaxially. Fl. Sep.

• Grassy slopes; ca. 3000 m. NE Qinghai (Datong He).

45. *Delphinium hilcoatiae* Munz, J. Arnold Arbor. 49: 144. 1968.

毛茛叶翠雀花 mao gen ye cui que hua

Stem 50–70 cm tall, spreading puberulent and yellow glandular puberulent, branched. Leaf blade 5–7 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe broadly rhombic or obtrapezoid-rhombic, 3-lobulate, distally few lobulate or few dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually not withered. Raceme 20–30 cm, 8–20-flowered, densely retrorsely puberulent and yellow glandular puberulent; proximal bracts leaflike, distal ones oblong. Pedicels 1.2–5.5 cm; bracteoles distal, narrowly oblong, lanceolate, or oblanceolate, 6–11 mm. Sepals purplish, abaxially puberulent and glandular puberulent; spur cylindric-subulate, 1.5–1.7 cm, base 3–4 mm in diam.; other sepals 1–1.2 cm. Petals 2-lobed, glabrous. Staminode limb subdeltoïd, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Sep.

• Grassy slopes; ca. 3700 m. SE Xizang.

46. *Delphinium iliense* Huth, Bot. Jahrb. Syst. 20: 402. 1895.

伊犁翠雀花 yi li cui que hua

Delphinium longiciliatum W. T. Wang; *D. turkestanicum* Huth.

Stem 22–80 cm tall, sparsely hispid, usually simple. Leaf blade 5–11 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic or cuneate-rhombic, 3-lobulate, distally dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually not withered. Raceme 6–20 cm, 5–12-flowered, glabrous or sparsely hispid proximally; proximal bracts 3-parted or undivided, lanceolate, distal ones smaller, narrowly lanceolate. Pedicels 1–3.2 cm, glabrous; bracteoles distal, narrowly lanceolate, ca. 7 mm, long ciliate. Sepals blue-purple, glabrous or ciliate; spur cylindric-subulate, 1.4–1.7 cm, base 2.5–3.5 mm in diam.; other sepals 0.9–1.5 mm. Petals emarginate, glabrous. Staminode limb ovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3, subglabrous. Fl. Jul–Aug.

Scrub, gravelly slopes; ca. 2000 m. W Xinjiang [Kazakhstan, Mongolia].

47. *Delphinium aktoense* W. T. Wang in W. T. Wang et al., Acta Phytotax. Sin. 37: 216. 1999.

阿克陶翠雀花 a ke tao cui que hua

Stem ca. 45 cm tall, sparsely spreading hirsutulous, simple. Leaf blade 5–11 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe obovate-obtrapezoid, 3-lobulate, distally few dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually withered. Raceme ca. 3 cm, ca. 3-flowered; rachis glabrous; bracts linear-lanceolate, undivided, 4–5 mm, hirsutulous. Pedicels 0.9–1.7 cm, hirsutulous; bracteoles distal, narrowly lanceolate, ca. 4 mm. Sepals blue-purple, abaxially sparsely pilose; spur cylindrical-subulate, ca. 1.3 cm, decurved; other sepals elliptic-ovate, 1.2–1.3 cm. Petals 2 lobed, sparsely long ciliate. Staminode limb broadly ovate, 2-lobed, yellowish barbate. Filaments glabrous. Carpels 3, appressed puberulous. Fl. Aug.

• Slopes; 3000–3300 m. SW Xinjiang (Akto Xian).

48. *Delphinium naviculare* W. T. Wang, Acta Bot. Sin. 10: 82. 1962.

船苞翠雀花 chuan bao cui que hua

Stem ca. 70 cm, hispid, glabrescent distally, simple. Leaf blade 5–11 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic-obtrapezoid or rhombic, 3-lobulate, distally dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually not withered. Raceme 13–28 cm, 10–28-flowered; rachis glabrous; proximal bracts 3-parted, distal ones navicular-ovate. Pedicels 1–3 cm; bracteoles distal, navicular-ovate, 4–5 cm. Sepals purple; spur cylindrical-subulate, 1.2–1.3 cm, base 2–2.5 mm in diam.; other sepals 0.9–1.3 cm. Petals obtuse, glabrous. Staminode limb oblong, 2-lobed, yellowish barbate. Filaments glabrous. Carpels 3. Fl. Aug.

• *Picea* forests, scrub margins, grassy slopes, along rivers; 1600–1700 m. W Xinjiang.

- 1a. Stem without yellow, glandular hairs; pedicel glabrous; sepals glabrous or ciliate; ovary glabrous 48a. var. *naviculare*
- 1b. Stem, pedicels, and sepals abaxially yellow glandular puberulent; ovary sparsely puberulent 48b. var. *lasiocarpum*

48a. *Delphinium naviculare* var. *naviculare*

船苞翠雀花(原变种) chuan bao cui que hua (yuan bian zhong)

Stem without yellow, glandular hairs. Pedicels glabrous. Sepals glabrous or ciliate. Ovary glabrous.

• Grassy slopes; ca. 1700 m. W Xinjiang (Zhaosu Xian).

48b. *Delphinium naviculare* var. *lasiocarpum* W. T. Wang, Acta Bot. Sin. 10: 83. 1962.

毛果船苞翠雀花 mao guo chuan bao cui que hua

Stem, pedicels, and sepals abaxially yellow glandular puberulent. Ovary sparsely puberulent.

• *Picea* forests, scrub margins, along rivers; 1600–1700 m. NW Xinjiang.

49. *Delphinium ellipticovatum* W. T. Wang, Acta Bot. Sin. 10: 83. 1962.

长卵苞翠雀花 chang luan bao cui que hua

Stem ca. 70 cm tall, hispid, 2-branched distally. Leaf blade ca. 8 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally few dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually not withered. Raceme ca. 9 cm, 7- or 8-flowered; rachis shortly strigose and hispid; proximal bracts 3-parted, distal ones lanceolate or narrowly ovate. Pedicels 1–2.7 cm, densely shortly strigose; bracteoles distal, elliptic-ovate or ovate, 5.5–7 mm. Sepals blue-purple, abaxially strigose; spur cylindrical-subulate, 1.1–1.2 cm, base 2–2.5 mm in diam.; other sepals ca. 1 cm. Petals obtuse, adaxially yellowish pilose. Filaments glabrous. Carpels 3, glabrous or sparsely puberulent. Fl. Aug.

• Slopes. NW Xinjiang (Wenquan Xian).

50. *Delphinium winklerianum* Huth, Bot. Jahrb. Syst. 20: 419. 1895.

温泉翠雀花 wen quan cui que hua

Delphinium kuanii W. T. Wang.

Stem 50–80 cm tall, hispidulous, branched or simple. Leaf blade ca. 10 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe cuneate-obtrapezoid, 3-lobulate, distally dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually not withered. Raceme ca. 20 cm, ca. 8-flowered, shortly strigose; proximal bracts 3-parted, distal ones lanceolate. Pedicels 1–10 cm; bracteoles distal, lanceolate-oblong or lanceolate, 8–10 mm. Sepals blue-purple, abaxially densely shortly strigose; spur subulate-cylindrical, 1.2–1.7 cm, base 3.5–4.5 mm in diam.; other sepals 1–1.5 cm. Petals obtuse, glabrous. Staminode limb broadly ovate, 2-lobed, yellowish barbate. Filaments pilose. Carpels 3; ovaries puberulent. Fl. Jul–Aug.

• Slopes. W Xinjiang [?Kazakhstan].

51. *Delphinium maackianum* Regel, Mém. Acad. Imp. Sci. Saint Pétersbourg, Sér. 7, 4: 9. 1861.

宽苞翠雀花 kuan bao cui que hua

Delphinium maackianum f. *albiflorum* S. H. Li & Z. F. Fang; *D. maackianum* f. *lasiocarpum* (Regel) Kitagawa; *D. maackianum* var. *lasiocarpum* Regel.

Stem 1.1–1.4 m tall, hispidulous proximally, glabrescent and few branched distally. Leaf blade 8–18 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe narrowly rhombic or rhombic-cuneate, 3-lobulate, distally lobulate-dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually withered. Raceme 17–26 cm, 16–25-flowered, yellow glandular puberulent;

proximal bracts leaflike, distal ones navicular-oblong or obovate. Pedicels 1.3–3.8 cm; bracteoles proximal, similar to bracts, blue-purple, 4–8.5 mm. Sepals blue-purple, rarely white, abaxially glabrous; spur subulate, 1.6–1.7 cm, base 3–3.5 mm in diam.; other sepals 0.9–1.4 cm. Petals emarginate, glabrous. Staminode limb ovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3, glabrous, rarely sparsely puberulent proximally. Fl. Jul–Aug.

Forest margins, grassy slopes; 600–900 m. E Heilongjiang, E Jilin, E Liaoning [Korea, Russia (Far East)].

52. *Delphinium tarbagataicum* Chang Y. Yang & B. Wang, Bull. Bot. Res., Harbin 9(1): 24. 1989.

新塔翠雀花 xin ta cui que hua

Stem ca. 60 cm tall, puberulent and yellow glandular puberulent distally, simple. Leaf blade ca. 7.5 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally incised dentate, apex acute; ultimate lobules lanceolate; proximal leaves withered. Raceme 7–10 cm, 8–10-flowered, densely puberulent and yellow glandular puberulent; proximal bracts 3-parted, distal ones undivided, linear. Pedicels 1–1.5 cm; bracteoles distal, narrowly lanceolate, ca. 7 mm. Sepals blue-purple, abaxially puberulent and sparsely glandular; spur cylindrical-subulate, ca. 1.2 cm, straight, base ca. 3 mm in diam.; other sepals ca. 1.3 cm. Petals 2-lobed, glabrous. Staminode limb dolabriform, 2-cleft, yellow barbate. Filaments sparsely pilose. Carpels 3; ovaries densely yellow puberulent. Fl. Jul.

• Slopes; ca. 1800 m. N Xinjiang (Tacheng Xian).

53. *Delphinium elatum* Linnaeus var. ***sericeum*** W. T. Wang, Acta Bot. Sin. 10: 81. 1962.

绢毛翠雀花 juan mao cui que hua

Stem 0.7–1.3 m tall, puberulent proximally, glabrous or subglabrous distally. Leaf blade ca. 10 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe broadly rhombic, 3-parted, distally few lobulate, apex acute; ultimate lobules lanceolate; proximal leaves withered. Raceme to 20 cm, 10–20-flowered, puberulent and yellow glandular puberulent; bracts linear. Pedicels 1–1.5 cm; bracteoles distal, lanceolate or lanceolate-linear, 5–10 mm. Sepals purple-blue, abaxially sparsely puberulent and yellow glandular puberulent; spur cylindrical-subulate, 1.3–1.5 cm, base 2–3 mm in diam.; other sepals 0.8–1.5 cm. Petals obtuse, glabrous. Staminode limb ovate, 2-lobed, yellowish barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul–Aug.

• Grassy slopes; 1900–2100 m. N Xinjiang (Altay Shan).

Delphinium elatum var. *elatum* occurs in Europe.

54. *Delphinium tianshanicum* W. T. Wang, Acta Bot. Sin. 10: 35. 1962.

天山翠雀花 tian shan cui que hua

Stem (40–)60–115 cm tall, hispid, shortly branched distally or simple. Leaf blade 9–14 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic-obtrapezoid or broadly rhombic, 3-parted, distally few dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually not withered. Raceme 10–15 cm, 8–15-flowered, shortly strigose; proximal bracts 3-parted, distal ones lanceolate-linear. Pedicels 2–6 cm; bracteoles distal, lanceolate-linear or linear, 5.5–9 mm. Sepals blue-purple, abaxially densely shortly strigose; spur cylindrical-subulate, 1.1–1.4 cm, base ca. 3 mm in diam.; other sepals 1–1.3 cm. Petals emarginate, glabrous. Staminode limb ovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely strigose. Fl. Jul–Sep.

• Scrub, grassy slopes, streamsides; 1700–2700 m. C Xinjiang (Tian Shan).

55. *Delphinium wuqiaense* W. T. Wang, Bull. Bot. Res., Harbin 3(1): 32. 1983.

乌恰翠雀花 wu qia cui que hua

Stem ca. 35 cm tall, spreading hispid, simple. Leaf blade 5–7 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe broadly rhombic, 3-lobulate, distally dentate, apex acute; ultimate lobules lanceolate; proximal leaves not withered. Raceme ca. 14 cm, ca. 10-flowered, spreading hispid; proximal bracts 3-parted, distal ones undivided, linear or narrowly so. Pedicels 1.2–4.5 cm; bracteoles borne near middle of pedicel or distally, linear, 4–6 mm. Sepals blue-purple, abaxially puberulent and very sparsely yellow glandular puberulent; spur subulate-cylindrical, 0.9–1.3 cm, nearly straight, base 3–4 mm in diam.; other sepals 1–1.2 cm. Petals 2-lobed, sparsely ciliate. Staminode limb broadly ovate, 2-cleft, yellow barbate, margin long ciliate. Filaments sparsely pilose. Carpels 3; ovary densely puberulent. Fl. Jul–Aug.

• Slopes; ca. 3300 m. SW Xinjiang (Wuqia Xian).

56. *Delphinium kunlunshanicum* Chang Y. Yang & B. Wang, Bull. Bot. Res., Harbin 9(1): 23. 1989.

昆仑翠雀花 kun lun cui que hua

Stem 30–40 cm tall, sparsely spreading hirsute, simple. Leaf blade 7–10 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic-obovate, 3-lobulate, distally 1- or 2-dentate, apex acute; ultimate lobules lanceolate; proximal leaves not withered. Raceme ca. 22 cm, ca. 10-flowered, puberulent and yellowish glandular puberulent; proximal bracts 3-parted, distal ones undivided, linear or lanceolate-linear. Pedicels 1.5–6 cm; bracteoles distal, linear, 5–9 mm. Sepals blue-purple, abaxially hispidulous and yellow glandular; spur subulate, ca. 2 cm, straight, base 2.5–3 mm in diam.; other sepals 1.3–1.5 cm. Petals emarginate, glabrous. Staminode limb broadly ovate, 2-lobed, white barbate. Filaments sparsely pilose. Carpels 3; ovaries densely puberulent. Fl. Jul–Aug.

•Grassy slopes; ca. 3800 m. SW Xinjiang (Yecheng Xian).

57. *Delphinium kaschgaricum* Chang Y. Yang & B. Wang, Bull. Bot. Res., Harbin 9(1): 21. 1989.

喀什翠雀花 ka shi cui que hua

Stem ca. 15 cm tall, sparsely retrorsely hispid, simple. Leaf blade 3–3.5 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic-obovate, 3-lobulate, distally entire or 1-denticulate, apex acute; ultimate lobules ovate; proximal leaves not withered. Raceme ca. 4 cm, 2–4-flowered, hispid and yellowish glandular puberulent; bracts lanceolate. Pedicels 2–2.5 cm; bracteoles distal, narrowly linear, ca. 4 mm. Sepals blue-purple, abaxially hispidulous and glandular; spur cylindrical-subulate, ca. 1 cm, straight, base ca. 2 mm in diam.; other sepals ca. 8 mm. Petals 2-lobed, ciliate. Staminode limb orbicular-ovate, 2-cleft, yellow barbate, ciliate. Filaments glabrous. Carpels 3; ovaries distally sparsely puberulent. Fl. Jul–Aug.

•Slopes; ca. 3300 m. SW Xinjiang (Artux Xian).

58. *Delphinium zhangii* W. T. Wang in W. T. Wang et al., Acta Phytotax. Sin. 37: 214. 1999.

镜锂翠雀花 yi li cui que hua

Stem ca. 40 cm tall, sparsely hirsute, simple. Leaf blade 5–6 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe broadly rhombic or rhombic-obovate, 3-lobulate, distally few dentate, apex acute; ultimate lobules lanceolate; proximal leaves not withered. Raceme 22–28 cm, ca. 12-flowered, hispid, simple or branched; bracts linear-lanceolate. Pedicels 2–5 cm; bracteoles distal, linear-lanceolate, 4–6 mm. Sepals blue-purple, abaxially puberulent; spur cylindrical-subulate, 1.3–1.5 cm, decurved, base ca. 2 mm in diam.; other sepals 1.3–1.4 cm × 5–8 mm. Petals 2-lobed, glabrous. Staminode limb orbicular-ovate, ca. 4 mm, 2-cleft, yellowish barbate, ciliate. Filaments glabrous. Carpels 3; ovaries distally densely puberulent. Fl. Aug.

•Near streams on slopes; ca. 3600 m. SW Xinjiang (Akto Xian).

59. *Delphinium sinoelatum* Chang Y. Yang & B. Wang, Acta Phytotax. Sin. 30: 88. 1992.

新疆高翠雀花 xin jiang gao cui que hua

Stem 60–80 cm, sparsely pubescent proximally, glabrous distally, simple. Leaf blade 6–9 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-cleft, distally sparsely lobulate-dentate, apex acuminate; ultimate lobules lanceolate; proximal leaves usually withered. Raceme ca. 15 cm, ca. 16-flowered; rachis glabrous; proximal 3 bracts leaflike, others undivided, linear. Pedicels 1.5–2 cm, glabrous; bracteoles distal, narrowly linear, 7–9 mm. Sepals blue-purple, abaxially glabrous; spur cylindrical-subulate, 1.3–1.7 cm, straight, base 2.6–3 mm in diam.; other sepals 0.9–1.2 cm. Petals undivided, glabrous. Staminode limb broadly ovate, 2-lobed,

yellow barbate, long ciliate near apex. Filaments glabrous. Carpels 3, glabrous. Fl. Jul.

•Forest margins, slopes; ca. 1900 m. N Xinjiang (Hoboksar Mongol Zizhixian).

60. *Delphinium shawurense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 613. 1979.

萨乌尔翠雀花 sa wu er cui que hua

Stem ca. 1.2 m tall, sparsely hispidulous proximally and glabrous distally, or hispid proximally and sparsely puberulent distally, shortly branched distally. Leaf blade 11–19 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally unequally few lobulate, apex long acuminate; ultimate lobules lanceolate; proximal leaves usually withered. Raceme 20–28 cm, 20–40-flowered, glabrous or yellow glandular puberulent; proximal bracts leaflike, distal ones subulate. Pedicels 3–7.2 cm, yellow glandular puberulent throughout or only distally; bracteoles subulate, 7.5–9.5 mm. Sepals blue or white, abaxially sparsely glandular puberulent; spur subulate, 1.5–2.1 cm, base 2–3 mm in diam.; other sepals 1.1–1.5 cm. Petals obtuse or emarginate, glabrous. Staminode limb ovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul–Aug.

•*Pinus* forests, scrub by streams, grassy places in valleys, stream-sides; 1800–2200 m. N Xinjiang.

- 1a. Stem hispid proximally, sparsely puberulent distally 60c. var. *pseudoaemulans*
- 1b. Stem mostly glabrous, hispidulous only proximally.
 - 2a. Raceme rachis glabrous, pedicels glabrous proximally, yellow glandular puberulent distally; sepals blue 60a. var. *shawurense*
 - 2b. Raceme entirely yellow glandular puberulent; sepals white .. 60b. var. *albiflorum*

60a. *Delphinium shawurense* var. *shawurense*

萨乌尔翠雀花(原变种) sa wu er cui que hua (yuan bian zhong)

Stem mostly glabrous, hispidulous only near base. Raceme rachis glabrous. Pedicels glabrous proximally, yellow glandular puberulent distally. Sepals blue.

•*Pinus* forests, streamsides; 1800–2200 m. N Xinjiang (Hoboksar Mongol Zizhixian).

60b. *Delphinium shawurense* var. *albiflorum* Chang Y. Yang & B. Wang, Acta Phytotax. Sin. 30: 91. 1992.

白花萨乌尔翠雀花 bai hua sa wu er cui que hua

Stem mostly glabrous, hispidulous only near base. Raceme entirely yellow glandular puberulent. Sepals white.

•Grassy places in valleys; 1800–1900 m. N Xinjiang (Hoboksar Mongol Zizhixian).

60c. *Delphinium shawurense* var. *pseudoaemulans* (Chang Y. Yang & B. Wang) W. T. Wang & M. J. Warnock in W. T. Wang et al., *Phytologia* 79: 384. 1996.

毛茎萨乌尔翠雀花 *mao jing sa wu er cui que hua*

Delphinium pseudoaemulans Chang Y. Yang & B. Wang, *Acta Phytotax. Sin.* 30: 86. 1992.

Stem hispid proximally, sparsely puberulent distally. Raceme densely yellow glandular puberulent. Sepals blue.

• Scrub by streams; ca. 1900 m. N Xinjiang (Hoboksar Mongol Zizhixian).

61. *Delphinium wentsaii* Y. Z. Zhao, *Acta Sci. Nat. Univ. In-tramongol.* 20: 134. 1990.

文采翠雀花 *wen cai cui que hua*

Stem ca. 20 cm tall, densely spreading hirsute, simple. Leaf blade 5–10 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe broadly rhombic, 3-lobulate, distally incised dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually not withered. Raceme terminal and axillary, ca. 4 cm, densely ca. 6-flowered, densely hirsute; bracts leaflike, 3-sect, or undivided, lanceolate. Pedicels 1–1.5 cm; bracteoles distal, narrowly linear, 1.1–1.3 cm. Sepals blue-purple, abaxially densely hispid; spur cylindrical-subulate, ca. 1.2 cm, recurved, base ca. 2 mm in diam.; other sepals 1.1–1.2 cm. Petals emarginate, glabrous. Staminode limb broadly ovate, 2-cleft, white barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Aug.

• Alpine regions. W Xinjiang (Tekes Xian).

62. *Delphinium mollifolium* W. T. Wang, *Bull. Bot. Res., Harbin* 3(1): 31. 1983.

新源翠雀花 *xin yuan cui que hua*

Stem ca. 1.5 m tall, glabrous, branched. Leaf blade ca. 18 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally few lobulate or few dentate, apex acuminate; ultimate lobules lanceolate; proximal leaves usually withered. Compound raceme ca. 55 cm, many flowered; bracts leaflike or lanceolate. Pedicels 0.6–3 cm, distally slightly curved; bracteoles distal, lanceolate-linear, 4–6 mm. Sepals blue, abaxially sparsely puberulent; spur cylindrical, 1.1–1.2 cm, straight, base 3–4 mm in diam.; other sepals 0.9–1.3 cm. Petals entire, glabrous. Staminode limb orbicular-ovate, 2-lobed, densely yellow barbate. Filaments glabrous. Carpels 3; ovaries densely yellowish puberulent. Fl. Jun–Jul.

• Slopes; ca. 1700 m. Xinjiang (Xinyuan Xian).

63. *Delphinium glandulosum* Chang Y. Yang & B. Wang, *Acta Phytotax. Sin.* 30: 85. 1992.

无腺翠雀花 *wu xian cui que hua*

Stem 70–100 cm tall, densely appressed puberulent and glandular puberulent near base, glabrate on other parts, simple. Leaf blade 5–10 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central

lobe rhombic, 3-cleft, distally sparsely lobulate-dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually withered. Raceme ca. 28 cm, ca. 30-flowered, densely appressed puberulent; proximal bracts 3-sect, distal ones undivided, linear. Pedicels 1–3.5 cm; bracteoles distal, narrowly linear, 4–8 mm. Sepals purple, abaxially densely appressed puberulent; spur subcylindric or cylindric-subulate, 1.2–1.4 cm, straight, base 2.5–3.5 mm in diam.; other sepals 1–1.4 cm. Petals emarginate, glabrous. Staminode limb obovate, 2-cleft, yellow barbate, long ciliate. Filaments glabrous. Carpels 3, glabrous. Fl. Jun–Jul.

• Forest margins, meadows; ca. 1300 m. N Xinjiang (Burqin Xian).

64. *Delphinium tabatae* Tamura, *Acta Phytotax. Geobot.* 37: 156. 1986.

吉隆翠雀花 *ji long cui que hua*

Stem 34–80 cm tall, retrorsely hispidulous, simple or 1-branched. Leaf blade 7–13 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe broadly rhombic, 3-cleft, distally sparsely lobulate or dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually not withered. Raceme 10–20 cm, 6–12-flowered, densely shortly strigose, mixed with sparse, spreading, rigid hairs; most proximal bract 3-parted, others undivided, linear. Pedicels 2–3.5 cm; bracteoles distal, lanceolate-linear, 7–12 mm. Sepals light blue, abaxially strigose; spur cylindrical-subulate, ca. 1.4 cm, straight, base ca. 2.2 mm in diam.; other sepals 1.3–1.6 cm. Petals undivided, glabrous. Staminode limb narrowly ovate, 2-cleft, yellowish barbate. Filaments sparsely pilose. Carpels 3; ovaries densely puberulent. Fl. Aug–Sep.

Forests; 3100–3600 m. S Xizang (Gyirong Xian) [Nepal].

65. *Delphinium korshinskyanum* Nevski in Komarov, *Fl. URSS* 7: 724. 1937.

东北高翠雀花 *dong bei gao cui que hua*

Stem 55–90 cm tall, hirsute proximally, glabrous distally, simple or few branched distally. Leaf blade 7–13 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic-cuneate or rhombic, 3-lobulate, distally lobulate and dentate, apex acute; ultimate lobules lanceolate; proximal leaves not withered. Raceme 13–22 cm, (12–)18–25-flowered, glabrous; bracts lanceolate-linear. Pedicels 0.8–3.5 cm; bracteoles distal, lanceolate or lanceolate-linear, 4–5 mm. Sepals blue-purple, glabrous or sparsely ciliate; spur cylindrical-subulate, 1.3–1.6(–1.9) cm, base 2.5–3 mm in diam.; other sepals 1–1.5 cm. Petals 2-lobed, glabrous. Staminode limb ovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul–Aug.

Grassy places in forests, meadows; 400–800 m. N and W Hei-longjiang [Russia (Far East, C Siberia)].

66. *Delphinium trisectum* W. T. Wang, *Acta Bot. Sin.* 10: 80. 1962.

全裂翠雀花 *quan lie cui que hua*

Stem 30–50 cm tall, retrorsely puberulent, simple or 1-branched. Leaf blade 5–12 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate or dentate, apex acute; ultimate lobules lanceolate; proximal leaves not withered. Raceme 6–20 cm, (5–)10–14-flowered, retrorsely puberulent; bracts leaflike, lanceolate, or linear. Pedicels 2–7.5 cm; bracteoles distal, linear or subulate, 4–7 mm. Sepals blue-purple, abaxially appressed puberulent; spur cylindrical-subulate, 1.6–2.1 cm, base 3–3.5 mm in diam.; other sepals 1.3–1.7 cm. Petals emarginate, glabrous. Staminode limb ovate, 2-lobed, yellowish barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Apr–May.

• Forest margins; 400–800 m. W Anhui, S Henan, N Hubei.

67. *Delphinium erlangshanicum* W. T. Wang, Acta Bot. Sin. 10: 86. 1962.

二郎山翠雀花 *er lang shan cui que hua*

Stem ca. 30 cm, retrorsely puberulent. Leaf blade 6–9 cm wide, base deeply cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic-ovate, 2 × dissected, distally 2 or 3 × dissected, apex acute; ultimate lobules linear to narrowly lanceolate; proximal leaves not withered. Raceme ca. 14 cm, ca. 6-flowered, retrorsely puberulent; bracts lanceolate. Pedicels 1.8–6 cm; bracteoles distal, lanceolate, 1–1.1 cm. Sepals purplish, abaxially puberulent; spur subulate, 1.9–2.1 cm, base 3.5–4 mm in diam.; other sepals 1.5–1.7 cm. Petals 2-lobed, ciliate. Staminode limb ovate, 2-parted, white barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Sep.

• Rocky slopes; ca. 2300 m. W Sichuan (Erlang Shan, Tianquan Xian).

3. *Delphinium* sect. *Delphinastrum* de Candolle, Syst. Nat. 1: 351. 1817.

翠雀组 *cui que zu*

Herbs perennial, rhizomatous. Leaves mostly on proximal 1/2 of stem, near middle, or distal; leaf blade palmately divided; primary lobes 1- to many lobulate. Petals of same color as sepals, not black-brown. Staminodes of same color as sepals, not black-brown, distinctly differentiated into a claw and an expanded, broad limb; limb adaxially yellow or white barbate. Carpels 3(–5). Seeds mostly transversely squamulose winged, rarely narrowly winged only along angles.

About 170 species: mainly in the N hemisphere, a few species in Africa; 104 species (95 endemic) in China.

68. *Delphinium kingianum* Brühl ex Huth, Bot. Jahrb. Syst. 20: 469. 1895.

密叶翠雀花 *mi ye cui que hua*

Stem 22–60 cm tall, puberulent, rarely glabrous, usually simple. Leaf blade 3–10 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally 2-lobulate or entire, apex acute; ultimate lobules linear to narrowly lanceolate; proximal leaves withered. Raceme 5–14 cm, 7- to many flowered; rachis puberulent; proximal bracts leaflike, distal ones linear. Pedicels 2.2–4.8 cm; bracteoles distal, linear, 8–11 mm. Sepals blue, abaxially puberulent; spur subulate or conic-subulate, slightly shorter than sepals, 1.2–1.5 cm, base 2.5–3 mm in diam.; other sepals 1.4–1.7 cm. Petals distally rounded, glabrous. Staminode limb obovate, emarginate, white barbate. Filaments pilose. Carpels 5; ovaries densely puberulent or subglabrous. Fl. Aug.

• Wooded and grassy slopes, scrub; 4600–4800 m. S and W Xizang.

1a. Stem glabrous; leaf segments apically long acuminate 68d. var. *acuminatissimum*

1b. Stem hairy; leaf segments apically acute.

2a. Stem and raceme densely spreading puberulent, mixed with a few yellow, glandular hairs 68c. var. *eglandulosum*

2b. Stem densely retrorsely puberulent and yellow glandular puberulent; raceme densely yellow glandular puberulent, mixed with a few retrorse, white, short hairs.

3a. Ovary densely puberulent 68a. var. *kingianum*

3b. Ovary mostly glabrous, with only a few hairs on ventral suture 68b. var. *leiocarpum*

68a. *Delphinium kingianum* var. *kingianum*

密叶翠雀花(原变种) *mi ye cui que hua* (yuan bian zhong)

Delphinium pachycentrum Hemsley subsp. *tsangense* Brühl var. *dasycarpum* Brühl.

Stem densely retrorsely puberulent and yellow glandular puberulent. Leaf segments apically acute. Raceme densely yellow glandular puberulent, mixed with a few retrorse, white, short hairs. Ovary densely puberulent.

• Slopes; ca. 4600 m. S Xizang.

68b. *Delphinium kingianum* var. *leiocarpum* Brühl ex Huth, Bot. Jahrb. Syst. 20: 469. 1895.

光果密叶翠雀花 *guang guo mi ye cui que hua*

Delphinium pachycentrum subsp. *tsangense* var. *leiocarpum* (Brühl ex Huth) Brühl.

Stem densely retrorsely puberulent and yellow glandular puberulent. Leaf segments apically acute. Raceme densely yellow glandular puberulent, mixed with a few retrorse, white, short hairs. Ovary mostly glabrous, with only a few hairs on ventral suture.

• S Xizang.

68c. *Delphinium kingianum* var. *eglandulosum* W. T. Wang, Acta Bot. Sin. 10: 138. 1962.

少腺密叶翠雀花 *shao xian mi ye cui que hua*

Stem and raceme densely spreading puberulent, mixed with a few yellow, glandular hairs. Leaf segments apically acute.

• S Xizang

68d. *Delphinium kingianum* var. *acuminatissimum* (W. T. Wang) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 393. 1979. 尖裂密叶翠雀花 *jian lie mi ye cui que hua*
Delphinium acuminatissimum W. T. Wang, Acta Bot. Sin. 10: 138. 1962.

Stem glabrous. Leaf segments apically long acuminate. Raceme retrorsely puberulent, rarely mixed with a few yellow, glandular hairs.

• Scrub, grassy slopes; 4600–4800 m. SE and W Xizang.

69. *Delphinium humilium* (W. T. Wang) W. T. Wang, Bull. Bot. Res., Harbin 16: 156. 1996.

乡城翠雀花 *xiang cheng cui que hua*

Delphinium pachycentrum Hemsley var. *humilium* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 613. 1979.

Stem 20–28 cm tall, appressed puberulent, simple or 1- or 2-branched. Leaf blade 4–7 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic or narrowly so, 3-lobulate, distally few dentate, apex acute; ultimate lobules linear to narrowly lanceolate; proximal leaves withered. Raceme 3.5–8 cm, 3–6-flowered, densely appressed puberulent and yellow glandular puberulent; proximal bracts leaflike, distal ones linear. Pedicels 1.5–4.2 cm; bracteoles distal, linear, 0.8–1.4 cm. Sepals purple-blue, abaxially pubescent; spur cylindrical, 1.5–1.8 cm, slightly recurved, base 3–3.5 mm in diam.; other sepals 1.5–1.7 cm. Petals 2-lobed, glabrous. Staminode limb obovate, 2-parted slightly beyond middle, yellow barbate. Filaments glabrous or margin with few hairs. Carpels 4–6; ovaries densely pubescent. Fl. Jul–Aug.

• Grassy or gravelly slopes; 4600–4800 m. SW Sichuan (Xiangcheng Xian), NW Yunnan (Zhongdian Xian).

70. *Delphinium pachycentrum* Hemsley, J. Linn. Soc., Bot. 29: 301. 1892.

粗距翠雀花 *cu ju cui que hua*

Stem 20–50 cm tall, together with petioles densely retrorsely appressed puberulent, usually simple. Leaf blade 5–8 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic or narrowly so, 3-lobulate, distally few lobulate or few dentate, apex acute; ultimate lobules linear to narrowly lanceolate; proximal leaves usually withered. Raceme 8–20 cm, densely 5–12-flowered, densely appressed puberulent; proximal bracts leaflike, distal ones linear. Pedicels 1.5–5 cm; bracteoles distal, linear, 1–1.8 cm. Sepals purple-blue, puberulent; spur subcylindric, 1.8–2 cm, straight or slightly recurved, base 3–4 mm in diam.; other sepals 1.6–2.2 cm. Petals undivided, glabrous. Staminode limb broadly obovate or broadly elliptic, entire, emarginate, or 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Jul–Aug.

• Gravelly or grassy slopes; 4000–4600 m. SE Qinghai, W Sichuan.

1a. Spurless sepals narrowly elliptic; upper sepal ovate 70a. var. *pachycentrum*

1b. Spurless sepals lanceolate; upper sepal narrowly ovate or oblong 70b. var. *lancisepalum*

70a. *Delphinium pachycentrum* var. *pachycentrum*

粗距翠雀花(原变种) *cu ju cui que hua* (yuan bian zhong)

Delphinium pachycentrum subsp. *hemsleyi* Brühl; *D. pachycentrum* var. *lobatum* W. T. Wang; *D. setiferum* Franchet.

Spurless sepals narrowly elliptic; upper sepal ovate.

• Gravelly slopes; 4000–4500 m. SE Qinghai, W Sichuan.

70b. *Delphinium pachycentrum* var. *lancisepalum* (Handel-Mazzetti) W. T. Wang, Acta Bot. Sin. 10: 140. 1962.

狭萼粗距翠雀花 *xia e cu ju cui que hua*

Delphinium lancisepalum Handel-Mazzetti, Acta Horti Gothob. 13: 55. 1939.

Spurless sepals lanceolate; upper sepal narrowly ovate or oblong.

• Grassy slopes; 4200–4600 m. W Sichuan (Jinchuan Xian, Kangding Xian).

71. *Delphinium caudatolobum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 613. 1979.

尾裂翠雀花 *wei lie cui que hua*

Stem ca. 50 cm tall, puberulent, simple. Leaf blade 5–9 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe lanceolate-rhombic, subpinnately lobed, distally incised dentate, apex caudate acuminate; ultimate lobules linear to narrowly lanceolate; proximal leaves usually withered. Raceme ca. 15 cm, ca. 24-flowered, densely appressed puberulent; proximal bracts leaflike, distal ones lanceolate. Pedicels 1.5–2 cm; bracteoles distal, lanceolate, 5–8 mm. Sepals blue-purple, abaxially sparsely puberulent; spur cylindrical-subulate, 9–10 mm, base 2.5–3 mm in diam.; other sepals ca. 11 mm. Petals entire, glabrous. Staminode limb suboblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Aug–Sep.

• Grassy slopes; ca. 4600 m. NW Sichuan (Garzê Xian).

72. *Delphinium gyanum* C. Marquand & Airy Shaw, J. Linn. Soc., Bot. 48: 156. 1929.

拉萨翠雀花 *la sa cui que hua*

Delphinium kawaguchii Tamura; *D. lasiocarpum* Tamura.

Stem 0.5–1.1 m tall, sparsely puberulent, branched, rarely simple. Leaf blade 9–22 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-cleft, distally unequally few lobulate and dentate, apex acute; ultimate lobules linear to narrowly lanceolate; proximal leaves usually withered. Raceme 20–35 cm, many flowered, yellow glandular puberulent and retrorsely puberulent; proximal bracts leaflike or 3-parted, distal ones linear. Pedicels 2.5–8.5 cm; bracteoles distal, narrowly lanceolate, 7–11 mm. Sepals blue-purple, abaxially

puberulent and glandular puberulent; spur subulate, conic-subulate, or subcylindric, 1.2–1.8 cm, base 3–4.5 mm in diam.; other sepals 1.3–1.5 cm. Petals emarginate, glabrous. Staminode limb ovate, 2-lobed, yellow barbate. Filaments pilose. Carpels 3; ovaries puberulent. Fl. Jul–Sep.

• Scrub, grassy slopes; 3000–4500 m. S Xizang.

73. *Delphinium hsianganense* S. H. Li & Z. F. Fang, Fl. Pl. Herb. Chin. Bor.-Orient. 3: 114. 1975.

兴安翠雀花 *xing an cui que hua*

Stem 75–95 cm tall, subglabrous or sparsely puberulent, branched distally. Leaf blade 6–10 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-lobulate, distally unequally dentate, apex acute; ultimate lobules linear to narrowly lanceolate; proximal leaves usually withered. Raceme ca. 20 cm, ca. 9-flowered, retrorsely puberulent; proximal bracts leaflike, distal ones oblong to subulate. Pedicels 2.5–7 cm; bracteoles distal, subulate, 3–5 mm, rarely linear and to 8 mm. Sepals blue, abaxially puberulent; spur cylindric-subulate or subulate, 1.6–1.8 cm, base 3–4 mm in diam.; other sepals 1.6–1.8 cm. Petals apically rounded, glabrous. Staminode limb broadly elliptic, emarginate, yellowish barbate. Filaments glabrous or pilose. Carpels 3; ovaries puberulent. Fl. Jun–Jul.

• Forest margins. NE Nei Mongol.

74. *Delphinium cheilanthum* Fischer ex de Candolle, Syst. Nat. 1: 352. 1817.

唇花翠雀花 *chun hua cui que hua*

Stem 0.8–1.4 m tall, glabrous, simple or branched distally. Leaf blade 7–10 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe narrowly rhombic, 3-lobulate, distally entire or few dentate, apex acute; ultimate lobules narrowly ovate or lanceolate; proximal leaves usually withered. Raceme 12–20 cm, 6–10-flowered; rachis glabrous; bracts linear or subulate. Pedicels 1.5–3.5 cm, distally appressed puberulent; bracteoles distal, subulate, 2.5–3.5 mm. Sepals blue-purple, abaxially densely appressed puberulent; spur cylindric-subulate, 2.1–2.2 cm, base 2.5–4 mm in diam.; other sepals 1.1–2 cm. Petals undivided, glabrous. Staminode limb broadly obovate, 2-lobed, yellowish barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Jul–Aug.

Meadows; 700–800 m. NE Nei Mongol, N Xinjiang [Mongolia, Russia (Siberia)].

75. *Delphinium yuchuanii* Y. Z. Zhao, Acta Sci. Nat. Univ. Intramongol. 20: 248. 1989.

毓泉翠雀花 *yu quan cui que hua*

Stem ca. 30 cm tall, glabrous, simple. Leaf blade 4–6 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally usually 1-dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Raceme ca. 5 cm, ca. 4-flowered; rachis glabrous or subglabrous; most proximal bract leaflike.

Pedicels 1–2 cm, proximally glabrous or subglabrous, distally appressed puberulent; bracteoles distal, lanceolate-linear, ca. 5 mm. Sepals blue, abaxially densely appressed puberulent; spur cylindric-subulate, ca. 2 cm, straight, base ca. 3 mm in diam.; other sepals 1.5–1.8 cm. Petals undivided, glabrous. Staminode limb broadly elliptic, emarginate, yellowish barbate. Filaments ciliolate. Carpels 3; ovaries densely appressed puberulent. Fl. Aug.

• Meadows by streams. SW Nei Mongol.

76. *Delphinium micropetalum* Finet & Gagnepain, Bull. Soc. Bot. France 51: 479. 1904.

小瓣翠雀花 *xiao ban cui que hua*

Delphinium jugorum Handel-Mazzetti; *D. micropetalum* f. *album* W. T. Wang.

Stem 45–60 cm tall, strigose, simple or branched distally. Leaf blade 6–15 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic or rhombic-obtrapezoid, 3-cleft, distally incised dentate, apex acute; ultimate lobules narrowly ovate or lanceolate; proximal leaves usually not withered. Raceme 8–20 cm, 8–13-flowered, retrorsely puberulent and sparsely yellow glandular puberulent; proximal bracts leaflike, distal ones lanceolate. Pedicels 1.5–6 cm; bracteoles distal, narrowly lanceolate, 4–15 mm. Sepals blue-purple, rarely white, abaxially sparsely puberulent; spur conic-subulate, 1–1.6 cm, base 3–4 mm in diam.; other sepals 1–1.8 cm. Petals undivided, glabrous. Staminode limb ovate, emarginate or entire, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Aug–Oct.

Grassy slopes; 3300–4200 m. NW Yunnan [N Myanmar].

77. *Delphinium orthocentrum* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 178. 1893.

直距翠雀花 *zhi ju cui que hua*

Delphinium szechuanicum Ulbrich.

Stem 50–100 cm tall, glabrous proximally, appressed puberulent distally, simple or 1-branched distally. Leaf blade 6–11 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-lobulate, distally few incised dentate, apex acute; ultimate lobules narrowly ovate or lanceolate; proximal leaves usually withered. Raceme 12–30 cm, (5–)10–20-flowered, appressed puberulent; proximal bracts leaflike, distal ones small, subulate, to 7 mm. Pedicels 1–3 cm; bracteoles distal, subulate, 3.5–8 mm. Sepals blue-purple, abaxially densely puberulent; spur conic-cylindric, 0.8–1.9 cm, upcurved, base 2–3 mm in diam.; other sepals 0.9–1.5 cm. Petals 2-lobed, glabrous. Staminode limb ovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent. Fl. Aug.

• Grassy slopes; ca. 3500 m. NW Sichuan (Songpan Xian, Wenchuan Xian).

78. *Delphinium altissimum* Wallich, Pl. Asiat. Rar. 2: 25. 1831

高茎翠雀花 *gao jing cui que hua*

Stem ca. 1 m tall, glabrous, branched. Leaf blade 10–15 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe broadly rhombic, 3-lobulate, distally few dentate, apex acute; ultimate lobules narrowly ovate or lanceolate; proximal leaves usually not withered. Compound raceme ca. 40 cm, ca. 25-flowered, densely appressed puberulent; bracts 3-parted. Pedicels 1.2–2.2 cm; bracteoles borne proximally or near middle of pedicel, lanceolate-linear or subulate, 2.2–2.8 mm. Sepals purple-blue, abaxially appressed puberulent; spur cylindrical, ca. 1.7 cm, straight, base ca. 3 mm in diam.; other sepals 1.3–1.5 cm. Petals undivided, glabrous. Staminode limb broadly ovate, 2-lobed, sparsely white barbate. Filaments glabrous. Carpels 3; ovaries puberulent only near ventral suture. Fl. Aug–Sep.

Forest margins, grassy places; 2300–2600 m. S Xizang [Bhutan, NE India, Nepal].

79. *Delphinium delavayi* Franchet, Bull. Soc. Bot. France 33: 379. 1886.

滇川翠雀花 *dian chuan cui que hua*

Stem 55–100 cm tall, hispidulous or hispid, branched. Leaf blade 7–13 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic or broadly so, 3-lobulate, distally incised dentate, apex acute; ultimate lobules ovate or narrowly so; proximal leaves withered or not. Compound or simple raceme 12–45 cm, 5–15-flowered, densely strigose and often yellow glandular puberulent; proximal bracts leaflike, distal ones linear-lanceolate. Pedicels 1.2–6(–10) cm; bracteoles distal, narrowly lanceolate, 5–12 mm. Sepals blue-purple, abaxially puberulent or ± strigose; spur subulate, 1.6–2.2 cm, base 2–3.5 mm in diam.; other sepals 1–1.5 cm. Petals undivided, glabrous. Staminode limb oblong, 4.5–6 mm, 2-lobed, white or yellow barbate. Filaments glabrous or sparsely hairy. Carpels 3; ovaries puberulent. Fl. Jul–Nov.

• Forests, forest margins, scrub, grassy slopes, open hillsides, streamsides; 2000–3800 m. W Guizhou, SW Sichuan, Yunnan

1a. Raceme strigose only, without yellow, glandular hairs; leaf lobes more strongly divided 79d. var. *baoshanense*

1b. Raceme densely strigose and yellow glandular puberulent; leaf lobes less divided.

2a. Stem and petioles densely retrorsely hispidulous, hairs 0.5–2 mm 79a. var. *delavayi*

2b. Stem and petioles spreading hispid, hairs 2–3 mm.

3a. Filaments glabrous; leaf blade central lobe rhombic 79b. var. *pogonanthum*

3b. Filaments with 1 or 2 hairs on each side; leaf blade central lobe broadly rhombic 79c. var. *lasiandrum*

79a. *Delphinium delavayi* var. *delavayi*

滇川翠雀花(原变种) *dian chuan cui que hua* (*yuan bian zhong*)

Delphinium delavayi f. *aureum* W. T. Wang; *D. delavayi* var. *acuminatum* Franchet; *D. trichophorum* f. *brevungue* H. Léveillé.

Stem and petioles densely retrorsely hispidulous; hairs 0.5–2 mm. Leaf blade central lobe rhombic. Raceme strigose and yellow glandular puberulent. Filaments glabrous.

• Sparse forests, grassy slopes; 2600–3600 m. W Guizhou, SW Sichuan, NC and SE Yunnan.

79b. *Delphinium delavayi* var. *pogonanthum* (Handel-Mazzetti) W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 401. 1979.

须花翠雀花 *xu hua cui que hua*

Delphinium pogonanthum Handel-Mazzetti, Symb. Sin. 7: 279. 1931.

Stem and petioles spreading hispid; hairs 2–3 mm. Leaf blade central lobe rhombic. Raceme strigose and yellow glandular puberulent. Filaments glabrous.

• Forests, scrub, grassy slopes; 2600–3600 m. W Guizhou, SW Sichuan, C, N, and SE Yunnan.

79c. *Delphinium delavayi* var. *lasiandrum* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 14. 1986.

毛蕊翠雀花 *mao rui cui que hua*

Stem and petioles spreading hispid; hairs 2–3 mm. Leaf blade central lobe broadly rhombic. Raceme strigose and yellow glandular puberulent. Filaments with 1 or 2 hairs on each side.

• Forests, forest margins; 3500–3800 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

79d. *Delphinium delavayi* var. *baoshanense* (W. T. Wang) W. T. Wang in W. T. Wang et al., Phytologia 79: 384. 1996.

保山翠雀花 *bao shan cui que hua*

Delphinium baoshanense W. T. Wang, Bull. Bot. Res., Harbin 6(1): 12. 1986.

Stem and petioles retrorsely hispidulous; hairs 0.5–2 mm. Leaf blade central lobe rhombic. Raceme strigose only, without yellow, glandular hairs. Filaments glabrous.

• Grassy slopes; 2000–2400 m. W Yunnan (Baoshan Xian).

80. *Delphinium umbrosum* Handel-Mazzetti, Symb. Sin. 7: 278. 1931.

阴地翠雀花 *yin di cui que hua*

Stem 30–110 cm tall, shortly strigose, hispidulous, or hispid, branched or simple. Leaf blade 4–20 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic or narrowly so, 3-lobulate, distally incised dentate, apex acute; ultimate lobules ovate or narrowly so; proximal leaves withered or not. Raceme sometimes compound, 10–30 cm, 6–15-flowered, strigose and yellow glandular puberulent; proximal bracts leaflike, distal ones small, linear. Pedicels 2–8 cm; bracteoles distal, green, linear or linear-subulate, 0.8–1.9 cm × 0.5–1.8 mm. Sepals blue-purple, abaxially puberulent; spur subulate, 2–2.9 cm, recurved, straight, or upcurved, base 2–3 mm in diam.;

other sepals 0.8–1.6 cm. Petals undivided, glabrous. Staminode limb ovate, 3–6 mm, 2-lobed, white barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Aug–Oct.

Forests, forest margins, grassy slopes; 1900–3900 m. SW Sichuan, S Xizang, N Yunnan [Nepal].

1a. Stem shortly strigose, hairs 0.1–0.9 mm 80a. var. *umbrosum*

1b. Stem proximally spreading hispid, hairs 1–2 mm.

2a. Bracteoles 0.6–1.1 mm wide 80b. var. *hispidum*

2b. Bracteoles 1.5–1.8 mm wide 80c. var. *drepanocentrum*

80a. *Delphinium umbrosum* var. *umbrosum*

阴地翠雀花(原变种) yin di cui que hua (yuan bian zhong)

Stem shortly strigose; hairs 0.1–0.9 mm. Bracteoles 0.5–0.6 mm wide.

• Forests, grassy slopes; 3500–3900 m. NW Yunnan.

80b. *Delphinium umbrosum* var. *hispidum* W. T. Wang, Acta Phytotax. Sin., Addit. 1: 102. 1965.

展毛阴地翠雀花 zhan mao yin di cui que hua

Stem proximally spreading hispid; hairs 1–2 mm. Bracteoles 0.6–1.1 mm wide.

• Forests, grassy slopes; 1900–3900 m. SW Sichuan, N Yunnan.

80c. *Delphinium umbrosum* var. *drepanocentrum* (Brühl ex Huth) W. T. Wang & M. J. Warnock in W. T. Wang et al., Phytologia 79: 384. 1996.

宽苞阴地翠雀花 kuan bao yin di cui que hua

Delphinium altissimum Wallich var. *drepanocentrum*

Brühl ex Huth, Bot. Jahrb. Syst. 20: 419. 1895; *D.*

altissimum subsp. *drepanocentrum* (Brühl ex Huth)

Brühl; *D. drepanocentrum* (Brühl ex Huth) Munz; *D.*

umbrosum subsp. *drepanocentrum* (Brühl ex Huth)

Chowdhury ex Mukerjee.

Stem proximally spreading hispid; hairs 1–2 mm. Bracteoles 1.5–1.8 mm wide

Forest margins; 2300–3800 m. S Xizang [Nepal, Sikkim].

81. *Delphinium latirhombicum* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 7. 1986.

宽菱形翠雀花 kuan ling xing cui que hua

Stem 55–65 cm tall, glabrous proximally, yellow glandular puberulent near raceme, 1-branched. Leaf blade 6–13 cm wide, base deeply cordate; primary lobes

separate for at least 60% of blade radius; central lobe broadly rhombic, 3-lobulate, distally incised dentate, apex acute; ultimate lobules ovate or narrowly so;

proximal leaves withered or not. Raceme 5–24 cm, 5–15-flowered, puberulent and yellow glandular puberulent; bracts lanceolate-linear, sometimes

proximal bracts leaflike. Pedicels 0.6–6 cm; bracteoles distal, linear-lanceolate, 4.5–6.5 mm. Sepals purple, abaxially sparsely yellow glandular puberulent; spur subulate, 1.4–1.7 cm, straight or slightly recurved, base 2–2.5 mm in diam.; other sepals 0.9–1.1 cm. Petals 2-lobulate, glabrous. Staminode limb triangular, 2-cleft,

sparsely yellowish barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul.

• Forest margins; ca. 2900 m. NW Yunnan (Eryuan Xian).

82. *Delphinium handelianum* W. T. Wang, Acta Phytotax. Sin. 6: 365. 1957.

淡紫翠雀花 dan zi cui que hua

Delphinium lilacinum Handel-Mazzetti (1931), not Willdenow ex Huth (1895).

Stem 50–80 cm tall, hispid or glabrous, branched. Leaf blade 7–12 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, entire or 3-lobulate, distally unequally dentate, apex acute; ultimate lobules ovate or narrowly so; proximal leaves withered or not. Raceme 12–19 cm, 8–14-flowered, densely retrorsely strigose and yellow glandular puberulent; proximal bracts leaflike, distal ones lanceolate or subulate. Pedicels 1–5 cm; bracteoles borne near middle of pedicel or distally, lanceolate-linear, 5–8 mm. Sepals purple or purplish, abaxially puberulent; spur subulate, ca. 1.5 cm, straight, base ca. 2.5 mm in diam.; other sepals 1–1.1 cm. Petals 2-lobed, sparsely ciliate. Staminode limb ovate, 2-cleft, white barbate. Filaments glabrous. Carpels 3; ovaries sparsely strigose or glabrous. Fl. Aug.

• Sparse forests, slopes. NW Yunnan (Dayao Xian, Yongsheng Xian).

83. *Delphinium honanense* W. T. Wang, Acta Bot. Sin. 10: 146. 1962.

河南翠雀花 he nan cui que hua

Stem 50–100 cm tall, glabrous, simple or branched.

Leaf blade 7–10 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, entire or 3-lobulate, distally dentate, apex acute; ultimate lobules ovate or narrowly so; proximal

leaves usually withered. Raceme 8–11 cm, 10–15-flowered, retrorsely puberulent, sometimes yellow glandular puberulent; proximal bracts 3-parted, distal

ones lanceolate-linear or linear. Pedicels 0.8–2.6 cm; bracteoles borne proximally or near middle of pedicel,

linear, 5–8 mm. Sepals purple, abaxially sparsely puberulent; spur subulate, 2–2.1 cm, base 2–3 mm in diam.; other sepals 1.3–1.6 cm. Petals emarginate or

entire, glabrous. Staminode limb suboblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. May.

• Forests, grassy slopes; 600–1900 m. SW Henan, W Hubei, S Shaanxi

1a. Stem 50–60 cm, simple; raceme retrorsely puberulent and yellow glandular puberulent; petals emarginate 83a. var. *honanense*

1b. Stem ca. 100 cm, branched distally; raceme only retrorsely puberulent, without glandular hairs; petals entire 83b. var. *piliferum*

83a. *Delphinium honanense* var. *honanense*

河南翠雀花(原变种) he nan cui que hua (yuan bian zhong)

Stem 50–60 cm, simple. Raceme retrorsely puberulent and yellow glandular puberulent. Petals emarginate.

• Forests; 600–1900 m. SW Henan, W Hubei, S Shaanxi.

83b. *Delphinium honanense* var. *piliferum* W. T. Wang, Fl. Tsinling. 1(2): 261. 1974.

毛梗河南翠雀花 *mao geng he nan cui que hua*

Stem ca. 100 cm, branched distally. Raceme only retrorsely puberulent, without glandular hairs. Petals entire.

• Grassy slopes. SE Shaanxi.

84. *Delphinium omeiense* W. T. Wang, Fl. Reipubl. Popularis Sin. 7: 613. 1979.

峨眉翠雀花 *e mei cui que hua*

Stem 60–95 cm tall, retrorsely hispid or appressed puberulent, simple or branched. Petiole retrorsely hispid or appressed puberulent; leaf blade 7–16 cm wide, base deeply cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate and dentate, apex acute; ultimate lobules ovate or narrowly so; proximal leaves usually withered. Raceme 12–30 cm, 8–12-flowered, retrorsely strigose and yellow glandular puberulent; proximal bracts leaf-like, distal ones linear-lanceolate or linear. Pedicels 1–4 cm; bracteoles borne near middle of pedicel or distally, lanceolate-linear or linear, 6–7 mm. Sepals blue-purple, abaxially puberulent and yellow glandular puberulent; spur subulate, (0.7–)2–2.6 cm, base 2–3 mm in diam.; other sepals (0.4–)1.2–1.6 cm. Petals undivided, acute, glabrous. Staminode limb suboblong, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Jul–Nov.

• Forests, forest margins, scrub, grassy slopes, open slopes; 2000–3300 m. SW Hubei, SW Sichuan, NE Yunnan.

- 1a. Stem and petioles appressed puberulent 84c. var. *pubescens*
- 1b. Stem and petioles retrorsely hispid.
 - 2a. Sepals (1–)1.2–1.6 cm, spur 2–2.6 cm 84a. var. *omeiense*
 - 2b. Sepals 0.4–0.8 cm, spur 0.7–1.8 cm 84b. var. *micranthum*

84a. *Delphinium omeiense* var. *omeiense*

峨眉翠雀花(原变种) *e mei cui que hua* (*yuan bian zhong*)

Stem and petioles retrorsely hispid. Sepals (1–)1.2–1.6 cm; spur 2–2.6 cm.

• Forests, grassy slopes; 2500–3300 m. SW Sichuan, NE Yunnan.

84b. *Delphinium omeiense* var. *micranthum* G. F. Tao, Acta Phytotax. Sin. 23: 219. 1985.

小花峨眉翠雀花 *xiao hua e mei cui que hua*

Stem and petioles retrorsely hispid. Sepals 0.4–0.8 cm; spur 0.7–1.8 cm.

• Slopes; ca. 2000 m. SW Hubei (Jianshi Xian).

84c. *Delphinium omeiense* var. *pubescens* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 614. 1979.

毛峨眉翠雀花 *mao e mei cui que hua*

Stem and petioles appressed puberulent. Sepals 1–1.2 cm; spur 1.6–1.8 cm.

• Forest margins, scrub; 2200–2600 m. SW Sichuan (Muli Zang Zu Zizhixian).

This variety is similar to *Delphinium tongolense*, but differs in having a puberulent stem.

85. *Delphinium yanwaense* W. T. Wang, Acta Bot. Yunnan. 5: 157. 1983.

岩瓦翠雀花 *yan wa cui que hua*

Stem ca. 30 cm tall, retrorsely puberulent proximally, glabrous distally, branched. Leaf blade 4–6 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally 1- or 2-dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually not withered. Raceme ca. 16 cm, sparsely 3–5-flowered; rachis glabrous; proximal bracts leaflike, distal ones narrowly oblong. Pedicels 3.5–10 cm, appressed puberulent near apex; bracteoles distal, linear or narrowly so, 0.5–1.8 cm. Sepals blue-purple, abaxially densely appressed puberulent; spur subulate, ca. 1.9 cm, straight, base ca. 2 mm in diam.; other sepals 7.5–9 mm. Petals 2-lobulate, sparsely ciliate. Staminode limb subobovate, 2-cleft, yellow barbate. Filaments pilose. Carpels 3; ovaries puberulent. Fl. Jul.

• Rocks in valleys; ca. 2700 m. NW Yunnan (Weixi Lisu Zu Zizhixian).

86. *Delphinium tongolense* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 166. 1893.

川西翠雀花 *chuan xi cui que hua*

Stem 0.5–1.6 m tall, glabrous, branched distally. Leaf blade 8–12 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally lobulate and dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Raceme 12–38 cm, 8–25-flowered, yellow glandular puberulent; proximal bracts leaflike, distal ones linear or filiform. Pedicels 1.8–7 cm; bracteoles distal, subfiliform, 4–7 mm. Sepals blue-purple, abaxially sparsely puberulent; spur subulate, 1.5–2.4 cm, base 3–3.5 mm in diam.; other sepals 1.1–1.8 cm. Petals emarginate, glabrous. Staminode limb suboblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent. Fl. Jul–Aug.

• Forests, grassy slopes; 2200–3900 m. W Sichuan, N Yunnan.

87. *Delphinium hirtifolium* W. T. Wang, Acta Bot. Yunnan. 6: 374. 1984.

毛叶翠雀花 *mao ye cui que hua*

Stem ca. 80 cm tall, glabrous, branched distally. Leaf blade ca. 7.5 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic-lanceolate, nearly undivided, distally dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Raceme 27–40 cm, 18–35-flowered, yellow glandular puberulent and retrorsely puberulent; proximal bracts leaflike, distal ones linear. Pedicels 0.5–5 cm; bracteoles borne near middle of pedicel, linear, 5–9 mm. Sepals deep blue-purple, abaxially sparsely puberulent; spur subulate, 1.5–2 cm, recurved, base ca. 2.5 mm in diam.; other sepals 1–1.1 cm. Petals 2-lobed, glabrous. Staminode limb ovate, 2-parted, sparsely white barbate. Filaments glabrous. Carpels 3; ovaries yellowish pilose. Fl. Jun–Jul.

• Slopes; ca. 2500 m. SW Sichuan (Muli Zang Zu Zizhixian).

88. *Delphinium longipedicellatum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 614. 1979.

长梗翠雀花 *chang geng cui que hua*

Stem 75–95 cm tall, glabrous or sparsely hispidulous proximally, simple or 1-branched distally. Leaf blade 14–18 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally few lobulate and dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Raceme 20–40 cm, ca. 6-flowered, retrorsely puberulent and yellow glandular puberulent; proximal bracts leaflike, distal ones lanceolate. Pedicels 5–9 cm; bracteoles distal, narrowly linear or filiform, 4–10 mm. Sepals blue, adaxially sparsely puberulent; spur cylindrical-subulate, 1.3–1.4 cm, base ca. 3.5 mm in diam.; other sepals 1.9–2.1 cm. Petals 2-lobed, glabrous. Staminode limb ovate, 2-parted, yellowish barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Aug.

• *Abies* forests; ca. 3800 m. E Xizang (Bomi Xian).

89. *Delphinium pseudocyananthum* Chang Y. Yang & B. Wang, Acta Phytotax. Sin. 30: 83. 1992.

假深蓝翠雀花 *jia shen lan cui que hua*

Stem ca. 90 cm tall, appressed puberulent proximally, glabrous distally, ca. 2-branched. Leaf blade ca. 7 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic or broadly so, 3-cleft, distally sparsely lobulate-dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Raceme 18–22 cm, densely many flowered, densely appressed puberulent; proximal bracts 3-parted, distal ones undivided, linear. Pedicels 5–10 mm; bracteoles distal, narrowly linear, 5–7 mm. Sepals blue-purple, abaxially densely appressed puberulent; spur subulate, 1.3–1.5 cm, nearly straight, base 2.8–3 mm in diam.; other sepals 1.2–1.3 cm. Petals 2-lobed, glabrous. Staminode limb ovate, 2-

lobed, yellow barbate, ciliate. Filaments glabrous.

Carpels 3; ovaries densely puberulent. Fl. Jul.

• Grassy places by streams; ca. 1000 m. N Xinjiang (Habahe Xian).

90. *Delphinium sherriffii* Munz, J. Arnold Arbor. 49: 115. 1968.

米林翠雀花 *mi lin cui que hua*

Stem (0.5–)1–1.6 m tall, spreading puberulent and yellow glandular puberulent, branched distally. Leaf blade 8–10 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-lobulate, distally few lobulate and dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Compound raceme pyramidal, to 40 cm, many flowered, yellow glandular puberulent; proximal bracts leaflike, distal ones small, subfiliform. Pedicels 1.5–4 cm; bracteoles distal, subulate or filiform, 2–5 mm. Sepals blue-purple, abaxially sparsely puberulent; spur subulate, (1.6–)2–2.2 cm, base 3–4 mm in diam.; other sepals 1–1.2 cm. Petals 2-lobed, glabrous. Staminode limb oblong, 2-cleft, yellowish barbate. Filaments glabrous. Carpels 3, glabrous or ovary puberulent. Fl. Jun–Jul.

• Forests, streams; 3000–3500 m. SE Xizang (Mainling Xian).

91. *Delphinium hirticaule* Franchet, J. Bot. (Morot) 8: 275. 1894.

毛茎翠雀花 *mao jing cui que hua*

Stem ca. 70 cm tall, usually hispid proximally, glabrous distally, branched or simple. Leaf blade 8–10 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic-obovate, 3-lobulate, distally lobulate, apex acute; ultimate lobules narrowly ovate or linear-lanceolate; proximal leaves usually withered. Raceme 5–20(–30) cm, 5–10(–20)-flowered, glabrous or yellow glandular puberulent; bracts linear. Pedicels 1.5–3 cm; bracteoles proximal, subulate-linear, 2.2–4 mm. Sepals blue-purple, abaxially sparsely puberulent; spur subulate, 1.7–2 cm, sometimes U-shaped, base 3–4 mm in diam.; other sepals 1.2–2 cm. Petals undivided, glabrous. Staminode limb obovate, emarginate to 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Aug.

• Grassy slopes; 1200–2900 m. W Hubei, S Shaanxi, E Sichuan.

1a. Raceme glabrous 91a. var. *hirticaule*

1b. Raceme yellow glandular puberulent 91b. var. *mollipes*

91a. *Delphinium hirticaule* var. *hirticaule*

毛茎翠雀花(原变种) *mao jing cui que hua* (yuan bian zhong)

Delphinium coelestinum Franchet; *D. hirticaule* var. *coelestinum* (Franchet) Finet & Gagnepain; *D. hirticaule* var. *micranthum* Finet & Gagnepain; *D. wilsonii* Munz.

Raceme glabrous.

• Grassy slopes; 1400–2900 m. W Hubei, S Shaanxi, NE Sichuan.

91b. *Delphinium hirticaule* var. *mollipes* W. T. Wang, Acta Bot. Sin. 10: 146. 1962.

腺毛翠雀花 xian mao cui que hua

Raceme yellow glandular puberulent.

• Grassy slopes; 1200–2600 m. W Hubei, E Sichuan.

92. *Delphinium potaninii* Huth, Bull. Herb. Boissier 1: 332. 1893.

黑水翠雀花 hei shui cui que hua

Stem 0.5–1.5 m tall, glabrous, usually branched. Leaf blade 10–15 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally few dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves withered. Raceme 6–30 cm, 3–15-flowered, sometimes corymbiform, glabrous; proximal bracts sometimes leaflike, distal ones small, linear or subulate. Pedicels 1.5–9 cm; bracteoles borne at various points on pedicel, lanceolate-linear to filiform, 2–12 × 0.2–1.2 mm. Sepals blue-purple, abaxially puberulent; spur subulate, (1.6–)2.2–2.5(–3) cm, recurved, U-shaped, or spirally recurved; other sepals 1–2 cm. Petals emarginate, glabrous. Staminode limb obovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovary sparsely puberulent or glabrous. Fl. Jun–Sep.

• Forests, forest margins, grassy slopes, meadows; 1100–3800 m. S Gansu, S Shaanxi, Sichuan.

- 1a. Bracteoles lanceolate-linear or linear, 10–12 × 1–1.2 mm 92c. var. *latibracteolatum*
- 1b. Bracteoles narrowly linear or filiform, 2–7 × 0.2–0.4 mm.
 - 2a. Spur recurved; inflorescence racemose 92a. var. *potaninii*
 - 2b. Spur U-shaped or spirally recurved; inflorescence racemose, often corymbiform 92b. var. *bonvalotii*

92a. *Delphinium potaninii* var. *potaninii*

黑水翠雀花(原变种) hei shui cui que hua (yuan bian zhong)

Raceme 14–30 cm, 6–15-flowered. Bracteoles narrowly linear or filiform, 2–7 × 0.2–0.4 mm. Spur recurved. Ovary glabrous, rarely sparsely puberulent.

• Slopes in forests; 1800–3300 m. S Gansu, S Shaanxi, E and NW Sichuan.

92b. *Delphinium potaninii* var. *bonvalotii* (Franchet) W. T. Wang, Bull. Bot. Res., Harbin 16: 156. 1996.

螺距黑水翠雀花 luo ju hei shui cui que hua
Delphinium bonvalotii Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 165. 1893.

Raceme 6–14 cm, 3–12-flowered, often corymbiform; bracteoles narrowly linear or filiform, 2–7 × 0.2–0.4 mm. Spur U-shaped or spirally recurved. Ovary sparsely puberulent or glabrous.

• Forest margins; 1100–3800 m. W Sichuan.

92c. *Delphinium potaninii* var. *latibracteolatum* W. T. Wang, Acta Bot. Sin. 10: 147. 1962.

宽苞黑水翠雀花 kuan bao hei shui cui que hua

Raceme ca. 11 cm, ca. 9-flowered. Bracteoles lanceolate-linear or linear, 10–12 × 1–1.2 mm. Spur U-shaped or spirally recurved. Ovary glabrous.

• Grassy slopes; ca. 2300 m. NC Sichuan (Maowen Qiang Zu Zizhixian).

93. *Delphinium eriostylum* H. Léveillé, Bull. Herb. Boissier, sér. 2, 6: 505. 1906.

毛梗翠雀花 mao geng cui que hua

Stem 40–60 cm tall, glabrous or proximally sparsely hispid, branched distally. Leaf blade 7–16 cm wide, shortly strigose or hispid, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally few lobulate or few dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Corymb 3–10 cm, 3–5-flowered; bracts leaflike or undivided, lanceolate.

Pedicels 2–3.5 cm, sparsely yellow glandular puberulent; bracteoles borne near middle of pedicel or distally, narrowly linear or subulate, 4–8 mm. Sepals purple-blue, abaxially sparsely puberulent; spur subulate, 1.7–2 cm, slightly recurved, base 2.5–3.5 mm in diam.; other sepals 1.4–1.7 cm. Petals 2-lobulate, glabrous. Staminode limb oblong, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries sparsely pilose or glabrous. Fl. Mar–Jun.

• Slopes, grassy places, streamsides in valleys; 500–2000 m. Guizhou, SE Sichuan.

- 1a. Proximal leaves absent, leaf blade shortly strigose; ovary sparsely pilose 93a. var. *eriostylum*
- 1b. Proximal leaves 3, leaf blade hispid; ovary glabrous 93b. var. *hispidum*

93a. *Delphinium eriostylum* var. *eriostylum*

毛梗翠雀花(原变种) mao geng cui que hua (yuan bian zhong)

Delphinium bonvalotii Franchet var. *eriostylum* (H. Léveillé) W. T. Wang.

Proximal leaves absent; leaf blade shortly strigose.

Ovary sparsely pilose. Fl. Mar–Jun.

• Slopes, grassy places, streamsides in valleys; 500–2000 m. Guizhou, SE Sichuan (Nanchuan Xian).

93b. *Delphinium eriostylum* var. *hispidum* (W. T. Wang) W. T. Wang, Bull. Bot. Res., Harbin 16: 157. 1996.

糙叶毛梗翠雀花 cao ye mao geng cui que hua
Delphinium bonvalotii var. *hispidum* W. T. Wang, Fl.

Reipubl. Popularis Sin. 27: 412. 1979.

Proximal leaves 3; leaf blade hispid. Ovary glabrous. Fl. Apr.

• Grassy places in valleys; ca. 1200 m. S Guizhou (Wangmo Bouyei-Miao Zu Zizhixian).

94. *Delphinium laxicymosum* W. T. Wang, Acta Bot. Sin. 10: 148. 1962.

聚伞翠雀花 ju san cui que hua

Stem 50–75 cm tall, hispid proximally or throughout, branched. Leaf blade 6–13 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate or

dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Corymb 3–8 cm, 2–5-flowered, glabrous or retrorsely puberulent; proximal bracts 3-parted, distal ones filiform. Pedicels 2–7 cm; bracteoles borne near middle of pedicel, filiform, 2–2.5 mm. Sepals deep blue, abaxially puberulent; spur subulate, 2–2.5 cm, recurved, base ca. 3 mm in diam.; other sepals 0.8–2.1 cm. Petals undivided, glabrous. Staminate limb oblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul.

- Mixed forests in valleys, scrub, streamsides; 1300–3100 m. N Sichuan.

- 1a. Stem hispid only proximally, glabrous elsewhere; corymb glabrous; upper sepal ca. 1.4 cm, spur 2.3–2.5 cm 94b. var. *laxicymosum*
1b. Stem hispid throughout; corymb retrorsely puberulent; upper sepal ca. 1.2 cm, spur ca. 2 cm 94b. var. *pilostachyum*

94a. *Delphinium laxicymosum* var. *laxicymosum*

聚伞翠雀花(原变种) ju san cui que hua (yuan bian zhong)

Stem hispid only proximally, glabrous elsewhere. Corymb glabrous. Upper sepal ca. 1.4 cm; spur 2.3–2.5 cm.

- Scrub; ca. 3100 m. NW Sichuan (Wenchuan Xian).

94b. *Delphinium laxicymosum* var. *pilostachyum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 614. 1979.

毛序聚伞翠雀花 mao xu ju san cui que hua

Stem hispid throughout. Corymb retrorsely puberulent. Upper sepal ca. 1.2 cm; spur ca. 2 cm.

- Mixed forests in valleys, streamsides; ca. 1300 m. N Sichuan (Qingchuan Xian).

95. *Delphinium sinovitifolium* W. T. Wang, Acta Bot. Sin. 10: 152. 1962.

葡萄叶翠雀花 pu tao ye cui que hua

Delphinium vitifolium Finet & Gagnepain, Bull. Soc. Bot. France 53: 126. 1906, not Willdenow ex Steudel (1840).

Stem 30–40 cm tall, densely spreading hirsute, simple. Leaf blade 5–6 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe broadly rhombic, 3-lobulate or 3-dentate, distally few dentate, apex acute; ultimate lobules triangular; proximal leaves withered. Raceme 9.5–13 cm, 4- or 5-flowered, spreading puberulent; proximal bracts leaflike, distal ones linear or narrowly so. Pedicels 1.8–4 cm, puberulent and sparsely glandular puberulent; bracteoles distal, subulate, 3.5–6 mm. Sepals blue, abaxially pubescent; spur subulate, 2.2–2.5 cm, recurved or U-shaped, base 3–3.5 mm in diam.; other sepals 1–1.3 cm. Petals undivided, glabrous. Staminate limb obliquely ovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Sep.

- Alpine meadows; ca. 4000 m. W Sichuan.

96. *Delphinium maoxianense* W. T. Wang, Acta Phytotax. Sin. 31: 209. 1993.

茂县翠雀花 mao xian cui que hua

Stem 30–40 cm tall, hispid proximally, glabrous distally, simple. Leaf blade 4–6 cm wide, base deeply cordate; primary lobes separate for less than 60% of blade radius; central lobe broadly rhombic, 3-lobulate, distally incised dentate, apex acute; ultimate lobules triangular; proximal leaves withered. Corymb ca. 6.5 cm, ca. 4-flowered, glabrous; bracts leaflike. Pedicels 3.5–5.5 cm; bracteoles borne near middle of pedicel, linear, ca. 5 mm. Sepals blue-purple, abaxially sparsely puberulent; spur cylindrical-subulate, 1.8–2.2 cm, spirally curved, base 4–5 mm in diam.; other sepals 1.2–1.4 cm. Petals undivided, glabrous. Staminate limb obovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Sep.

- NC Sichuan (Maowen Qiang Zu Zizhixian).

97. *Delphinium spirocentrum* Handel-Mazzetti, Symb. Sin. 7: 280. 1931.

螺距翠雀花 luo ju cui que hua

Delphinium pediforme Comber; *D. spirocentrum* var. *grandibracteolatum* W. T. Wang; *D. spirocentrum* var. *hirsutum* Chen; *D. spirocentrum* var. *pediforme* (Comber) W. T. Wang.

Stem (16–)26–90 cm tall, hispid, simple or branched. Leaf blade 4–14 cm wide, base deeply cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally few lobulate and dentate, apex shortly acuminate; ultimate lobules triangular; proximal leaves withered. Raceme 8–25 cm, 4–25-flowered, hispidulous and yellow glandular puberulent, proximal bracts leaflike, distal ones linear or linear-subulate. Pedicels 1.5–5.5 cm; bracteoles borne at various points on pedicel, usually linear, 1–1.2 cm. Sepals blue-purple, abaxially puberulent; spur subulate, ca. 2.3 cm, U-shaped or spirally curved, base 3–4 mm in diam.; other sepals 1.6–2 cm. Petals undivided, glabrous. Staminate limb suboblong, emarginate to 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries strigose. Fl. Jul–Oct.

- Forest margins, scrub, grassy slopes; 3400–4200 m. SW Sichuan, NW Yunnan.

98. *Delphinium gonggaense* W. T. Wang, Acta Bot. Yunnan. 6: 375. 1984.

贡嘎翠雀花 gong ga cui que hua

Stem 55–70 cm tall, hispidulous, simple. Leaf blade ca. 11 cm wide, base deeply cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally incised dentate, apex shortly acuminate; ultimate lobules triangular; proximal leaves withered. Raceme ca. 22 cm, ca. 10-flowered, retrorsely puberulent and yellowish glandular puberulent; proximal bracts leaflike, distal ones broadly lanceolate. Pedicels 7–8 cm; bracteoles distal, linear, rarely narrowly oblong, 7–8(–28) mm. Sepals blue-purple, abaxially pubescent; spur subulate, ca. 1.9 cm, spirally curved; other sepals ca. 1.1 cm. Petals 2-lobed,

glabrous. Staminode limb suboblong, 2-lobed, yellowish barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul.

• Alpine *Quercus* thickets; ca. 3600 m. W Sichuan (Gongga Shan, Luding Xian).

99. *Delphinium angustirhombicum* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 9. 1986.

狭菱形翠雀花 *xia ling xing cui que hua*

Stem ca. 42 cm tall, sparsely spreading puberulent, proximally with several axillary, short, sterile branches. Leaf blade ca. 5.5 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe narrowly rhombic, 3-lobulate, distally 1- or few dentate, apex shortly acuminate; ultimate lobules triangular; proximal leaves withered. Raceme ca. 29 cm, ca. 19-flowered; rachis glabrous proximally, elsewhere retrorsely puberulent and yellow glandular puberulent; proximal bracts leaflike, distal ones linear or narrowly so. Pedicels 1.5–5.8 cm, retrorsely puberulent and yellow glandular puberulent; bracteoles distal, linear or narrowly so, 5–10 mm. Sepals purple-blue, abaxially appressed puberulent; spur subulate, 1.9–2.2 cm, recurved U-shaped, base 2–3 mm in diam.; other sepals 1.3–1.5 cm. Petals 2-lobulate, glabrous. Staminode limb obovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent distally. Fl. Jul.

• Moist areas; ca. 3500 m. NW Yunnan (Zhongdian Xian).

100. *Delphinium wenchuanense* W. T. Wang, Bull. Bot. Res., Harbin 3(1): 34. 1983.

汶川翠雀花 *wen chuan cui que hua*

Stem glaucous, ca. 2.5 m, glabrous, branched. Leaf blade ca. 16 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally lobulate and dentate, apex acuminate; ultimate lobules triangular; proximal leaves withered. Compound raceme ca. 32 cm, many flowered; rachis glabrous proximally, elsewhere densely yellow glandular puberulent; proximal bracts leaflike, distal ones linear. Pedicels 0.6–4.5 cm, densely yellow glandular puberulent; bracteoles distal, linear, 3.8–5 mm. Sepals blue-purple, abaxially yellow glandular puberulent; spur cylindrical-subulate, ca. 2 cm, U-shaped, base ca. 4 mm in diam.; other sepals ca. 1.3 cm. Petals undivided, glabrous. Staminode limb obovate-oblong, 2-lobed, white barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Jul.

• Slopes; ca. 2500 m. NW Sichuan (Wenchuan Xian).

101. *Delphinium bulleyanum* Forrest ex Diels, Notes Roy. Bot. Gard. Edinburgh 5: 125. 1912.

拟螺距翠雀花 *ni luo ju cui que hua*

Delphinium polyanthum W. T. Wang; *D. spirocentrum* Handel-Mazzetti var. *pauciflorum* Chen.

Stem 0.6–1.8 m tall, glabrous, simple or branched distally. Leaf blade 7–12 cm wide, base deeply cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate and

dentate, apex shortly acuminate; ultimate lobules triangular; proximal leaves withered. Raceme often terminal and compound, 9–14 cm, 6–16-flowered, retrorsely puberulent and yellow glandular puberulent; proximal bracts leaflike, distal ones small, lanceolate-linear to filiform. Pedicels 1–4.8 cm; bracteoles borne near middle of pedicel or distally, linear or filiform, 1.5–4 mm. Sepals blue, abaxially densely puberulent; spur subulate, 1.8–2.4 cm, recurved, U-shaped, or spirally curved, base 2.8–3.5 mm in diam.; other sepals 1.1–1.5 cm. Petals 2-lobed, glabrous. Staminode limb narrowly obovate, 2-parted, yellow or white barbate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent or glabrous. Fl. Aug–Sep.

• Scrub, grassy slopes; 3100–4800 m. SW Sichuan, NW Yunnan.

102. *Delphinium ninglangshanicum* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 10. 1986.

宁朗山翠雀花 *ning lang shan cui que hua*

Stem ca. 25 cm tall, glabrous, simple or branched. Leaf blade 4–7 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic or cuneate, 3-lobulate, distally incised lobulate or 1- or 2-dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves not withered. Raceme ca. 15 cm, ca. 4-flowered, retrorsely puberulent and yellow glandular puberulent; proximal bracts leaflike, distal ones undivided, lanceolate or narrowly so. Pedicels 2.5–6 cm; bracteoles distal, linear-lanceolate or linear, 0.8–1.2 cm. Sepals blue-purple, abaxially appressed puberulent; spur subulate, 2–2.2 cm, recurved U-shaped, base ca. 3 mm in diam.; other sepals 1.5–1.8 cm. Petals undivided, glabrous. Staminode limb broadly elliptic or ovate, emarginate, yellow barbate. Filaments glabrous. Carpels 3; ovaries pubescent. Fl. Sep.

• Scrub; 3600–3800 m. SW Sichuan (Muli Zang Zu Zizhixian).

103. *Delphinium pseudotongolense* W. T. Wang, Acta Bot. Sin. 10: 153. 1962.

拟川西翠雀花 *ni chuan xi cui que hua*

Stem 60–100 cm tall, glabrous, branched. Leaf blade 11–12 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe ovate-rhombic, 3-lobulate, distally incised dentate, apex acuminate; ultimate lobules narrowly ovate; proximal leaves usually withered. Compound raceme (5–)12–18 cm, densely yellow glandular puberulent mixed with a few retrorse, white hairs; bracts linear or filiform. Pedicels 0.7–3 cm; bracteoles borne near middle of pedicel or distally, filiform, 4.5–7 mm. Sepals blue-purple, abaxially puberulent; spur subulate, 1.5–2.1 cm, spirally curved, base 2–3.5 mm in diam.; other sepals 1.3–2 cm. Petals undivided, glabrous. Staminode limb ovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries glabrous or sparsely puberulent. Fl. Jul–Aug.

• Thickets; 1200–2500 m. W Sichuan.

104. *Delphinium muliense* W. T. Wang, Acta Phytotax. Sin. 6: 365. 1957.

木里翠雀花 mu li cui que hua

Stem 60–70 cm tall, glabrous, simple or branched. Leaf blade 4–7 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-lobulate, distally few lobulate and dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Raceme 6–19 cm, 4–15-flowered, retrorsely puberulent and yellow glandular puberulent; proximal bracts leaflike, distal ones linear or lanceolate, 0.8–1.4 cm. Pedicels 1.2–5 cm; bracteoles distal, lanceolate, lanceolate-linear, or subfiliform, 3.5–13 × 0.2–2 mm. Sepals blue-purple, abaxially puberulent; spur subulate, 2–2.2 cm, recurved, base 2.5–3.5 mm in diam.; other sepals 1.3–1.8 cm. Petals undivided, glabrous. Staminode limb ovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, sparsely puberulent only on ventral suture. Fl. Jul.

• Forests, forest margins, grassy places by streams; 3300–4200 m. SW Sichuan.

- 1a. Bracteoles lanceolate or lanceolate-linear, 8–13 × 1.2–2 mm 104a. var. *muliense*
- 1b. Bracteoles subfiliform, 3.5–4.5 × ca. 0.2 mm 104b. var. *minutibracteolatum*

104a. *Delphinium muliense* var. *muliense*

木里翠雀花(原变种) mu li cui que hua (yuan bian zhong)

Delphinium pachycentrum Hemsley var. *tenuicaule* Chen.

Bracteoles lanceolate or lanceolate-linear, 8–13 × 1.2–2 mm.

• Forests, forest margins; 3500–4200 m. SW Sichuan (Muli Zang Zu Zizhixian).

104b. *Delphinium muliense* var. *minutibracteolatum* W. T. Wang, Acta Bot. Sin. 10: 149. 1962.

小苞木里翠雀花 xiao bao mu li cui que hua

Bracteoles subfiliform, 3.5–4.5 × ca. 0.2 mm.

• Grassy places by streams; ca. 3300 m. SW Sichuan (Muli Zang Zu Zizhixian).

105. *Delphinium campylocentrum* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 31. 1890.

弯距翠雀花 wan ju cui que hua

Stem 65–100 cm tall, glabrous, branched distally. Leaf blade 10–14 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate and dentate, apex acute; ultimate lobules narrowly ovate; proximal leaves usually withered. Compound raceme ca. 30 cm, 14- to many flowered, yellow glandular puberulent; bracts leaflike, lanceolate, or linear. Pedicels 2.2–6 cm; bracteoles borne near middle of pedicel or distally, subulate, 5–7 mm. Sepals blue-purple, abaxially sparsely glandular puberulent, 2-cleft corniculate near apex; spur subulate, 1.8–2 cm, U-shaped, base 2–3 mm in diam.; other sepals 1–1.5 cm. Petals 2-lobed,

glabrous. Staminode limb obtrapezoid, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3(or 4), glabrous. Fl. Jul–Sep.

• *Picea* forests, grassy slopes; 3400–3900 m. S Gansu, NW Sichuan.

106. *Delphinium sutchuenense* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 178. 1893.

松潘翠雀花 song pan cui que hua

Delphinium sungpanense W. T. Wang.

Stem 50–100 cm tall, glabrous, branched distally. Leaf blade ca. 10 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate and dentate, apex long acuminate; ultimate lobules lanceolate; proximal leaves usually withered. Raceme ca. 15 cm, ca. 10-flowered, retrorsely puberulent; proximal bracts leaflike, distal ones linear or linear-subulate. Pedicels 1.5–5 cm; bracteoles distal, narrowly linear or subulate, 3–7 mm. Sepals blue-purple, abaxially puberulent, sometimes corniculate near apex; spur subulate, 1.5–2 cm, recurved or straight, base 2–3 mm in diam.; other sepals ca. 1 cm. Petals emarginate, glabrous. Staminode limb ovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries glabrous or sparsely puberulent. Fl. Jul–Aug.

• Forests, grassy slopes; ca. 2800 m. S Gansu (Zhugqu Xian), NW Sichuan (Songpan Xian).

107. *Delphinium pseudocampylocentrum* W. T. Wang, Acta Bot. Sin. 10: 150. 1962.

拟弯距翠雀花 ni wan ju cui que hua

Stem 50–65 cm tall, hispid proximally, glabrous distally, branched or simple. Leaf blade 4–7 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate or dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually withered. Raceme 5–15 cm, 3–10-flowered, yellow glandular puberulent or glabrous; proximal bracts leaflike, distal ones small, linear or subulate. Pedicels 1.5–4 cm; bracteoles distal, linear or subulate, 2.3–6.5 mm. Sepals deep blue, abaxially puberulent; spur subulate, 1.7–2.2 cm, usually slightly recurved, base ca. 3 mm in diam.; other sepals 1.2–1.5 cm. Petals undivided, glabrous. Staminode limb ovate, 2-lobed or 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent distally or glabrous. Fl. Jul–Aug.

• Forests, *Picea* forest margins, grassy slopes; 3400–4400 m. NW Sichuan.

- 1a. Raceme yellow glandular puberulent; ovaries sparsely puberulent distally 107a. var. *pseudocampylocentrum*
- 1b. Raceme and ovaries glabrous . 107b. var. *glabripes*

107a. *Delphinium pseudocampylocentrum* var. *pseudocampylocentrum*

拟弯距翠雀花(原变种) ni wan ju cui que hua (yuan bian zhong)

Raceme yellow glandular puberulent. Ovaries sparsely puberulent distally.

• Grassy slopes; ca. 4400 m. NW Sichuan (Jinchuan Xian).

107b. *Delphinium pseudocampylocentrum* var. *glabripes* W. T. Wang, Bull. Bot. Res., Harbin 16: 158. 1996.

光序拟弯距翠雀花 *guang xu ni wan ju cui que hua*

Raceme and ovaries glabrous.

• *Picea* forest margins; ca. 3400 m. NW Sichuan (Aba Xian).

108. *Delphinium rangtangense* W. T. Wang, Acta Bot. Yunnan. 8: 262. 1986.

壤塘翠雀花 *rang tang cui que hua*

Stem 70–100 cm tall, sparsely yellowish hispid proximally, glabrous distally, simple. Leaf blade 7–11 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic or broadly so, 3-cleft, distally 3-dentate or incised dentate, apex long acuminate; ultimate lobules triangular or lanceolate; proximal leaves withered. Compound raceme ca. 34 cm, lax, ca. 20-flowered, glabrous; proximal bracts leaflike or linear, distal ones linear-subulate. Pedicels 7.5–8.5 cm; bracteoles distal, linear-subulate, 1.5–3 mm. Sepals blue-purple, abaxially sparsely puberulent along midvein; spur subulate, ca. 2 cm, recurved, base ca. 3.5 mm in diam.; other sepals 9–10 mm. Petals distally erose, ciliate. Staminode limb ovate, 2-cleft, yellow barbate. Filaments glabrous or pilose. Carpels 3, glabrous. Fl. Jul.

• *Abies* forests; ca. 3300 m. NW Sichuan (Zamtang Xian).

109. *Delphinium conaense* W. T. Wang, Acta Phytotax. Sin. 25: 34. 1987.

错那翠雀花 *cuo na cui que hua*

Stem ca. 60 cm tall, densely appressed puberulent, simple. Leaf blade 4–7 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, subpinnately parted, distally 1-denticulate or entire, apex acute; ultimate lobules narrowly triangular; proximal leaves withered. Raceme ca. 2.5 cm, ca. 2-flowered, appressed puberulent; bracts linear. Pedicels ca. 1 cm; bracteoles borne near middle of pedicel, linear, 3.5–4.5 mm. Sepals bluish, abaxially appressed puberulent; spur subulate, ca. 1.5 cm, base ca. 2.5 mm in diam.; other sepals 0.9–1.2 cm. Petals emarginate, glabrous. Staminode limb obovate-oblong, 2-lobed, yellowish barbate. Filaments pilose. Carpels 3; ovaries pubescent. Fl. Sep.

• Wet places in forests; 3400–3500 m. SE Xizang (Cona Xian).

110. *Delphinium giraldii* Diels, Bot. Jahrb. Syst. 36(Beibl. 82): 39. 1905.

秦岭翠雀花 *qin ling cui que hua*

Stem 55–110(–150) cm tall, glabrous, branched distally. Leaf blade 12–20 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic or rhombic-obovate, 3-cleft, distally few lobulate or dentate, apex acute; ultimate lobules lanceolate; proximal leaves usually withered.

Compound raceme 40–50 cm, many flowered, glabrous; proximal bracts leaflike, distal ones linear. Pedicels 1.5–3 cm; bracteoles borne near middle of pedicel, subulate, 2.5–3.5 mm. Sepals blue-purple, abaxially puberulent; spur subulate, 1.5–2 cm, straight, base 3–4 mm in diam.; other sepals 1–1.3 cm. Petals 2-lobed, glabrous. Staminode limb oblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul–Aug.

• Forests, grassy slopes; 1000–2000 m. SE Gansu, W Henan, W Hubei, S Ningxia, S Shaanxi, S Shanxi, NW Sichuan (Barkam Xian).

111. *Delphinium sparsiflorum* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg, Sér. 3, 23: 307. 1877.

疏花翠雀花 *shu hua cui que hua*

Stem to 1.2 m tall, glabrous, few branched distally. Leaf blade 7–14 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate or dentate, apex acute; ultimate lobules lanceolate; proximal leaves withered. Compound raceme pyramidal, 30–40 cm, many flowered, glabrous; proximal bracts leaflike, distal ones linear or subulate. Pedicels 1.8–3.8 cm; bracteoles borne near middle of pedicel or distally, subulate, 2–3.5 mm. Sepals blue or pinkish, abaxially sparsely puberulent distally; spur narrowly conic or cylindrical, 6–11 mm, base ca. 3 mm in diam.; other sepals 8.5–11 mm. Petals 2-lobed, glabrous. Staminode limb ovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul–Aug.

• *Picea* forests, grassy slopes; 1900–2800 m. C and S Gansu, S Ningxia, E Qinghai.

112. *Delphinium angustipaniculatum* W. T. Wang, Acta Phytotax. Sin. 29: 456. 1991.

宕昌翠雀花 *dang chang cui que hua*

Stem ca. 1 m tall, densely puberulent proximally, glabrous distally, branched. Leaf blade ca. 14 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted, distally incised lobulate, apex acuminate; ultimate lobules narrowly triangular; proximal leaves usually not withered. Compound raceme narrowly pyramidal, ca. 27 cm, many flowered; rachis glabrous; bracts leaflike. Pedicels 4–8 cm, densely appressed puberulent; bracteoles borne near middle of pedicel, linear, 2–2.5 mm. Sepals blue, abaxially sparsely puberulent; spur conic-subulate, 8–9 mm, base ca. 3 mm in diam.; other sepals 7–8 mm. Petals undivided, glabrous; staminode limb ovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent. Fl. Sep–Oct.

• Scrub in valleys. S Gansu (Dangchang Xian).

113. *Delphinium glabricaule* W. T. Wang, Acta Bot. Sin. 10: 154. 1962.

光茎翠雀花 *guang jing cui que hua*

Stem ca. 70 cm tall, glabrous, simple. Leaf blade 7–8 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft,

distally lobulate and dentate, apex acute; ultimate lobules narrowly triangular; proximal leaves usually not withered. Raceme ca. 36 cm, sparsely ca. 8-flowered, glabrous; proximal bracts lanceolate, distal ones linear or filiform. Pedicels 3.5–9 cm; bracteoles borne near middle of pedicel or distally, subulate, 4–5 mm. Sepals blue, abaxially sparsely puberulent; spur subulate, 1.8–2 cm, spirally curved, base ca. 3.5 mm in diam.; other sepals 0.9–1.2 cm. Petals emarginate, glabrous. Staminate limb obovate, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul.

• Forests. W Sichuan (Xiaojin Xian).

114. *Delphinium trifoliolatum* Finet & Gagnepain, Bull. Soc. Bot. France 51: 481. 1904.

三小叶翠雀花 san xiao ye cui que hua

Stem 50–90(–120) cm tall, sparsely retrorsely puberulent, often glabrescent proximally, branched. Leaf blade 7–12 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe narrowly rhombic or lanceolate, indistinctly 3-lobulate, distally few dentate, apex acute; ultimate lobules narrowly triangular; proximal leaves withered. Raceme 3–12 cm, 3–8-flowered, retrorsely puberulent; proximal bracts leaflike, distal ones elliptic or oblong. Pedicels 0.9–2 cm; bracteoles distal, oblanceolate-linear or linear, 3–7 mm. Sepals purple, abaxially puberulent; spur subulate, 2.2–2.5 cm, nearly straight, base 3–3.5 mm in diam.; other sepals 1–1.2 cm. Petals 2-lobed, glabrous. Staminate limb obovate, 2-cleft, sparsely white barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul–Aug.

• Forests; 1500–1600 m. W Anhui, SW Hubei, SE Sichuan.

115. *Delphinium wangii* M. J. Warnock, *nom. nov.*

秀丽翠雀花 xiu li cui que hua

Replaced synonym: *Delphinium amabile* Chang Y. Yang & B. Wang, Acta Phytotax. Sin. 30: 89. 1992, not Tidestrom (1925).

Stem 70–80 cm tall, retrorsely hispid proximally, puberulent near middle, simple or 1- or 2-branched. Leaf blade to 12 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft, distally sparsely lobulate or dentate, apex acute; ultimate lobules narrowly triangular; proximal leaves withered. Raceme 10–16 cm, 10- to many flowered, puberulent; proximal bracts 3-sect, distal ones undivided, narrowly linear. Pedicels 0.8–1.2 cm; bracteoles distal, narrowly linear, 5–7 mm. Sepals blue, abaxially puberulent; spur cylindrical-subulate, 1.2–1.5 cm, nearly straight, base ca. 3.5 mm in diam.; other sepals ca. 1.3 cm. Petals entire, glabrous. Staminate limb broadly ovate, 2-cleft, yellow barbate, ciliate distally. Filaments glabrous. Carpels 3, glabrous. Fl. Jul–Aug.

• Forest margins, scrub, slopes; ca. 2300 m. N Xinjiang (Hoboksar Mongol Zizhixian).

116. *Delphinium aemulans* Nevski in Komarov, Fl. URSS 7: 725. 1937.

塔城翠雀花 ta cheng cui que hua

Stem 70–100 cm tall, retrorsely puberulent proximally, glabrescent distally, simple or branched. Leaf blade 13–18 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally lanceolate, few lobulate, apex long acuminate; ultimate lobules narrowly lanceolate; proximal leaves withered. Raceme 6.5–15 cm, densely 14–20-flowered, densely yellow glandular puberulent and sparsely retrorsely puberulent; bracts linear-filiform, 1–1.6 cm. Pedicels 0.7–1.1 cm; bracteoles distal, subulate, ca. 6 mm. Sepals blue-purple, abaxially yellow glandular puberulent; spur conic-subulate, 1.2–1.7 cm, recurved or nearly straight, base 2–3 mm in diam.; other sepals ca. 1.5 cm. Petals undivided, glabrous. Staminate limb suboblong, 2-cleft, yellowish barbate. Filaments pilose. Carpels 3; ovaries puberulent. Fl. Jul–Aug.

Slopes; ca. 1400 m. NW Xinjiang [Kazakhstan].

117. *Delphinium taliense* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 174. 1893.

大理翠雀花 da li cui que hua

Stem 45–130 cm, glabrous or proximally with short, rigid hairs, usually branched. Leaf blade 6–10 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate, apex acute; ultimate lobules triangular, narrowly so, narrowly lanceolate or lanceolate-linear; proximal leaves withered. Raceme 6–15(–30) cm, 6–12(–17)-flowered; rachis glabrous; proximal bracts 3-parted or undivided, distal ones undivided, linear-subulate. Pedicels 2–7 cm, glabrous or puberulent apically; bracteoles borne near middle of pedicel or distally, subulate, 4.5–9 mm, glabrous or sparsely puberulent. Sepals purple-blue, abaxially appressed puberulent, rarely abaxially hirsute, shortly corniculate distally; spur subulate or rarely cylindrical-subulate, 1.3–2.4(–2.6) cm, nearly equaling or 1.5–2 × as long as lateral and lower sepals, slightly recurved, base 2–3(–5) mm in diam.; other sepals 1–1.5(–2.5) cm. Petals distally 2-lobulate, glabrous or sparsely ciliate. Staminate limb 2-lobed, sometimes emarginate or 2-parted, yellow barbate. Filaments glabrous. Carpels 3; ovaries glabrous or puberulent. Fl. Aug–Nov.

• Forests on slopes, forest margins, grassy slopes, meadows, rocks; 2800–3500 m. SW Sichuan, NC and NW Yunnan

- 1a. Spur cylindrical-subulate, nearly equaling sepals, base 4–5 mm in diam. 117c. var. *platycentrum*
- 1b. Spur subulate, slightly longer than or 1.5–2 × as long as sepals, base 2–3 mm in diam.
 - 2a. Sepals hirsute abaxially 117b. var. *hirsutum*
 - 2b. Sepals appressed puberulent abaxially.
 - 3a. Leaf blade 3 or 4 × dissected, ultimate lobules narrowly lanceolate or lanceolate-linear; spur ca. 2.6 cm; staminate limb 2-parted

beyond
middle 117d. var. *dolichocentrum*

- 3b. Leaf blade less divided, ultimate lobules triangular or narrowly so; spur 1.3–2.4 cm; staminode limb 2-lobed nearly to middle or emarginate 117a. var. *taliense*

117a. *Delphinium taliense* var. *taliense*

大理翠雀花(原变种) da li cui que hua (yuan bian zhong)

Delphinium georgei Comber; *D. mitzugense* Ulbrich; *D. taliense* var. *glabrum* W. T. Wang.

Leaf blade less divided; ultimate lobules triangular or narrowly so. Spur subulate, 1.3–2.4 cm, base 2–3 mm in diam.; other sepals 1–1.6 cm, appressed puberulent abaxially. Staminode limb 2-lobed nearly to middle or emarginate. Fl. Aug–Nov.

- Forest margins, meadows; 2800–3500 m. SW Sichuan, NC and NW Yunnan.

117b. *Delphinium taliense* var. *hirsutum* W. T. Wang, Acta Bot. Sin. 10: 159. 1962.

硬毛大理翠雀花 ying mao da li cui que hua
Leaf blade less divided; ultimate lobules triangular or narrowly so. Spur subulate, 2–2.3 cm, base 2–3 mm in diam.; other sepals 1.2–1.5 cm, hirsute abaxially. Fl. Sep.

- Grassy slopes. SW Sichuan (Huili Xian).

117c. *Delphinium taliense* var. *platycentrum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 614. 1979.

粗距大理翠雀花 cu ju da li cui que hua

Leaf blade less divided; ultimate lobules triangular or narrowly so. Spur cylindrical-subulate, ca. 2.5 cm, base 4–5 mm in diam.; other sepals ca. 2.5 cm, appressed puberulent abaxially. Fl. Aug.

- Rocks; ca. 3500 m. SW Sichuan (Butuo Xian).

117d. *Delphinium taliense* var. *dolichocentrum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 615. 1979.

长距大理翠雀花 chang ju da li cui que hua

Leaf blade 3 or 4 × dissected; ultimate lobules narrowly lanceolate or lanceolate-linear. Spur subulate, ca. 2.6 cm, base 2–3 mm in diam.; other sepals 1.2–1.5 cm, appressed puberulent abaxially. Staminode limb 2-parted beyond middle. Fl. Sep.

- Forests on slopes; ca. 2800 m. SW Sichuan (Huidong Xian).

118. *Delphinium lasiantherum* W. T. Wang, Acta Bot. Yunnan. 5: 160. 1983.

毛药翠雀花 mao yao cui que hua

Delphinium taliense Franchet var. *pubipes* W. T. Wang.

Stem 60–70 cm tall, glabrous or subglabrous, 1-branched distally. Leaf blade 9–13 cm wide, base

cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic, 3-lobulate, distally 1- or 2-dentate, apex acute; ultimate lobules triangular or lanceolate; proximal leaves withered. Raceme 11–15 cm, 5- or 6-flowered, yellow glandular puberulent; bracts narrowly linear. Pedicels 1.8–4.5 cm; bracteoles distal, lanceolate-linear or subulate, 5–6 mm. Sepals deep purple, abaxially yellow pilose; spur subulate, 2.2–2.5 cm, recurved, base ca. 2.5 mm in diam.; other sepals 1–1.6 cm. Petals 2-lobulate, sparsely ciliate. Staminode limb suboblong, 2-parted, yellow barbate. Filaments pilose distally; anthers abaxially puberulent. Carpels 3; ovaries densely pubescent. Fl. Feb.

- Scrub; ca. 3200 m. SW Sichuan (Daocheng Xian).

The type citation gives a February collection date. No other specimens have been seen. August or September is a more likely collection date at this location and elevation.

119. *Delphinium liangshanense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 615. 1979.

凉山翠雀花 liang shan cui que hua

Stem 28–55 cm, glabrous, branched. Leaf blade 4–9 cm wide, base deeply cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-parted, distally undivided or 3-lobulate, apex acute; ultimate lobules triangular or lanceolate; proximal leaves withered. Raceme 5–10 cm, 4–6-flowered, glabrous; bracts narrowly linear. Pedicels 2.5–8 cm; bracteoles borne proximally or near middle of pedicel, subulate or subfiliform, 5–7 mm. Sepals purple, abaxially puberulent; spur subulate, 2.3–2.8 cm, base ca. 3 mm in diam.; other sepals 1.6–1.9 cm. Petals undivided, glabrous. Staminode limb narrowly obovate, undivided, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely pubescent. Fl. Jul–Oct.

- Grassy slopes; ca. 3000 m. SW Sichuan (Yuexi Xian), NE Yunnan (Qiaojia Xian).

120. *Delphinium ceratophoroides* W. T. Wang, Acta Bot. Sin. 10: 158. 1962.

拟角萼翠雀花 ni jiao e cui que hua

Stem ca. 30 cm tall, glabrous, simple or 1-branched distally. Leaf blade 3–7 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic or obovate-rhombic, 3-parted, distally 2- or 3-lobulate, apex acute; ultimate lobules triangular or lanceolate; proximal leaves withered. Raceme ca. 9 cm, ca. 3-flowered, glabrous; bracts 3-parted or undivided, linear. Pedicels 4–5.5 cm; bracteoles distal, linear, 5–9.5 mm. Sepals deep blue, abaxially puberulent, subapically corniculate; spur subulate, ca. 2.5 cm, base ca. 3 mm in diam.; other sepals 1.6–2.2 cm. Petals emarginate, glabrous. Staminode limb suboblong, 2-cleft, yellow barbate. Filaments pilose. Carpels 3; ovaries densely appressed pubescent. Fl. Aug.

- Alpine meadows; ca. 3200 m. SE Xizang (Zayü Xian).

121. *Delphinium hamatum* Franchet, Pl. Delavay. 28. 1889.

钩距翠雀花 *gou ju cui que hua*

Stem 10–30 cm tall, hispid proximally, glabrous distally, branched or simple. Leaf blade 2–6 cm wide, base cordate; primary lobes separate for less than 60% of blade radius; central lobe cuneate or rhombic-cuneate, 3-lobulate, distally few dentate, apex acute; ultimate lobules triangular or lanceolate; proximal leaves not withered. Raceme 2–9 cm, 1–5-flowered, glabrous; bracts small, linear. Pedicels 1.5–5 cm; bracteoles distal, linear-subulate, 2–5 mm. Sepals blue-purple, abaxially sparsely puberulent; spur cylindrical-subulate, 1.2–1.5 cm, recurved or U-shaped, base 3–3.5 mm in diam.; other sepals 1.5–1.7 cm. Petals undivided, glabrous. Staminode limb narrowly obovate, emarginate or 2-lobed, yellow barbate. Filaments glabrous or pilose. Carpels 3; ovaries pubescent. Fl. Sep–Oct.

• Grassy or stony slopes; 2900–3800 m. NW Yunnan (Eryuan Xian, Heqing Xian).

122. *Delphinium hueizeense* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 18. 1986.

会泽翠雀花 *hui ze cui que hua*

Stem 12–20 cm tall, retrorsely hispid, simple. Leaf blade 3–9 cm wide, base deeply cordate; primary lobes separate for less than 60% of blade radius; central lobe rhombic or broadly so, 3-lobulate, distally 1- or 2-dentate, apex acute; ultimate lobules triangular or lanceolate; proximal leaves not withered. Raceme ca. 17 cm, ca. 6-flowered, retrorsely pubescent and yellow glandular puberulent; proximal bracts leaflike or 3-sect, distal ones undivided, linear. Pedicels 2–7 cm; bracteoles distal, narrowly linear, 7–9 mm. Sepals purple-blue, abaxially appressed yellow glandular puberulent and hispid; spur subulate, 2–2.2 cm, straight or nearly so, base 2.5–3.5 mm in diam.; other sepals 1.3–1.5 cm. Petals 2-lobed, glabrous or subglabrous. Staminode limb oblong, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries pubescent. Fl. Aug–Sep.

• Thicket margins along streams, alpine meadows; ca. 3400 m. NE Yunnan (Huize Xian).

123. *Delphinium calthifolium* Q. E. Yang & Y. Luo, Novon 11: 370. 2001.

驴蹄草叶翠雀花 *lu ti cao ye cui que hua*

Stem 25–40 cm tall, densely appressed puberulent, unbranched. Leaf blade 4–6 cm wide, base deeply cordate; primary lobes separate for less than 60% of blade radius; central lobe broadly rhombic, unlobed, distally dentate, apex acute; ultimate lobules broadly triangular or orbicular; proximal leaves not withered. Raceme 5–12 cm, 3–6-flowered, appressed white puberulent; proximal bracts 3–5-sect, distal ones undivided, lanceolate. Pedicels 2–5 cm; bracteoles distal, lanceolate, 2–5 mm. Sepals blue, abaxially appressed puberulent; spur subulate-cylindrical, ca. 2.5 cm, slightly downcurved, base ca. 2.5 mm in diam.; other sepals 1.2–1.3 cm. Petals 2-lobed, glabrous. Staminode limb

ovate, 2-cleft, yellow barbate. Filaments glabrous.

Carpels 3; ovaries glabrous. Fl. and fr. Sep.

• Forests; ca. 2300 m. NC Sichuan (Beichuan Xian).

124. *Delphinium pseudohamatatum* W. T. Wang, Acta Bot. Yunnan. 5: 161. 1983.

宁蒗翠雀花 *ning lang cui que hua*

Stem 11–18 cm tall, sparsely spreading puberulent proximally, glabrous distally, simple. Leaf blade 2–4 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe broadly rhombic or rhombic, 3-lobulate, distally 1-dentate or entire, apex acute; ultimate lobules triangular; proximal leaves not withered. Raceme 3–5 cm, 1- or 2-flowered; rachis glabrous; bracts undivided and linear, or 3-sect. Pedicels ca. 3.5 cm, yellow pilose distally; bracteoles borne near middle of pedicel, linear, ca. 5 mm. Sepals blue, abaxially yellow puberulent; spur subulate, ca. 2.8 cm, nearly straight, base ca. 2 mm in diam.; other sepals ca. 1.7 cm. Petals undivided, sparsely ciliate. Staminode limb broadly ovate or elliptic-ovate, undivided, yellow barbate. Filaments pilose distally. Carpels 3; ovaries densely villous. Fl. Sep.

• Alpine meadows; ca. 3800 m. NW Yunnan (Ninglang Yi Zu Zizhixian).

125. *Delphinium autumnale* Handel-Mazzetti, Symb. Sin. 7: 276. 1931.

秋翠雀花 *qiu cui que hua*

Delphinium kamaonense Huth var. *autumnale* (Handel-Mazzetti) W. T. Wang.

Stem 16–45 cm tall, with sparse, rigid hairs proximally, branched or simple. Leaf blade 3–6 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 2 × dissected, distally 1-dentate or entire, apex acute; ultimate lobules narrowly triangular to linear; proximal leaves not withered. Raceme 5–6 cm, 2–5-flowered; rachis glabrous or very sparsely pilose; bracts linear. Pedicels 2–5 cm, mostly glabrous, yellow pilose apically; bracteoles borne at various points on pedicel, subulate, 4–10 mm, ciliate. Sepals blue, abaxially white appressed puberulent and yellow pilose; spur subulate, 1.5–1.8 cm, slightly recurved, base ca. 3 mm in diam.; other sepals 1.5–1.8 cm. Petals undivided, glabrous, sparsely ciliate apically. Staminode limb suborbicular, entire, yellow barbate. Filaments with few marginal hairs. Carpels 3; ovaries densely yellowish pubescent. Fl. Sep.

• Meadows; 3600–3900 m. SW Sichuan (Yanyuan Xian), NW Yunnan (Ninglang Yi Zu Zizhixian).

126. *Delphinium pergameneum* W. T. Wang, Acta Bot. Yunnan. 5: 158. 1983.

纸叶翠雀花 *zhi ye cui que hua*

Stem 11–30 cm tall, spreading puberulent, simple or 1-branched distally. Leaf blade 3–7 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic or rhombic-cuneate, 1–3-dentate,

distally 3-lobulate, apex acute; ultimate lobules narrowly triangular to linear; proximal leaves not withered. Raceme 6.5–16 cm, 3- or 4-flowered, yellow glandular puberulent or retrorsely puberulent; bracts lanceolate. Pedicels 2.5–5 cm; bracteoles borne near middle of pedicel or distally, narrowly linear or lanceolate-linear, 4–9 mm. Sepals blue, abaxially pilose; spur cylindrical, ca. 2.2 cm, straight or slightly recurved, base ca. 3 mm in diam.; other sepals ca. 1.5 cm. Petals 2-lobulate, ciliate. Staminode limb narrowly ovate, 2-lobed, sparsely white barbate. Filaments pilose. Carpels 3; ovaries densely puberulent. Fl. Aug.

•Grassy places in forests; 3400–3600 m. NW Yunnan (Dêqên Xian).
127. *Delphinium yongningense* W. T. Wang & M. J. War-nock, *Guihaia* 17: 7. 1997.

永宁翠雀花 *yong ning cui que hua*

Stem 55–80 cm tall, spreading hispid, simple or 1-branched. Leaf blade ca. 7 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally incised dentate, apex acute; ultimate lobules narrowly triangular to linear; proximal leaves not withered. Raceme terminal, elongate, 40–70 cm, laxly 6–22-flowered, strigose and yellow glandular puberulent; proximal bracts leaflike, distal ones sessile, 3-sect or undivided. Pedicels erect-spreading, 0.6–12 cm; bracteoles distal, linear, 0.6–1.4 cm. Sepals blue-purple, abaxially sparsely strigose; spur subulate, 1.7–2 cm, base 3–3.5 mm in diam.; other sepals 1.3–1.7 cm. Petals undivided, glabrous. Staminode limb oblong, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries pubescent. Fl. Jun.

•Moist slopes; 3300–4000 m. NW Yunnan (Lijiang Naxi Zu Zizhixian: Yongning).

128. *Delphinium ceratophorum* Franchet, *Bull. Soc. Bot. France* 33: 377. 1886.

角萼翠雀花 *jiao e cui que hua*

Stem 30–60 cm tall, sparsely hispid proximally, glabrous distally to middle, branched. Leaf blade 3–19 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic or rhombic-cuneate, 3-lobulate, distally incised dentate, apex acute; ultimate lobules narrowly triangular to linear; proximal leaves not withered. Raceme 7–18(–30) cm, 5–10(–17)-flowered; rachis glabrous; proximal bracts 3-parted, distal ones undivided, oblong or linear. Pedicels 1.7–8 cm, glabrous, rarely with sparse, rigid hairs apically; bracteoles distal, lanceolate-linear or subulate, 5–10 mm. Sepals purple-blue, abaxially shortly strigose, rarely hirsute, corniculate near apex; spur cylindrical-subulate, 1.9–2.3 cm, slightly recurved or U-shaped, base 2.5–3 mm in diam.; other sepals 1.2–1.9 cm. Petals undivided, glabrous. Staminode limb obovate, 2-lobed, 2-cleft, or emarginate, yellow barbate.

Filaments glabrous. Carpels 3; ovaries densely pubescent. Fl. Jun–Oct.

•Forests, forest margins, grassy slopes, meadows; 2800–4200 m. NW Yunnan.

- 1a. Leaf blade to 10 × 19 cm, more strongly divided, central lobe 3-cleft beyond middle, ultimate lobules narrowly lanceolate or linear-lanceolate; bracteoles remote from flower 128d. var. *robustum*
- 1b. Leaf blade to 6.5 × 10 cm, less divided, central lobe 3-lobulate, ultimate lobules ovate or triangular; bracteoles contiguous to flower or nearly so.
 - 2a. Sepals abaxially hirsute, hairs to 3.5 mm 128c. var. *hirsutum*
 - 2b. Sepals abaxially shortly strigose, hairs to 0.5 mm.
 - 3a. Sepal cornicle 1.5–2 mm 128a. var. *ceratophorum*
 - 3b. Sepal cornicle less than 1 mm .. 128b. var. *brevicorniculatum*

128a. *Delphinium ceratophorum* var. *ceratophorum*

角萼翠雀花(原变种) *jiao e cui que hua* (yuan bian zhong)

Leaf blade to 6.5 × 10 cm, less divided; central lobe 3-lobulate; ultimate lobules ovate or triangular. Bracteoles contiguous to flower or nearly so. Sepals abaxially shortly strigose; hairs to 0.5 mm; cornicle 1.5–2 mm. Staminode limb 2-lobed, sometimes to middle.

•Forest margins, grassy slopes; 2800–4200 m. NW Yunnan.

128b. *Delphinium ceratophorum* var. *brevicorniculatum* W. T. Wang, *Acta Bot. Sin.* 10: 157. 1962.

短角萼翠雀花 *duan jiao e cui que hua*

Delphinium ceratophorum var. *brevicorniculatum* f. *lobatum* W. T. Wang.

Leaf blade to 6.5 × 10 cm, less divided; central lobe 3-lobulate; ultimate lobules ovate or triangular. Bracteoles contiguous to flower or nearly so. Sepals abaxially shortly strigose; hairs to 0.5 mm; cornicle less than 1 mm. Staminode limb emarginate or 2-lobed.

•Forests, grassy slopes; 4000–4200 m. NW Yunnan (Dêqên Xian).

128c. *Delphinium ceratophorum* var. *hirsutum* W. T. Wang, *Acta Bot. Sin.* 10: 158. 1962.

毛角萼翠雀花 *mao jiao e cui que hua*

Leaf blade to 6.5 × 10 cm, less divided; central lobe 3-lobulate; ultimate lobules ovate or triangular. Bracteoles contiguous to flower or nearly so. Sepals abaxially hirsute; hairs to 3.5 mm; cornicle 1–1.5 mm. Staminode limb emarginate.

•Slopes; ca. 3600 m. NW Yunnan (Weixi Lisu Zu Zizhixian).

128d. *Delphinium ceratophorum* var. *robustum* W. T. Wang, *Fl. Reipubl. Popularis Sin.* 27: 615. 1979.

粗壮角萼翠雀花 *cu zhuang jiao e cui que hua*

Leaf blade to 10 × 19 cm, more strongly divided; central lobe 3-cleft beyond middle; ultimate lobules

narrowly lanceolate or linear-lanceolate. Bracteoles remote from flower. Sepal cornicle 1.5–2 mm. Staminode limb 2-lobed.

• Rocky *Pinus* forests; 2800–3000 m. NW Yunnan (Zhongdian Xian).
129. *Delphinium yulungshanicum* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 15. 1986.

玉龙山翠雀花 *yu long shan cui que hua*

Stem 15–17 cm tall, retrorsely puberulent, simple. Leaf blade 2–5 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe broadly rhombic, 3-cleft, distally 1- or 2-dentate, apex acute; ultimate lobules triangular; proximal leaves not withered. Raceme 5–10 cm, 2–5-flowered, puberulent; bracts linear, or proximal ones leaflike. Pedicels (2–)3–10 cm; bracteoles distal, narrowly linear, (5–)7.5–9 mm. Sepals purple-blue, abaxially puberulent; spur subulate, (1.6–)2.2–2.9 cm, straight or nearly so, base ca. 3 mm in diam.; other sepals 1.8–2.1 cm. Petals emarginate, glabrous. Staminode limb elliptic-ovate or suborbicular, emarginate or 2-lobed, yellow barbate. Filaments pilose distally. Carpels 3; ovaries densely appressed villous. Fl. Sep–Oct.

• Alpine meadows; ca. 3700 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

130. *Delphinium hui* Chen, Bull. Fan Mem. Inst. Biol., n.s., 1: 173. 1948.

稻城翠雀花 *dao cheng cui que hua*

Stem 3–8 cm tall, densely pubescent, simple. Leaf blade 1–3 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe cuneate or cuneate-obovate, 3-lobulate or 3-dentate, distally 1- or 2-dentate, apex acute; ultimate lobules triangular; proximal leaves not withered. Raceme 2–4 cm, 1(or 2)-flowered, puberulent; bracts leaflike. Pedicels 3–4.5 cm; bracteoles distal, lanceolate, 6–9 mm. Sepals purple, abaxially pubescent; spur subulate, ca. 2.5 cm, straight or recurved, base 2.5–3 mm in diam.; other sepals ca. 1.5 cm. Petals 2-lobed, glabrous. Staminode limb obovate, 2-lobed, yellow barbate. Filaments glabrous or pilose. Carpels 3; ovaries puberulent. Fl. Aug.

• Gravelly slopes; ca. 4500 m. SW Sichuan (Daocheng Xian).

131. *Delphinium dolichocentroides* W. T. Wang, Acta Bot. Sin. 10: 159. 1962.

拟长距翠雀花 *ni chang ju cui que hua*

Stem 30–50 cm tall, sparsely hispid proximally, glabrous distally, simple. Leaf blade 4–8 cm wide, base deeply cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally few lobulate, apex acute; ultimate lobules triangular or linear-lanceolate; proximal leaves not withered. Raceme 5–24 cm, 3–6-flowered, glabrous; proximal bracts 3-parted, distal ones linear. Pedicels 2–8 cm; bracteoles borne at various points on pedicel, linear, 0.6–1.4 cm. Sepals blue-purple, abaxially puberulent, shortly corniculate near apex; spur subulate, 2.7–2.8 cm, slightly recurved, base ca. 4 mm in diam.; other sepals

1.3–1.4 cm. Petals emarginate, glabrous. Staminode limb elliptic, 2-lobed or 2-parted, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent or glabrous. Fl. Aug.

• Scrub on gravelly slopes, grassy slopes, meadows; 2900–3600 m. SW Sichuan.

1a. Ovaries densely puberulent; pedicels bracteolate near middle or distally; staminode limb

2-lobed 131a. var. *dolichocentroides*

1b. Ovaries glabrous; pedicels bracteolate proximally; staminode limb 2-parted

..... 131b. var. *leiogynum*

131a. *Delphinium dolichocentroides* var. *dolichocentroides*

拟长距翠雀花(原变种) *ni chang ju cui que hua* (yuan bian zhong)

Delphinium dolichocentroides var. *parvidolium* W. T. Wang.

Leaf blade 3-parted or nearly 3-sect. Pedicels bracteolate near middle or distally. Staminode limb 2-lobed. Ovaries densely puberulent.

• Grassy slopes, meadows; 3000–3600 m. SW Sichuan (Muli Zang Zu Zizhixian).

131b. *Delphinium dolichocentroides* var. *leiogynum* W. T. Wang, Acta Bot. Yunnan. 8: 263. 1986.

基苞翠雀花 *ji bao cui que hua*

Leaf blade 3-parted. Pedicels bracteolate proximally. Staminode limb 2-parted. Ovaries glabrous.

• Scrub on gravelly slopes; ca. 2900 m. SW Sichuan (Muli Zang Zu Zizhixian).

132. *Delphinium leiostachyum* W. T. Wang, Bull. Bot. Res., Harbin 7(2): 96. 1987.

光轴翠雀花 *guang zhou cui que hua*

Stem ca. 1.1 m tall, appressed puberulent proximally, glabrous elsewhere, distally branched. Leaf blade 7–9 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 2 or 3 × dissected, distally 3-sect, apex acute; ultimate lobules lanceolate-linear or linear; proximal leaves withered. Raceme ca. 15 cm, ca. 7-flowered, glabrous; bracts linear-subulate. Pedicels 1.2–5.2 cm; bracteoles distal, linear-subulate, 5–6 mm. Sepals deep blue, abaxially yellow puberulent, indistinctly corniculate near apex; spur subulate, 2.5–2.8 cm, recurved, base ca. 3 mm in diam.; other sepals 1.3–1.5 cm. Petals erose, glabrous. Staminode limb obovate-oblong, 2-lobed, yellow barbate. Filaments pilose. Carpels 3; ovaries densely pubescent. Fl. Aug.

• Scrub; ca. 3000 m. SW Sichuan (Muli Zang Zu Zizhixian).

133. *Delphinium brevisepalum* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 22. 1986.

短萼翠雀花 *duan e cui que hua*

Stem ca. 28 cm tall, sparsely retrorsely strigose near base, glabrous elsewhere, branched. Leaf blade 4–7 cm

wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft or subpinnately parted, distally incised lobulate or unequally dentate, apex acute; ultimate lobules triangular to lanceolate-linear; proximal leaves not withered. Raceme ca. 6 cm, 3- or 4-flowered; rachis glabrous; proximal bracts leaflike, distal ones long elliptic or linear. Pedicels 1–5.8 cm, distally yellow glandular puberulent and retrorsely hispid; bracteoles distal, linear, 4.5–6.5 mm. Sepals blue, abaxially shortly strigose; spur subulate, 2.4–2.6 cm, straight or nearly so, base 2–2.5 mm in diam.; other sepals 0.8–1.2 cm. Petals undivided, glabrous. Staminode limb oblong, 2-cleft, white barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Oct.

• Forests. NW Yunnan (Lijiang Naxi Zu Zizhixian).

134. *Delphinium tenii* H. Léveillé, Repert. Spec. Nov. Regni Veg. 7: 98. 1909.

长距翠雀花 *chang ju cui que hua*

Delphinium dolichocentrum W. T. Wang; *D. obcordatilibum* W. T. Wang var. *minus* W. T. Wang.

Stem (25–)40–75 cm tall, glabrous, branched. Leaf blade 4–9 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-parted to near midvein, distally entire or 1-lobulate, apex acute; ultimate lobules triangular to lanceolate-linear; proximal leaves withered or not.

Raceme (5–)8–22 cm, (2–)6–15-flowered, glabrous to subglabrous; proximal bracts leaflike, distal ones linear. Pedicels 2.5–9.5 cm; bracteoles distal, green, subulate or lanceolate-linear, 4–5(–12) mm. Sepals blue, abaxially puberulent; spur subulate, 1.8–2.5 cm, straight, base 2.5–3 mm in diam.; other sepals 0.7–1.5 cm. Petals undivided, glabrous. Staminode limb broadly obovate, 5.5–7 mm, emarginate or 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely pubescent. Fl. Jun–Oct.

• Forest margins, grassy slopes; 1900–3400 m. SW Sichuan, SE Xizang, NW Yunnan.

135. *Delphinium shuichengense* W. T. Wang, Acta Phytotax. Sin. 29: 461. 1991.

水城翠雀花 *shui cheng cui que hua*

Stem ca. 1 m tall, glabrous, branched. Leaf blade ca. 10 cm wide, base broadly cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted, distally 2- or 3-cleft, apex acute; ultimate lobules triangular, lanceolate or linear; proximal leaves usually withered. Raceme 4–9 cm, 2–4-flowered, glabrous; proximal bracts leaflike, distal ones linear. Pedicels 1.6–5 cm; bracteoles borne near middle of pedicel or distally, linear, 2–2.8 mm. Sepals blue-purple, abaxially puberulent; spur subulate, 1.5–1.6 cm, base ca. 3 mm in diam.; other sepals ca. 8 mm. Petals undivided, glabrous. Staminode limb broadly oblong, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul.

• Scrub in valleys; ca. 1800 m. W Guizhou (Shuicheng Tequ).

136. *Delphinium yunnanense* (Franchet) Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 173. 1893.

云南翠雀花 *yun nan cui que hua*

Delphinium denudatum Wallich var. *yunnanense* Franchet, Bull. Soc. Bot. France 33: 378. 1886; *D. esquirolii* H. Léveillé.

Stem (40–)60–90 cm tall, retrorsely puberulent proximally, glabrous distally, branched. Leaf blade 5–10 cm wide, base deeply cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic or rhombic-cuneate, 3-parted, distally undivided or 1- or 2-lobulate, apex acute; ultimate lobules narrowly triangular to linear-lanceolate; proximal leaves withered. Raceme 8–38 cm, 3–12-flowered, glabrous to sparsely puberulent; proximal bracts leaflike or undivided, lanceolate-linear, distal ones subulate. Pedicels 1.2–5.5 cm; bracteoles distal, subulate, 3.5–4.5 mm. Sepals blue-purple, abaxially sparsely puberulent; spur subulate, 1.7–2.4 cm, straight or nearly so, base 3–4 mm in diam.; other sepals 1–1.7 cm, sometimes shortly corniculate. Petals undivided, glabrous. Staminode limb obovate, 2-lobed, yellow barbate. Filaments glabrous or pilose. Carpels 3; ovaries densely puberulent. Fl. Aug–Oct.

• Scrub, grassy slopes; 1000–2400 m. W Guizhou, SW Sichuan, Yunnan.

137. *Delphinium pseudoyunnanense* W. T. Wang & M. J. Warnock in W. T. Wang et al., Phytologia 79: 382. 1996.

拟云南翠雀花 *ni yun nan cui que hua*

Stem ca. 1.5 m, glabrous, branched distally. Leaf blade 0.5–7 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe lanceolate-linear, entire, distally undivided or 1- or 2-lobulate, apex acute; ultimate lobules narrowly lanceolate or lanceolate-linear; proximal leaves withered. Raceme elongate, 25–45 cm, densely 18–30-flowered, glabrous; bracts narrowly lanceolate-linear or subulate. Pedicels 0.25–3 cm; bracteoles distal, narrowly lanceolate-linear, 5–9 mm. Sepals purple, abaxially densely appressed puberulent; spur subulate, 1.3–1.5 cm, straight, base 1.8–2.2 mm in diam.; other sepals 1–1.2 cm. Petals distally 2-lobed, ciliate. Staminode limb suboblong, ca. 6 mm, 2-cleft, yellow barbate. Filaments mostly pilose. Carpels 3; ovaries sparsely puberulent near apex. Fl. Sep.

• Roadside banks. W Yunnan (Longling Xian to Tengchong Xian).

138. *Delphinium yuanum* Chen, Bull. Fan Mem. Inst. Biol., n.s., 1: 176. 1948.

中甸翠雀花 *zhong dian cui que hua*

Stem ca. 80 cm tall, glabrous, branched distally. Leaf blade 5–9 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted, distally few lobulate, apex acute; ultimate lobules narrowly ovate or narrowly lanceolate; proximal leaves usually not withered. Raceme 14–22 cm, 12–15-flowered, glabrous; proximal bracts 3-parted,

distal ones linear to subulate. Pedicels 2.5–6 cm; bracteoles distal, lanceolate-linear, 4–6 mm. Sepals deep blue, abaxially densely puberulent; spur cylindrical-subulate, 1–1.4 cm, slightly upcurved, base 2–3 mm in diam.; other sepals 0.9–1.2 cm. Petals undivided, glabrous. Staminode limb elliptic or obovate, emarginate or 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries subglabrous. Fl. Jul.

• Alpine meadows; ca. 3000 m. NW Yunnan (Zhongdian Xian).

139. *Delphinium coleopodum* Handel-Mazzetti, Symb. Sin. 7: 275. 1931.

鞘柄翠雀花 qiao bing cui que hua

Stem 20–35 cm tall, retrorsely puberulent, sometimes sparsely hispid proximally, glabrescent distally, simple or branched. Petiole base at least 8 mm wide; leaf blade 6–10 cm wide, base deeply cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally 1- or 2-lobulate, apex acute; ultimate lobules triangular or narrowly lanceolate; proximal leaves usually not withered. Raceme 10–20 cm, 3–7-flowered; rachis subglabrous; bracts lanceolate to filiform. Pedicels 1.5–4 cm, distally sparsely puberulent; bracteoles distal, lanceolate to filiform, 4.5–9 mm. Sepals blue, abaxially puberulent; spur subulate, 2–2.5 cm, straight or slightly recurved, base 3–4 mm in diam.; other sepals 2–2.6 cm. Petals undivided, glabrous. Staminode limb obovate, undivided or emarginate, yellow (rarely white) barbate. Filaments pilose. Carpels 3; ovaries pubescent. Fl. Sep–Oct.

• Grassy slopes; 3000–3700 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

140. *Delphinium kantzeense* W. T. Wang, Acta Bot. Sin. 10: 161. 1962.

甘孜翠雀花 gan zi cui que hua

Stem ca. 1 m tall, sparsely hispid, branched distally. Leaf blade ca. 7.5 cm wide, base cordate; primary lobes separate for at least 75% of blade radius; central lobe rhombic, 3-cleft, distally 1- or 2-lobulate, apex acute; ultimate lobules narrowly ovate or narrowly lanceolate; proximal leaves usually withered. Raceme ca. 15 cm, ca. 14-flowered, retrorsely puberulent and yellow glandular puberulent; proximal bracts 3-parted, distal ones linear. Pedicels 2–5 cm; bracteoles distal, linear, 4–9 mm.

Sepals grayish blue, abaxially puberulent; spur subulate, 1.6–1.8 cm, recurved, base ca. 2.5 mm in diam.; other sepals ca. 1 cm. Petals undivided, glabrous. Staminode limb ovate, undivided or emarginate, yellowish barbate. Filaments glabrous. Carpels 3, glabrous. Fl. Jul.

• NW Sichuan (Garzê Xian).

141. *Delphinium pycnocentrum* Franchet, Bull. Soc. Bot. France 33: 379. 1886.

密距翠雀花 mi ju cui que hua

Delphinium lankongense Franchet; *D. pycnocentrum* var. *lankongense* (Franchet) Huth.

Stem 18–70 cm tall, glabrous or retrorsely puberulent and hispid proximally, glabrous distally, simple or 1-branched. Leaf blade 4–9 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 2 or 3 × dissected, distally 1- or 2-lobulate, apex acute; ultimate lobules lanceolate to lanceolate-linear; proximal leaves usually not withered. Raceme 5–12 cm, 3–10-flowered, sparsely puberulent throughout or only apically, or glabrous; bracts linear or subulate. Pedicels 1.2–2.5 cm; bracteoles borne near middle of pedicel or distally, lanceolate-linear or subulate, 3–4 mm. Sepals blue, abaxially sparsely puberulent; spur subulate, 1.8–2 cm, slightly recurved or nearly straight, base 1.5–2 mm in diam.; other sepals 1.1–1.2 cm. Petals emarginate, glabrous. Staminode limb obovate-oblong, emarginate, yellow barbate. Filaments glabrous. Carpels 3; ovaries sparsely pubescent. Fl. Sep–Oct.

• Alpine meadows; ca. 3000 m. NW Yunnan (Dali Xian, Eryuan Xian).

142. *Delphinium medogense* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 20. 1986.

墨脱翠雀花 mo tuo cui que hua

Stem 23–45 cm tall, retrorsely pubescent, simple or 1-branched. Leaf blade 8–11 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted, distally incised lobulate, apex acute; ultimate lobules triangular; proximal leaves not withered. Raceme 8–15 cm, 7–10-flowered, densely appressed puberulent; proximal bracts leaflike, distal ones linear. Pedicels 1–5.5 cm; bracteoles distal, linear-lanceolate or linear, 7–10 mm. Sepals purple, abaxially appressed puberulent; spur cylindrical-subulate, 1.2–1.6 cm, straight, base 1.2–1.6 mm in diam.; other sepals 1.6–2.1 cm. Petals 2-lobed, adaxially white barbate near apex. Staminode limb obovate, 2-lobed, yellowish barbate. Filaments sparsely puberulent. Carpels 3; ovaries densely pubescent. Fl. Aug–Sep.

• Scrub, alpine meadows; 3500–3700 m. SE Xizang (Médog Xian).

143. *Delphinium thibeticum* Finet & Gagnepain, Bull. Soc. Bot. France 5: 498. 1904.

澜沧翠雀花 lan cang cui que hua

Stem 28–70(–85) cm tall, retrorsely puberulent, usually simple. Leaf blade 8–15 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted, distally 1–3 × dissected or lobed, apex acute; ultimate lobules triangular to lanceolate-linear; proximal leaves not withered. Raceme 10–30 cm, 5–17-flowered; rachis densely retrorsely or spreading puberulent, often mixed with a few yellow, glandular hairs; bracts lanceolate. Pedicels 2–6 cm; bracteoles distal, blue, lanceolate, 5–11 mm. Sepals blue-purple, abaxially puberulent; spur subulate, 1.9–2.7 cm, straight or slightly to strongly recurved, base 2.5–3.5 mm in diam.; other sepals 1–1.6 cm. Petals undivided, glabrous. Staminode limb ovate, 4–5 mm, 2-

lobed, yellow (rarely to white) barbate. Filaments pilose or glabrous. Carpels 3; ovaries sparsely puberulent. Fl. Aug–Sep.

• Open woods, grassy slopes, rocky valleys; 2800–3800 m. NW and SW Sichuan, NW Yunnan, E Xizang.

- 1a. Leaf blade central lobe segments distally 1 or 2 × dissected, ultimate lobules few, narrowly ovate to lanceolate-linear; raceme rachis retrorsely puberulent 143a. var. *thibeticum*
- 1b. Leaf blade central lobe segments distally 2 or 3 × lobed, ultimate lobules many, triangular to lanceolate; raceme rachis spreading puberulent 143b. var. *laceratilobum*

143a. *Delphinium thibeticum* var. *thibeticum*

澜沧翠雀花(原变种) lan cang cui que hua (yuan bian zhong)

Delphinium pycnocentroides W. T. Wang; *D. pycnocentroides* var. *latisectum* W. T. Wang; *D. thibeticum* var. *schizophyllum* Handel-Mazzetti; *D. thibeticum* var. *subintegrum* Finet & Gagnepain.

Leaf blade central lobe segments distally 1 or 2 × dissected; ultimate lobules few, narrowly ovate to lanceolate-linear. Raceme rachis retrorsely puberulent.

• Open woods, grassy slopes; 2800–3800 m. SW Sichuan, NW Yunnan, E Xizang.

143b. *Delphinium thibeticum* var. *laceratilobum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 615. 1979.

锐裂翠雀花 rui lie cui que hua

Leaf blade central lobe segments distally 2 or 3 × lobed; ultimate lobules many, triangular to lanceolate. Raceme rachis spreading puberulent.

• Rocky valleys; ca. 3700 m. NW Sichuan (Dêgê Xian), E Xizang (Jomda Xian).

144. *Delphinium incislobulatum* W. T. Wang, Acta Phytotax. Sin. 25: 35. 1987.

缺刻翠雀花 que ke cui que hua

Stem ca. 70 cm tall, puberulent, branched. Leaf blade 4–10 cm wide, base cordate; primary lobes separate for at least 60% of blade radius; central lobe rhombic or broadly so, 3-parted, distally incised lobulate, apex acute; ultimate lobules lanceolate-linear; proximal leaves not withered. Raceme 9–37 cm, 5–12-flowered, puberulent and yellow glandular puberulent; proximal bracts leaflike, distal ones lanceolate. Pedicels 1.2–6.2 cm; bracteoles distal, lanceolate, 4–6 mm. Sepals purple-blue, abaxially puberulent and yellow glandular puberulent; spur cylindrical-subulate, 1.6–1.8 cm, base 3–3.5 mm in diam.; other sepals 1.1–1.2 cm. Petals 2-lobulate, glabrous. Staminode limb obtrapezoid, 2-cleft, sparsely white barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Aug.

• Scrub at *Picea* forest margins. E Xizang (Qamdo Xian).

145. *Delphinium pseudothibeticum* W. T. Wang & M. J. Warnock, Guihaia 17: 8. 1997.

拟澜沧翠雀花 ni lan cang cui que hua

Stem 13–30 cm tall, spreading hispid, simple. Leaf blade 2–3 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft, distally few dentate, apex acute; ultimate lobules narrowly ovate or oblong-ovate; proximal leaves not withered. Raceme terminal, 2.5–13 cm, (1–)3–7-flowered, hispid; bracts undivided, linear, or 3-sect. Pedicels 1–3 cm; bracteoles distal, linear, 7–8 mm. Sepals purple-blue, abaxially strigose; spur cylindrical-subulate, 2–2.4 cm, base 3–5 mm in diam.; other sepals 1.6–1.7 cm. Petals undivided, glabrous. Staminode limb oblong-obovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3, ovaries densely brownish pubescent. Fl. Jun.

• Gravelly slopes; ca. 4600 m. NW Yunnan (Dêqên Xian).

146. *Delphinium taipaicum* W. T. Wang, Acta Bot. Sin. 10: 164. 1962.

太白翠雀花 tai bai cui que hua

Stem 22–30 cm tall, retrorsely puberulent or glabrescent, simple. Leaf blade 4–8 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic-cuneate, 3-parted, distally undivided or few lobulate, apex acute; ultimate lobules narrowly triangular to lanceolate-linear; proximal leaves not withered. Raceme 4–10 cm, 2–4-flowered, retrorsely puberulent; proximal bracts 3-sect, distal ones oblong-ovate or lanceolate. Pedicels 1.5–4 cm; bracteoles distal, oblong-ovate, 0.9–1.2 cm. Sepals purple, abaxially pubescent; spur cylindrical-subulate, 1.4–2 cm, base ca. 2.6 mm in diam.; other sepals 1.6–1.7 cm. Petals emarginate, glabrous. Staminode limb obovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely pubescent. Fl. Sep.

• Grassy slopes; 3600–3900 m. S Shaanxi (Taibai Shan).

147. *Delphinium pomeense* W. T. Wang, Acta Phytotax. Sin. 12: 158. 1974.

波密翠雀花 bo mi cui que hua

Stem 10–25 cm tall, retrorsely puberulent, simple. Leaf blade 2–9 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft, distally 1- or 2-lobulate or undivided, apex acute; ultimate lobules narrowly triangular to lanceolate-linear; proximal leaves not withered. Corymb 3–10 cm, 2–5-flowered; most proximal bract usually leaflike, shortly petiolate, others lanceolate or linear, 5.5–11.5 mm. Pedicels 0.8–8.5 cm, puberulent; bracteoles distal, lanceolate or linear, 5.5–11.5 mm. Sepals blue-purple, abaxially puberulent; spur subulate or cylindrical-subulate, 1.7–2.1 cm, straight or slightly recurved, base 2.2–3 mm in diam.; other sepals 1.5–1.6 cm. Petals undivided, glabrous. Staminode limb

obovate, 2-cleft, yellow barbate. Filaments glabrous or pilose. Carpels 3, glabrous. Fl. Aug.

• *Abies* forests; 3800–4000 m. E Xizang (Bomi Xian).

148. *Delphinium chayuense* W. T. Wang, Bull. Bot. Res., Harbin 6(1) 16. 1986.

察隅翠雀花 cha yu cui que hua

Stem 8–16 cm, retrorsely puberulent. Leaf blade 3–5 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe cuneate, 3-lobulate, distally 1- or 2-lobulate or undivided, apex acute; ultimate lobules narrowly ovate; proximal leaves not withered. Raceme 7–12.5 cm, 3- or 4-flowered, retrorsely puberulent; proximal bracts leaflike, distal ones linear. Pedicels 2.3–8.2 cm; bracteoles distal, linear-lanceolate, 7–9 mm. Sepals blue, abaxially appressed puberulent; spur subulate, 2–2.2 cm, slightly recurved, base 3–3.5 mm in diam.; other sepals 1.8–2 cm. Petals 2-lobed, glabrous. Staminode limb narrowly obovate, 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely appressed pubescent. Fl. Sep.

• *Abies* forest margins; ca. 4000 m. SE Xizang (Zayü Xian).

149. *Delphinium sinoscaposum* W. T. Wang, Acta Bot. Sin. 10: 165. 1962.

花葶翠雀花 hua ting cui que hua

Delphinium scaposum W. T. Wang, Acta Phytotax. Sin. 6: 364. 1957, not Greene (1881).

Stem ca. 30 cm. Leaf blade 2–6 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic-obovate, 3-parted, distally undivided or 1- or 2-lobulate, apex acute; ultimate lobules narrowly lanceolate or linear; proximal leaves not withered. Raceme 6–11 cm, puberulent, 1(or 2)-flowered; bracts 3-sect or undivided and lanceolate. Pedicels 3–6 cm, densely puberulent; bracteoles distal, lanceolate, ca. 1.1 cm. Sepals purple, abaxially sparsely puberulent; spur subulate, 2.2–2.4 cm, base 3–4 mm in diam.; other sepals 1.6–1.8 cm. Petals emarginate, ciliate. Staminode limb ovate, 2-lobed, sparsely white barbate. Filaments glabrous. Carpels 3; ovaries sparsely puberulent. Fl. Aug.

• Alpine meadows; ca. 3500 m. W Sichuan (Baoping Xian).

150. *Delphinium nortonii* Dunn, Bull. Misc. Inform. Kew 1927: 247. 1927.

细茎翠雀花 xi jing cui que hua

Delphinium caeruleum Jacquemont var. *tenuicaule* Brühl ex Huth; *D. grandiflorum* Linnaeus var. *tenuicaule* (Brühl ex Huth) Brühl.

Stem 12–22 cm tall, retrorsely puberulent, simple or 1-branched. Leaf blade 16–30 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe linear and undivided, or rhombic and 3-parted nearly to midvein, distally undivided or 1- or 2-lobulate, apex acute; ultimate lobules linear-lanceolate or linear; proximal leaves usually withered. Flower solitary, terminal; pedicel 3–7 cm; bracteoles borne proximally or near middle of pedicel, linear, 0.9–2.5 cm. Sepals blue, abaxially puberulent; spur cylindrical-

subulate, 1.7–1.9 cm, base 3–4 mm in diam.; other sepals 1.7–1.8 cm. Petals emarginate, glabrous. Staminode limb elliptic-obovate, 2-cleft, yellowish barbate. Filaments pilose. Carpels 3; ovaries densely villous. Fl. Jul.

Alpine meadows; 4500–5000 m. S Xizang [Nepal, Sikkim].

151. *Delphinium souliei* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 172. 1873.

川甘翠雀花 chuan gan cui que hua

Delphinium paludicola Ulbrich.

Stem 9–60 cm tall, sparsely pubescent, often glabrescent proximally, simple. Leaf blade 2–9 cm wide, base subtruncate or broadly cuneate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 1–3 × dissected, distally entire, apex acute; ultimate lobules linear, margin often revolute; proximal leaves withered or not. Raceme 6–32 cm, 2–15-flowered, puberulent; proximal bracts leaflike, distal ones lanceolate. Pedicels 3–14 cm; bracteoles distal, lanceolate or lanceolate-linear, 5–12 mm. Sepals blue-purple, abaxially sparsely puberulent; spur cylindrical, 2.1–2.7(–3) cm, base 2.8–4.5 mm in diam.; other sepals 1.4–1.9 cm. Petals emarginate, glabrous. Staminode limb ovate, 2-lobed, sparsely barbate. Filaments pilose. Carpels 3; ovaries densely puberulent. Fl. Aug–Sep.

• Grassy slopes; 3500–4400 m. SW Gansu, W Sichuan.

152. *Delphinium likiangense* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 180. 1893.

丽江翠雀花 li jiang cui que hua

Delphinium oliganthum Franchet, Pl. Delavay. 29. 1889, not Boissier (1867).

Stem 10–25(–50) cm tall, retrorsely puberulent, simple. Leaf blade 3–6 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-cleft, distally lobulate, apex acute; ultimate lobules triangular, lanceolate, or linear; proximal leaves usually withered. Raceme 3–17 cm, 1–4-flowered, densely appressed puberulent; proximal bracts leaflike, distal ones oblong or oblong-linear. Pedicels 2.6–10 cm; bracteoles distal, narrowly ovate or oblong-ovate, 0.9–2 cm. Sepals blue, abaxially puberulent; spur conic-cylindrical, 1.1–1.8 cm, base 3.5–5 mm in diam.; other sepals 2.2–3 cm. Petals undivided, glabrous. Staminode limb suboblong, 2-lobed or 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Aug–Sep.

• Grassy or gravelly slopes; 3400–4500 m. NW Yunnan (Lijiang Naxi Zu Zizhixian, Zhongdian Xian).

153. *Delphinium sinopentagynum* W. T. Wang, Acta Phytotax. Sin. 12: 159. 1974.

五果翠雀花 wu guo cui que hua

Stem ca. 35 cm tall, retrorsely puberulent, simple or branched. Leaf blade 4–7 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 1 or 2 × dissected, distally lobulate, apex acute; ultimate lobules lanceolate-linear or linear; proximal leaves usually not withered. Raceme ca. 11 cm, ca. 8-flowered, retrorsely puberulent;

proximal bracts leaflike, distal ones linear. Pedicels 2–4.2 cm; bracteoles distal, linear-lanceolate, 5–6.5 mm. Sepals blue, abaxially puberulent; spur cylindrical-subulate, ca. 1.2 cm, base ca. 2.5 mm in diam.; other sepals ca. 9 mm. Petals undivided, glabrous. Staminode limb suborbicular, emarginate, yellow barbate. Filaments pilose. Carpels 5, glabrous. Fl. Aug.

• Grassy slopes; ca. 2800 m. N Sichuan (Zoigê Xian).

154. *Delphinium pseudomosoyense* W. T. Wang, Acta Bot. Yunnan. 15: 350. 1993.

条裂翠雀花 *tiao lie cui que hua*

Stem 40–60 cm tall, retrorsely appressed puberulent throughout or only proximally, branched. Leaf blade 7–10 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, subpinnately dissected, distally lobulate, apex acute; ultimate lobules linear; proximal leaves withered. Raceme 14–17 cm, 7- or 8-flowered, yellow glandular puberulent, sometimes also white puberulent; most proximal bract 3-sect, others undivided, linear. Pedicels 2.8–4.5 cm; bracteoles distal, linear, 6–8 mm. Sepals purple-blue, abaxially puberulent, very shortly corniculate distally; upper sepal oblong or elliptic-obovate, 0.7–1.1 cm wide, spur subulate, 2–2.4 cm, slightly recurved or nearly straight, base 2–3 mm in diam.; other sepals 1.8–2.1 cm. Petals emarginate, glabrous. Staminode limb oblong or oblong-obovate, 2-lobulate, yellow barbate. Filaments pilose at margin. Carpels 5; ovaries densely pubescent. Fl. Jul–Sep.

• Scrub, meadows. W Sichuan.

1a. Stem appressed puberulent throughout; raceme yellow glandular puberulent and white puberulent; upper sepal oblong, ca. 0.7 cm wide, spur ca. 2 cm
..... 154a. var. *pseudomosoyense*

1b. Stem proximally puberulent, elsewhere glabrous; raceme yellow glandular puberulent; upper sepal elliptic-obovate, ca. 1.1 cm wide, spur 2.1–2.4 cm
..... 154b. var. *subglabrum*

154a. *Delphinium pseudomosoyense* var. *pseudomosoyense*

条裂翠雀花(原变种) *tiao lie cui que hua* (*yuan bian zhong*)

Stem appressed puberulent throughout. Raceme yellow glandular puberulent and white puberulent. Upper sepal oblong, ca. 0.7 cm wide, spur ca. 2 cm.

• Scrub. W Sichuan (Yajiang Xian).

154b. *Delphinium pseudomosoyense* var. *subglabrum* W. T. Wang, Acta Bot. Yunnan. 15: 351. 1993.

疏毛条裂翠雀花 *shu mao tiao lie cui que hua*

Stem proximally puberulent, elsewhere glabrous. Raceme yellow glandular puberulent. Upper sepal elliptic-obovate, ca. 1.1 cm wide, spur 2.1–2.4 cm.

• Meadows. W Sichuan (Yajiang Xian).

155. *Delphinium majus* (W. T. Wang) W. T. Wang, Acta Phytotax. Sin., Addit. 1: 102. 1965.

金沙翠雀花 *jin sha cui que hua*

Delphinium grandiflorum Linnaeus var. *majus* W. T. Wang, Acta Bot. Sin. 10: 273. 1962.

Stem 26–65 cm tall, sparsely retrorsely puberulent, branched. Leaf blade 6–11 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted, distally 1- or 2-lobulate, apex acute; ultimate lobules triangular to narrowly lanceolate; proximal leaves withered or not. Raceme 7–12 cm, 2–7-flowered, densely retrorsely puberulent; bracts 3-sect or undivided and linear. Pedicels 3–5.5 cm; bracteoles borne near middle of pedicel, narrowly linear or subulate, 2.5–6 mm. Sepals purple-blue, abaxially puberulent; spur subulate, 1.6–2.2 cm, base 2–2.8 mm in diam.; other sepals 1.2–1.8 cm. Petals undivided, glabrous. Staminode limb obovate, emarginate, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Aug–Sep.

• Scrub in valleys, grassy places; 1600–1800 m. SW Sichuan, NW Yunnan (Lijiang Naxi Zu Zizhixian, Zhongdian Xian).

156. *Delphinium obcordatilimum* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 616. 1979.

倒心形翠雀花 *dao xin xing cui que hua*

Stem ca. 70 cm tall, glabrous or subglabrous, branched. Leaf blade 5–9 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 1–3-lobulate, distally 1- or 2-lobulate, apex acute; ultimate lobules triangular to linear-lanceolate; proximal leaves not withered. Raceme to 22 cm, ca. 8-flowered; rachis glabrous; bracts linear. Pedicels 2.8–8.5 cm, puberulent and sparsely yellow glandular puberulent near apex; bracteoles distal, subulate, 4–7.5 mm. Sepals blue, abaxially sparsely puberulent; spur cylindrical-subulate, 2–2.5 cm, base 2.5–3 mm in diam.; other sepals 1.5–2 cm. Petals undivided, glabrous. Staminode limb obcordate or obovate, 2-lobed, yellow barbate. Filaments pilose. Carpels 3; ovaries puberulent. Fl. Jul.

• Alpine meadows; ca. 3800 m. E Xizang (Riwoqê Xian).

157. *Delphinium weiningense* W. T. Wang, Acta Phytotax. Sin. 29: 459. 1991.

威宁翠雀花 *wei ning cui que hua*

Stem 45–90 cm tall, appressed puberulent, branched. Leaf blade 2–7 cm wide, base broadly cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted, distally undivided or 2- or 3-parted, apex acute; ultimate lobules lanceolate or linear; proximal leaves usually withered. Raceme 5–20 cm, 3–5-flowered, densely appressed puberulent; proximal bracts leaflike, distal ones narrowly oblong or oblong-linear. Pedicels 5.5–10 cm; bracteoles borne near middle of pedicel, narrowly oblong, 1.1–1.8 cm. Sepals blue, abaxially puberulent; spur subulate, 1.6–1.9 cm, base ca. 3.5 mm in diam.; other sepals 1.4–1.5 cm. Petals undivided, glabrous. Staminode limb narrowly obovate, emarginate, yellow barbate. Filaments glabrous or pilose. Carpels 3; ovaries densely puberulent. Fl. Aug.

• Slopes; ca. 2100 m. W Guizhou (Weining Yi-Hui-Miao Zu Zizhixian).

158. *Delphinium nangchienense* W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 616. 1979.

囊谦翠雀花 nang qian cui que hua

Stem ca. 55 cm tall, retrorsely puberulent, simple. Leaf blade 4–8 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted nearly to midvein, distally 1- or 2-lobulate or undivided, apex acute; ultimate lobules narrowly triangular to linear; proximal leaves withered. Raceme 12–15.5 cm, 5–9-flowered, densely retrorsely puberulent and mixed with a few long hairs; proximal bracts leaflike, distal ones linear. Pedicels 3.3–4.4 cm; bracteoles distal, linear, 6–7 mm. Sepals blue, abaxially puberulent and villous; spur subulate-cylindric, 2.4–2.8 cm, base ca. 3 mm in diam.; other sepals ca. 1.4 cm. Petals undivided, ciliate. Staminode limb suboblong, apically erose, yellow barbate. Filaments pilose. Carpels 3; ovaries densely puberulent. Fl. Aug. 2n = 16*.

• Grassy places near forest margins; ca. 4200 m. S Qinghai (Nangqên Xian).

159. *Delphinium grandiflorum* Linnaeus, Sp. Pl. 1: 531. 1753.

翠雀 cui que

Stem (14–)30–65 cm tall, branched. Leaf blade 4–12 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 1- or 3-cleft nearly to midvein, distally 1- or 2-lobulate or undivided, apex acute; ultimate lobules linear-lanceolate, linear, or narrowly linear; proximal leaves withered or not. Raceme 5–20 cm, 3–10-flowered, appressed puberulent, rarely mixed with yellow, glandular hairs; proximal bracts leaflike, distal ones linear. Pedicels 1.5–4(–7) cm; bracteoles borne near middle of pedicel or distally, linear or subulate, 3.5–7 mm. Sepals purple-blue or blue, abaxially puberulent; spur subulate or cylindric-subulate, 1.5–2(–2.2) cm, straight or slightly recurved, base 2.5–3.5 mm in diam.; other sepals 1–1.9 cm. Petals undivided, glabrous. Staminode limb suborbicular or broadly obovate, entire, emarginate, or 2-lobulate, rarely 2-lobed, yellow barbate. Filaments glabrous or rarely pilose. Carpels 3; ovaries densely puberulent or glabrous. Fl. May–Nov. Sparse forests, scrub, grassy slopes, grassy places in valleys, meadows, dry slopes, weedy places, fields; 100–3500 m. N Anhui, Beijing, C and E Gansu, Hebei, Heilongjiang, S and W Henan, NW Jiangsu, Jilin, Liaoning, Nei Mongol, S Ningxia, E Qinghai, Shaanxi, E Shandong, Shanxi, NW Sichuan, C and NW Yunnan [Mongolia, Russia (Siberia)].

- 1a. Stem appressed puberulent, mixed with some retrorse, longer hairs .. 159e. var. *mosoynense*
- 1b. Stem appressed puberulent, sometimes mixed with short, glandular hairs.
 - 2a. Carpels glabrous.

- 3a. Raceme appressed puberulent, without glandular hairs 159c. var. *deinocarpum*
- 3b. Raceme appressed puberulent and yellow glandular puberulent 159d. var. *leiocarpum*
- 2b. Carpels densely puberulent.
 - 4a. Inflorescence corymbose 159f. var. *fangshanense*
 - 4b. Inflorescence racemose.
 - 5a. Raceme and stem appressed puberulent, without glandular hairs 159a. var. *grandiflorum*
 - 5b. Raceme and often stem appressed puberulent and glandular puberulent 159b. var. *gilgianum*

159a. *Delphinium grandiflorum* var. ***grandiflorum***

翠雀(原变种) cui que (yuan bian zhong)

Chienia honanensis W. T. Wang; *Delphinium bonatii* H. Léveillé; *D. chinense* Fischer; *D. grandiflorum* var. *chinense* (Fischer) de Candolle; *D. grandiflorum* var. *tigrinum* Kitagawa.

Stem and raceme appressed puberulent, without glandular hairs. Inflorescence racemose. Staminode limb entire or emarginate. Carpels densely puberulent. Fl. May–Oct.

Sparse forests, grassy slopes; 500–2800 m. Hebei, Heilongjiang, W Henan, Jilin, Liaoning, Nei Mongol, E Qinghai, N Shaanxi, Shanxi, NW Sichuan [Mongolia, Russia (Siberia)].

159b. *Delphinium grandiflorum* var. ***gilgianum*** (Pilger ex Gilg) Finet & Gagnepain, Bull. Soc. Bot. France 51: 483. 1904.

腺毛翠雀 xian mao cui que

Delphinium gilgianum Pilger ex Gilg, Bot. Jahrb. Syst. 34(Beibl. 75): 33. 1904; *D. chefoense* Franchet; *D. grandiflorum* var. *glandulosum* W. T. Wang.

Stem (often) and raceme appressed puberulent and glandular puberulent. Inflorescence racemose. Staminode limb emarginate or 2-lobulate. Carpels densely puberulent. Fl. May–Sep.

• Scrub, grassy slopes; 100–1800 m. N Anhui, C Gansu, SW Hebei, S Henan, NW Jiangsu, E Qinghai, Shaanxi, E Shandong, S Shanxi.

159c. *Delphinium grandiflorum* var. ***deinocarpum*** W. T. Wang, Acta Phytotax. Sin. 32: 469. 1994.

安泽翠雀 an ze cui que

Stem and raceme appressed puberulent, without glandular hairs. Inflorescence racemose. Staminode limb emarginate. Carpels glabrous. Fl. Jun.

• S Shanxi (Anze Xian).

159d. *Delphinium grandiflorum* var. ***leiocarpum*** W. T. Wang, Acta Bot. Sin. 10: 274. 1962.

光果翠雀 guang guo cui que

Stem appressed puberulent, sometimes mixed with short, glandular hairs. Raceme appressed puberulent

and yellow glandular puberulent. Staminode limb emarginate or 2-lobulate. Carpels glabrous. Fl. May–Oct.

• Dry slopes, weedy places, fields; 700–1800 m. E Gansu, S Ningxia, N Shaanxi, N Shanxi.

159e. *Delphinium grandiflorum* var. *mosoynense* (Franchet) Huth, Bot. Jahrb. Syst. 20: 461. 1895.

裂瓣翠雀 lie ban cui que

Delphinium mosoynense Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 168. 1893; *D. grandiflorum* var. *robustum* W. T. Wang; *D. grandiflorum* var. *villosum* W. T. Wang.

Stem appressed puberulent, mixed with some retrorse, longer hairs. Inflorescence racemose; raceme appressed puberulent, rarely mixed with yellow, glandular hairs. Staminode limb entire, emarginate, or 2-lobed. Carpels puberulent. Fl. Jul–Nov.

• Scrub, grassy slopes; 1900–3500 m. C and NW Yunnan.

159f. *Delphinium grandiflorum* var. *fangshanense* (W. T. Wang) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 447. 1979.

房山翠雀 fang shan cui que

Delphinium fangshanense W. T. Wang, Acta Bot. Sin. 10: 269. 1962.

Stem and corymb appressed puberulent, without glandular hairs. Inflorescence corymbose. Staminode limb emarginate. Carpels densely puberulent. Fl. Jul–Sep.

• Grassy places in valleys; 400–600 m. Beijing (Fangshan Xian).

160. *Delphinium kamaonense* Huth, Bull. Herb. Boissier 1: 333. 1893.

光序翠雀花 guang xu cui que hua

Stem 25–45 cm tall, puberulent proximally, glabrous or subglabrous distally, branched. Leaf blade 3–10 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted nearly to midvein, distally 1- or 2-lobulate or undivided, apex acute; ultimate lobules narrowly ovate, lanceolate, or linear; proximal leaves usually withered. Raceme 8–29 cm, 3–14-flowered; rachis sparsely puberulent; bracts all linear, or most proximal one 3-sect. Pedicels 1.5–6.5(–10) cm, densely pubescent distally, glabrous or sparsely puberulent elsewhere; bracteoles borne near middle of pedicel or distally, narrowly linear or subulate, 3–6.5 mm. Sepals deep or light blue, rarely white, abaxially appressed puberulent; spur subulate, 1.2–2.5 cm, usually slightly upcurved or downcurved, base 2–3 mm in diam.; other sepals 1.2–2 cm. Petals undivided, glabrous. Staminode limb broadly obovate, distally emarginate, sometimes entire, rarely 2-lobed, yellow barbate. Filaments glabrous or pilose. Carpels 3; ovaries densely pubescent. Fl. Jun–Aug.

Grassy slopes, meadows; 2500–4200 m. SW Gansu, S Qinghai, W Sichuan, E and S Xizang [NW India, Nepal].

1a. Spur slightly shorter than sepals, 1.2–1.6 cm, usually slightly upcurved 160a. var. *kamaonense*

1b. Spur slightly longer than sepals, 1.8–2.5

cm, usually slightly downcurved 160b. var. *glabrescens*

160a. *Delphinium kamaonense* var. *kamaonense*

光序翠雀花(原变种) guang xu cui que hua (yuan bian zhong)

Delphinium grandiflorum Linnaeus var. *kamaonense* (Huth) Brühl.

Sepals deep blue; spur slightly shorter than sepals, 1.2–1.6 cm, usually slightly upcurved. Staminode limb distally emarginate.

Grassy slopes; 2800–4100 m. S Xizang [NW India, Nepal].

160b. *Delphinium kamaonense* var. *glabrescens* (W. T. Wang) W. T. Wang, Fl. Reipubl. Popularis Sin. 27: 449. 1979.

展毛翠雀花 zhan mao cui que hua

Delphinium pseudograndiflorum W. T. Wang var. *glabrescens* W. T. Wang, Acta Bot. Sin. 10: 274. 1962; *D. pseudograndiflorum* var. *lobatum* W. T. Wang; *D. sordidecaerulescens* Ulbrich; *D. tatsienense* Franchet f. *sordidecaerulescens* (Ulbrich) Handel-Mazzetti.

Sepals deep or light blue, rarely white; spur slightly longer than sepals, 1.8–2.5 cm, usually slightly downcurved. Staminode limb distally entire or emarginate, rarely 2-lobed. $2n = 16^*$.

• Meadows; 2500–4200 m. SW Gansu, S Qinghai, W Sichuan, E Xizang.

161. *Delphinium beesianum* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 8: 130. 1913.

宽距翠雀花 kuan ju cui que hua

Stem 8–28 cm tall, retrorsely puberulent, branched or simple. Leaf blade 2–8 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe narrowly rhombic and 3-cleft or oblong-linear and undivided, distally 1- or 2-lobulate or undivided, apex acute; ultimate lobules lanceolate, narrowly oblong, or linear, 2–7 mm wide; proximal leaves usually withered or not. Corymb 3–6 cm, 1–5-flowered, retrorsely puberulent; bracts leaflike, shortly petiolate. Pedicels 3–6 cm; bracteoles borne near middle of pedicel, lanceolate or lanceolate-linear, 5–12 mm. Sepals blue or blue-purple, abaxially puberulent; spur subulate-cylindric, 2.4–2.8(–3.2) cm, base 3–4.5 mm in diam.; other sepals 1.7–2.9 cm. Petals undivided, glabrous. Staminode limb narrowly obovate, erose, emarginate, or 2-lobed, yellow barbate. Filaments pilose. Carpels 5; ovaries densely pubescent. Fl. Sep–Nov.

• Grassy or gravelly slopes, alpine meadows; 3500–4800 m. W Sichuan, E Xizang, NW Yunnan.

1a. Leaf blade central lobe oblong-linear, undivided, distal lateral lobes usually undivided and similar to central lobe, proximal lateral lobes unequally 2-parted, tertiary lobes undivided 161c. var. *radiatifolium*

1b. Leaf blade central lobe narrowly rhombic, 3-cleft, lateral lobes unequally 2-cleft or 2-parted, tertiary lobes undivided or 1- or 2-lobulate.

- 2a. Leaf blade ultimate lobules mostly linear, sometimes lanceolate, 2–3.5 mm wide 161a. var. *beesianum*
2b. Leaf blade ultimate lobules lanceolate or narrowly oblong, 3–7 mm wide 161b. var. *latisectum*

161a. *Delphinium beesianum* var. *beesianum*

宽距翠雀花(原变种) kuan ju cui que hua (yuan bian zhong)

Delphinium beesianum f. *calcicola* (W. W. Smith) W. T. Wang; *D. calcicola* W. W. Smith.

Leaf blade central lobe narrowly rhombic, 3-cleft; lateral lobes unequally 2-cleft or 2-parted; tertiary lobes undivided or 1- or 2-lobulate; ultimate lobules mostly linear, sometimes lanceolate, 2–3.5 mm wide.

• Grassy or gravelly slopes; 3500–4600 m. SW Sichuan (Daocheng Xian), NW Yunnan.

161b. *Delphinium beesianum* var. *latisectum* W. T. Wang, Acta Bot. Sin. 10: 263. 1962.

粗裂宽距翠雀花 cu lie kuan ju cui que hua

Leaf blade central lobe narrowly rhombic, 3-cleft; lateral lobes unequally 2-cleft or 2-parted; tertiary lobes undivided or 1- or 2-lobulate; ultimate lobules lanceolate or narrowly oblong, 3–7 mm wide.

• Slopes; 3500–4700 m. E Xizang (Qamdo Xian), NW Yunnan (Gongshan Drung-Nu Zu Zizhixian).

161c. *Delphinium beesianum* var. *radiatifolium* (Handel-Mazzetti) W. T. Wang, Acta Bot. Sin. 10: 265. 1962.

辐裂宽距翠雀花 fu lie cui que hua

Delphinium beesianum var. *malacotrichum* Handel-Mazzetti f. *radiatifolium* Handel-Mazzetti, Acta Horti Gothob. 13: 60. 1939; *D. beesianum* var. *radiatifolium* f. *ramosum* W. T. Wang.

Leaf blade central lobe oblong-linear, undivided; distal lateral lobes usually undivided and similar to central lobe; proximal lateral lobes unequally 2-parted; tertiary lobes undivided, narrowly lanceolate or linear.

• Alpine meadows; 4200–4800 m. W Sichuan, E Xizang (Zhag'yab Xian).

162. *Delphinium caeruleum* Jacquemont, Voy. Inde 4(Bot.): 7. 1835–1844.

蓝翠雀花 lan cui que hua

Stem 5–80 cm tall, puberulent or pilose, sometimes also with glandular hairs, usually branched. Leaf blade 0.4–12 cm wide, adaxially densely puberulent or velutinous, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic or obovate-rhombic, 1–3 × dissected, distally 1- or 2-lobulate or undivided, apex rounded to acute; ultimate lobules linear, 2–5 mm wide; proximal leaves withered or not. Corymb 5–14 cm, 1–7-flowered, finely puberulent; proximal bracts leaflike or 3-sect, distal ones linear. Pedicels 3.5–8 cm; bracteoles borne near middle of pedicel or distally, lanceolate-linear, 4–10 mm. Sepals purple-blue, rarely white, abaxially puberulent; spur subulate, 1.5–2.8 cm,

nearly straight or slightly recurved, base 2–3(–4) mm in diam.; other sepals 1.2–1.9(–2.5) cm. Petals undivided, glabrous. Staminode limb broadly obovate or suborbicular, entire or emarginate, yellow barbate. Filaments glabrous or pilose. Carpels 4 or 5; ovaries puberulent or villous. Fl. (Jun–)Jul–Oct.

Grassy or gravelly slopes; 2100–5000 m. Gansu, Qinghai, W Sichuan, NW Yunnan, Xizang [Bhutan, Nepal, Sikkim].

- 1a. Stem appressed puberulent, without glandular hairs.
2a. Proximal leaves present at anthesis, cauline leaf blade to 8 cm wide, ultimate lobules 2–3 mm wide 162a. var. *caeruleum*
2b. Proximal leaves absent at anthesis, cauline leaf blade to 12 cm wide, ultimate lobules 2.5–5 mm wide 162b. var. *majus*
1b. Stem spreading puberulent, or spreading pilose and appressed puberulent, sometimes also with spreading, glandular hairs.
3a. Stem spreading puberulent, sometimes also with spreading, glandular hairs; cauline leaf blade 2–2.8 cm wide, adaxially velutinous, ultimate lobules apically rounded or obtuse; spur 1.5–1.9 cm, base ca. 2.5 mm in diam.; ovaries puberulent 162c. var. *obtusilobum*
3b. Stem spreading pilose, appressed puberulent, and with some spreading, glandular hairs; cauline leaf blade 0.4–2.2 cm wide, adaxially densely puberulent, ultimate lobules apically acute; spur ca. 2.8 cm, base 3–4 mm in diam.; ovaries villous 162d. var. *crassicalcaratum*

162a. *Delphinium caeruleum* var. *caeruleum*

蓝翠雀花(原变种) lan cui que hua (yuan bian zhong)

Delphinium beesianum W. W. Smith var. *malacotrichum* Handel-Mazzetti; *D. caeruleum* f. *album* W. T. Wang; *D. grandiflorum* Linnaeus var. *kunawarensense* Brühl; *D. grandiflorum* var. *tsangense* Brühl.

Stem 8–60 cm, appressed puberulent, without glandular hairs. Proximal leaves present at anthesis; cauline leaf blade to 8 cm wide; ultimate lobules 2–3 mm wide, apically acute. Spur 1.8–2.8 cm, base 2–3 mm in diam. Ovaries puberulent. Fl. Jul–Sep.

Grassy or gravelly slopes; 2100–4000 m. Gansu, Qinghai, W Sichuan, NW Yunnan, Xizang [Bhutan, Nepal].

162b. *Delphinium caeruleum* var. *majus* W. T. Wang, Acta Bot. Sin. 10: 266. 1962.

大叶蓝翠雀花 da ye lan cui que hua

Stem 65–80 cm, appressed puberulent, without glandular hairs. Proximal leaves absent at anthesis; cauline leaf blade to 12 cm wide; ultimate lobules 2.5–5

mm wide, apically acute. Spur 1.8–2.8 cm, base 2–3 mm in diam. Ovaries puberulent.

• Grassy slopes; 3300–3600 m. SW Gansu.

162c. *Delphinium caeruleum* var. *obtusilobum* Brühl ex Huth, Bot. Jahrb. Syst. 20: 463. 1895.

钝裂蓝翠雀花 *dun lie lan cui que hua*

Delphinium grandiflorum var. *obtusilobum* (Brühl ex Huth) Brühl; *D. tsoongii* W. T. Wang.

Stem 6–9 cm, spreading puberulent, sometimes also with spreading, glandular hairs. Proximal leaves present at anthesis; cauline leaf blade 2–2.8 cm wide, adaxially velutinous; ultimate lobules ca. 2 mm wide, apically rounded or obtuse. Spur 1.5–1.9 cm, base ca. 2.5 mm in diam. Ovaries puberulent. Fl. Aug.

Grassy slopes; ca. 5000 m. S Xizang [Sikkim].

162d. *Delphinium caeruleum* var. *crassicalcaratum* W. T. Wang & M. J. Warnock, Guihaia 17: 9. 1997.

粗距蓝翠雀花 *cu ju lan cui que hua*

Stem 5–9 cm, spreading pilose, appressed puberulent, and with some spreading, glandular hairs. Proximal leaves present at anthesis; cauline leaf blade 0.4–2.2 cm wide, adaxially densely puberulent; ultimate lobules 1–2 mm wide, apically acute. Spur ca. 2.8 cm, base 3–4 mm in diam. Ovaries villous. Fl. Jun.

• Gravelly slopes; ca. 4600 m. NW Yunnan (Dêqên Xian).

163. *Delphinium huangzhongense* W. T. Wang in W. T. Wang et al., Acta Phytotax. Sin. 37: 216. 1999.

湟中翠雀花 *huang zhong cui que hua*

Stem 7.5–8.5 cm tall, appressed puberulent, simple. Leaf blade 1–3 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic to narrowly so, 1–3 × dissected, distally 1–3-lobulate, apex acute; ultimate lobules ± linear; proximal leaves withered or not. Inflorescence ca. 2 cm, 1-flowered; rachis with retrorse, yellowish hairs; proximal bracts leaflike or linear. Pedicels 1.5–3 cm; bracteoles distal, lanceolate, 4–7 mm. Sepals gray-blue, abaxially densely appressed puberulent; spur subulate-cylindric, 5–7 mm, decurved; other sepals 1.25–1.4 cm. Petals undivided, glabrous. Staminode limb obliquely ovate, ca. 3.8 mm, entire, white barbate. Filaments glabrous. Carpels 5; glabrous. Fl. Jul.

• Scrub; ca. 3900 m. W Qinghai (Huangzhong Xian).

164. *Delphinium davidii* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 179. 1893.

谷地翠雀花 *gu di cui que hua*

Delphinium longipes Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 191. 1886, not Moris (1837); *D.*

grandiflorum Linnaeus var. *davidii* (Franchet) Brühl.

Stem 28–70 cm tall, sparsely retrorsely puberulent, branched distally. Leaf blade 6–9 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-lobulate, distally few lobulate or few dentate, apex acute; ultimate lobules triangular to lanceolate; proximal leaves not withered. Corymb 7–13 cm, 2–5-flowered; bracts leaflike. Pedicels 3.5–10

cm, retrorsely puberulent; bracteoles proximal, lanceolate or linear, 4.5–6 mm. Sepals blue, abaxially sparsely puberulent; spur subulate, 1.8–2.5 cm, slightly recurved, base 3.5–4 mm in diam.; other sepals 1.8–2.5 cm. Petals emarginate, glabrous. Staminode limb oblong or obovate, emarginate or 2-lobed, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Aug–Oct.

• Grassy places at forest margins, rocks; 1100–1400 m. W Sichuan (Baoping Xian to Luding Xian).

165. *Delphinium saxatile* W. T. Wang, Acta Phytotax. Sin. 6: 367. 1957.

岩生翠雀花 *yan sheng cui que hua*

Delphinium davidii Franchet var. *saxatile* (W. T. Wang) W. T. Wang.

Stem ca. 27 cm tall, sparsely hispid proximally, sparsely retrorsely puberulent distally. Leaf blade 3–8 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 3-parted, distally few lobulate or few dentate, apex acute; ultimate lobules lanceolate to linear; proximal leaves not withered. Corymb ca. 12 cm, ca. 2-flowered; bracts leaflike. Pedicels 8–13 cm, densely retrorsely appressed puberulent; bracteoles borne proximally or near middle of pedicel, linear, ca. 9 mm. Sepals blue-purple, distally acuminate, abaxially appressed puberulent; spur subulate, ca. 2.5 cm, slightly recurved, base ca. 3 mm in diam.; other sepals 2.5–2.9 cm. Petals distally emarginate, ciliate. Staminode limb broadly ovate, 5–6 mm, 2-cleft nearly to middle, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely puberulent. Fl. Jul.

• Rocky valleys; ca. 2100 m. W Sichuan (Baoping Xian).

166. *Delphinium tatsienense* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 169. 1893.

康定翠雀花 *kang ding cui que hua*

Stem 30–80 cm tall, retrorsely puberulent, branched distally. Leaf blade 4–9 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe rhombic, 2 or 3 × dissected, distally few lobulate or few dentate, apex acute; ultimate lobules lanceolate to linear, 0.5–2.5(–4) mm wide; proximal leaves usually withered. Compound raceme pyramidal, each branch 3–15 cm, 3–12-flowered, densely retrorsely puberulent, often mixed with yellow, glandular hairs; bracts linear. Pedicels 3–7.5 cm; bracteoles borne near middle of pedicel or distally, green, subulate, 3–6 mm. Sepals purple-blue, abaxially puberulent, adaxially glabrous or puberulent; spur subulate, 2–2.5 cm, base 2–3.5 mm in diam.; other sepals 1–1.6 cm. Petals undivided, glabrous. Staminode limb broadly obovate, 5–6 mm, undivided, emarginate, or 2-lobulate, yellow barbate. Filaments pilose or glabrous. Carpels 3; ovaries densely puberulent. Fl. Jun–Sep.

• Grassy slopes, alpine meadows; 2300–4000 m. SE Qinghai, W Sichuan, N Yunnan.

- 1a. Ultimate leaf blade lobules 1.5–2.5(–4) mm wide; sepals glabrous adaxially 166a. var. *tatsienense*
1b. Ultimate leaf blade lobules 0.5–1.5 mm wide; sepals puberulent adaxially 166b. var. *chinghaiense*

166a. *Delphinium tatsienense* var. *tatsienense*

康定翠雀花(原变种) kang ding cui que hua (yuan bian zhong)

Ultimate leaf blade lobules 1.5–2.5(–4) mm wide.
Sepals glabrous adaxially.

• Grassy slopes; 2300–3300 m. W Sichuan, N Yunnan.

166b. *Delphinium tatsienense* var. *chinghaiense* W. T. Wang, Acta Phytotax. Sin. 12: 159. 1974.

班玛翠雀花 ban ma cui que hua

Ultimate leaf blade lobules 0.5–1.5 mm wide. Sepals puberulent adaxially.

• Alpine meadows; ca. 4000 m. SE Qinghai (Baima Xian).

167. *Delphinium grandilimum* W. T. Wang & M. J. War-nock, Guihaia 17: 10. 1997.

硕边翠雀花 shuo bian cui que hua

Stem 12–22 cm tall, proximally retrorsely pubescent, elsewhere glabrous, simple. Leaf blade 3–6 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic, 3-parted, distally entire or 3-dentate, apex acute; ultimate lobules linear, triangular or linear-lanceolate; proximal leaves withered or not. Corymb terminal, 1- or 2-flowered; bracts lanceolate, apex subulate-acuminate. Pedicels 2–6 cm, distally spreading pubescent and yellow glandular puberulent; bracteoles distal, subulate, 5–6 mm. Sepals purple-blue, abaxially pilose; spur subulate, 2.5–3.1 cm, base 2.1–3(–4) mm in diam.; other sepals 3–3.6 cm. Petals undivided, glabrous. Staminode limb obliquely obovate, emarginate, yellow barbate. Filaments pilose distally. Carpels 3, ovaries densely yellowish villous. Fl. Sep.

• Alpine meadows; ca. 3600 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

168. *Delphinium pumilum* W. T. Wang, Acta Bot. Sin. 10: 267. 1962.

矮翠雀花 ai cui que hua

Stem 10–16.5 cm tall, sparsely pubescent, usually simple. Leaf blade 1–3 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic-obovate, 3-parted nearly to midvein, distally entire or 3–5-lobulate, apex acute; ultimate lobules lanceolate-linear; proximal leaves not withered. Corymb 4.5–9 cm, (1 or)2(or 3)-flowered; bracts leaflike or linear. Pedicels 2–9 cm, pubescent and yellow glandular puberulent; bracteoles borne near middle of pedicel, linear-subulate, 3–4.5 mm. Sepals blue, abaxially sparsely puberulent; spur subulate, 3.3–3.8 cm, base ca. 2.5 mm in diam.; other sepals 1.4–1.6

cm. Petals emarginate, glabrous. Staminode limb broadly obovate, emarginate, yellow barbate. Filaments glabrous. Carpels 3; ovaries puberulent. Fl. Sep.

• Grassy slopes; 3900–4300 m. SW Sichuan (Muli Zang Zu Zizhixian).

169. *Delphinium mollipilum* W. T. Wang, Acta Bot. Sin. 10: 268. 1962.

软毛翠雀花 ruan mao cui que hua

Stem ca. 35 cm tall, sparsely retrorsely pubescent, simple. Leaf blade 6–8 cm wide, base cordate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic-obovate, 3-parted nearly to midvein, distally entire or 3–5-lobulate, apex acute; ultimate lobules lanceolate-linear; proximal leaves usually withered. Corymb 3.5–6.5 cm, 2- or 3-flowered; proximal bracts 3-sect, distal ones linear. Pedicels 3.1–6 cm, spreading puberulent; bracteoles borne near middle of pedicel, linear, 4.5–7 mm. Sepals purple-blue, abaxially sparsely puberulent; spur subulate, 1.8–2.5 cm, base ca. 2 mm in diam.; other sepals 1.5–2.4 cm. Petals emarginate or entire, glabrous. Staminode limb orbicular-obovate, emarginate, yellow barbate. Filaments glabrous or pilose. Carpels 3; ovaries sparsely pubescent distally. Fl. Sep–Oct.

• Grassy slopes; ca. 3300 m. Gansu (Hegang Shan).

170. *Delphinium pseudoceruleum* W. T. Wang, Acta Bot. Sin. 10: 269. 1962.

拟蓝翠雀花 ni lan cui que hua

Stem 70–100 cm tall, retrorsely puberulent proximally, glabrous and branched distally. Leaf blade ca. 8 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic-obovate, dissected nearly to midvein, distally entire or 3–5-lobulate, apex acute; ultimate lobules narrowly linear; proximal leaves usually withered. Corymb 4–8 cm, 2–5-flowered; proximal bracts 3-sect, distal ones linear. Pedicels 3.2–7.5 cm, densely retrorsely puberulent; bracteoles borne near middle of pedicel, linear, 4–6 mm. Sepals deep blue, abaxially appressed puberulent; spur subulate, 2–2.2 cm, base ca. 2.5 mm in diam.; other sepals 1.3–1.5 cm. Petals emarginate, glabrous. Staminode limb elliptic, 2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely appressed puberulent. Fl. Jul–Sep.

• Grassy slopes; 1200–2500 m. S Gansu (Zhuguo Xian).

171. *Delphinium maximowiczii* Franchet, Bull. Soc. Philom. Paris, sér. 8, 5: 164. 1893.

多枝翠雀花 duo zhi cui que hua

Stem ca. 60 cm tall, densely retrorsely puberulent, much branched. Leaf blade 3–8 cm wide, base deeply cordate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic-obovate, dissected nearly to midvein, distally entire or 3–5-lobulate, apex acute; ultimate lobules narrowly lanceolate or linear; proximal leaves usually withered. Corymb 4–7 cm, usually 2- or 3-flowered; bracts leaflike. Pedicels 1.5–5.5 cm, densely appressed

puberulent; bracteoles borne near middle of pedicel or distally, oblong or linear, 2–6 mm. Sepals blue, abaxially puberulent; spur subulate, 2–2.2 cm, base ca. 2 mm in diam.; other sepals ca. 1.4 cm. Petals undivided, glabrous. Staminode limb obovate, 2-lobed or

2-cleft, yellow barbate. Filaments glabrous. Carpels 3; ovaries densely appressed puberulent. Fl. Jul–Aug.
• Grassy slopes; 1500–1900 m. S Gansu, NW Sichuan (Nanping Xian).

4. Delphinium sect. **Oligophyllon** Dimitrova, Novosti Sist. Vyssh. Rast. 6: 65. 1970.

三出翠雀花组 san chu cui que hua zu

Herbs perennial, tuberous. Leaves mostly near middle of stem and distal; leaf blade deeply palmately divided; primary lobes 2- to many lobulate. Petals of same color as sepals, not black-brown, distally not enlarged. Staminoles of same color as sepals, not black-brown, distinctly differentiated into a claw and an expanded limb; limb abaxially yellow barbate. Carpels 3. Seeds transversely squamulose winged.

About 45 species: N Africa, W Asia, S Europe, North America; one species in China.

172. Delphinium biternatum Huth, Bot. Jahrb. Syst. 20: 422. 1895.

三出翠雀花 san chu cui que hua

Stem 48–70 cm tall, densely retrorsely puberulent, simple or 1-branched. Leaf blade 3–7 cm wide, base broadly cuneate; primary lobes separate for at least 90% of blade radius; central lobe broadly rhombic-obovate, 2 or 3 × dissected, distally entire, apex acute; ultimate lobules narrowly linear; proximal leaves withered. Raceme elongate, to 35 cm, densely many flowered; rachis densely appressed puberulent; bracts lanceolate

or linear-lanceolate. Pedicels 0.9–1.1 cm, appressed puberulent and yellow glandular puberulent; bracteoles borne proximally or near middle of pedicel, lanceolate, ca. 3 mm. Sepals yellow, abaxially densely puberulent; spur cylindrical-subulate, 1.1–1.3 cm, base ca. 2.8 mm in diam.; other sepals 6–8 mm. Petals 2-lobed, glabrous. Staminode limb ovate, 2-cleft, yellow barbate. Filaments glabrous. Ovaries appressed puberulent. Fl. Jul–Aug.

Slopes. W Xinjiang (Yining Xian) [Kazakhstan, Kyrgyzstan].

5. Delphinium sect. **Anthriscifolium** W. T. Wang, Acta Bot. Sin. 10: 277. 1962.

还亮草组 huan liang cao zu

Herbs annual or biennial, with taproots. Leaves mostly near middle of stem; leaf blade 2- or 3-pinnate. Petals enlarged distally. Staminoles of same color as sepals, not black-brown, glabrous, distinctly differentiated into a claw and an expanded limb. Carpels 3, widely spreading in fruit. Seeds transversely lamellate.

One species: C and S China, N Vietnam.

173. Delphinium anthriscifolium Hance, J. Bot. 5: 207. 1868.

还亮草 huan liang cao

Plants annual. Stem (12–)30–80 cm tall, glabrous or sparsely retrorsely puberulent distally, branched. Leaf blade 4–8 cm wide, base broadly cuneate; primary lobes separate for at least 90% of blade radius; central lobe narrowly ovate, pinnately divided nearly to midvein, distally entire, apex long acuminate; ultimate lobules narrowly ovate or lanceolate; proximal leaves usually withered. Raceme 2–12 cm, (1 or)2–10-flowered, retrorsely puberulent; proximal bracts leaflike, distal ones lanceolate to lanceolate-subulate. Pedicels 0.4–1.2 cm; bracteoles borne proximally or near middle of pedicel, lanceolate-linear, 2.5–4.5 mm. Sepals violet or purple, abaxially sparsely puberulent; spur subulate, 0.5–2.2 cm, base 1.5–4 mm in diam.; other sepals 0.6–1.6 cm. Petals distally much widened, glabrous. Staminode limb dolabriform or ovate, 2-parted, 2-lobed, emarginate, or sometimes entire, base subtruncate or broadly cuneate. Filaments glabrous. Ovaries sparsely puberulent or subglabrous. Fl. Mar–May.

Forest margins, scrub, grassy places on slopes or by streams in hilly or low-montane regions; near sea level to 1700 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, S

Jiangsu, Jiangxi, S Shaanxi, S Shanxi, Sichuan, NE and SE Yunnan, Zhejiang [N Vietnam].

- 1a. Spur 1.7–2.2 cm, base 3–4 mm in diam., other sepals 1.2–1.6 cm 173c. var. *majus*
- 1b. Spur 0.5–1.1(–1.5) cm, base 1.5–2 mm in diam., other sepals 0.6–0.9(–1.1) cm.
 - 2a. Staminode limb dolabriform, 2-parted, base subtruncate 173a. var. *anthriscifolium*
 - 2b. Staminode limb ovate, 2-lobed, emarginate, or sometimes entire, base broadly cuneate 173b. var. *savatieri*

173a. Delphinium anthriscifolium var. **anthriscifolium**

还亮草(原变种) huan liang cao (yuan bian zhong)

Delphinium anthriscifolium var. *calleryi* (Franchet)

Finet & Gagnepain; *D. anthriscifolium* f. *latilobulatum*

W. T. Wang; *D. calleryi* Franchet; *D. cavaleriense* H.

Léveillé & Vaniot; *D. cerefolium* H. Léveillé & Vaniot.

Spur 0.5–0.9(–1.5) cm, base 1.5–2 mm in diam.; other sepals 0.6–0.9(–1.1) cm. Staminode limb dolabriform, 2-parted, base subtruncate.

• Grassy places on slopes or by streams in hilly or low-montane regions; 200–1200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shanxi, NE and SE Yunnan, Zhejiang.

173b. *Delphinium anthriscifolium* var. *savatieri* (Franchet) Munz, J. Arnold Arbor. 48: 261. 1967.

卵瓣还亮草 *luan ban huan liang cao*

Delphinium savatieri Franchet, Bull. Mens. Soc. Linn.

Paris 1: 330. 1882; *D. kweichowense* W. T. Wang; *D.*

minutum H. Léveillé & Vaniot; *D. robertianum* H.

Léveillé & Vaniot.

Spur 0.6–1.1 cm, base 1.5–2 mm in diam.; other sepals 0.6–0.9 cm. Staminode limb ovate, 2-lobed, emarginate, or sometimes entire, base broadly cuneate.

Forest margins, scrub, shady grassy slopes in hilly or low-montane regions; below 100 to 1300 m. Anhui, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, NE and SE Yunnan, Zhejiang [N Vietnam].

173c. *Delphinium anthriscifolium* var. *majus* Pampanini, Nuovo Giorn. Bot. Ital., n.s., 20: 288. 1915.

大花还亮草 *da hua huan liang cao*

Spur 1.7–2.2 cm, base 3–4 mm in diam.; other sepals 1.2–1.6 cm. Staminode limb broadly ovate, 2-lobed, base broadly cuneate or subtruncate.

• Grassy slopes; 200–1700 m. W Anhui, E Guizhou, Hubei, NW Hunan, S Shaanxi, E Sichuan.

12. CONSOLIDA (de Candolle) S. F. Gray, Nat. Arr. Brit. Pl. 2: 711. 1821.

飞燕草属 *fei yan cao shu*

Wang Wencai (王文采 *Wang Wen-tsai*); Michael J. Warnock

Delphinium Linnaeus sect. *Consolida* de Candolle, Syst. Nat. 1: 341. 1817.

Herbs annual. Leaves basal and cauline; leaf blade palmately divided. Inflorescence racemose or compoundly so. Pedicels usually 2-bracteolate. Flowers bisexual, zygomorphic. Sepals 5, petaloid, purple, blue, or white, upper one spurred. Petals 2, connate, spurred, subentire or 3–5-lobed; spur nectariferous. Staminodes absent. Stamens numerous; filaments lanceolate-linear, 1-veined; anthers ellipsoid. Carpel 1; ovary many ovulate. Style without a distinct stigma. Follicle narrowly oblong, reticulate. Seeds subtetrahedral, densely transversely squamulose winged.

About 43 species: N Africa, W Asia, S Europe; one species in China.

Consolida ambigua (Linnaeus) P. W. Ball & Heywood, a native of SW Asia and S Europe, is often cultivated in China as an ornamental.

1. *Consolida rugulosa* (Boissier) Schrödinger, Ann. K. K. Naturhist. Hofmus. 27: 43. 1913.

飞燕草 *fei yan cao*

Delphinium rugulosum Boissier, Ann. Sci. Nat. 16: 361. 1841.

Stem 5–10 cm tall, puberulent, simple or branched. Basal leaf 1, cauline leaves ca. 2, shortly petiolate; petiole ca. 0.8 cm; leaf blade rhombic or broadly so, 3-lobed, 0.7–1.7 × 0.6–1.3 cm, papery, sparsely puberulent, base cuneate or broadly so; segments 1 or 2 × dissected or undivided, ultimate lobules linear. Raceme 3.5–7.5

cm, 3–5-flowered, puberulent and mixed with a few yellow, glandular hairs; bracts leaflike. Pedicels 1–3 mm; bracteoles proximal, linear, ca. 2 mm. Sepals white, abaxially puberulent; upper sepal narrowly ovate, ca. 6.5 × 3 mm, spur subulate, ca. 1.8 cm, base ca. 3 mm in diam.; other sepals ca. 6.5 mm. Petals 3-lobed, glabrous. Filaments glabrous. Ovary densely puberulent. Follicle 0.9–1.2 cm, pubescent, reticulate. Seeds ca. 1.8 mm. Fl. Apr–May.

Grassy places; ca. 700 m. W Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Turkmenistan; SW Asia].

13. ASTEROPYRUM J. R. Drummond & Hutchinson, Bull. Misc. Inform. Kew 1920: 155. 1920.

星果草属 *xing guo cao shu*

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial. Rhizomes short, fibrous. Leaves basal, simple, papery, abaxially glabrous, adaxially sparsely strigose, base nearly truncate, distinctly peltate; leaf blade ± palmately lobed. Scapes 1–3; bracts usually opposite, ovate to broadly ovate, ca. 3 mm. Flowers terminal, solitary, actinomorphic, bisexual. Sepals 5, white, petaloid, obovate, apex rounded. Petals 5–8, golden yellow, ca. 1/2 as long as sepals, suborbicular, glabrous, long ligulate. Stamens numerous, slightly longer than petals, glabrous; filaments narrowly linear, 1-veined; anthers yellow, oblong, ca. 1 mm. Pistils 5–8, erect; ovary oblong, apex attenuate into a short style; ovules many. Follicles widely divergent, suboblong, ca. 8 mm, without prominent transverse veins on lateral surfaces, persistent styles short. Seeds brownish, ellipsoid, ca. 1.5 mm.

Two species: Bhutan, China, N Myanmar; two species (one endemic) in China.

1a. Scape 12–20 cm tall; leaf blade 5-sided in outline, 4–14 cm wide 1. *A. cavaleriei*

1b. Scape 6–10 cm tall; leaf blade suborbicular to inconspicuously 5-sided in outline, 1–3.7 cm wide 2. *A. peltatum*

1. *Asteropyrum cavaleriei* (H. Léveillé & Vaniot) J. R. Drummond & Hutchinson, Bull. Misc. Inform. Kew 1920. 156. 1920.

裂叶星果草 lie ye xing guo cao

Isopyrum cavaleriei H. Léveillé & Vaniot, Bull. Soc. Bot. France 51: 289. 1904; *Asteropyrum hederifolium* Schipczinski.

Leaves 2–7; petiole 6–13 cm, glabrous, seldom retrorsely puberulous; leaf blade 5-sided in outline, 4–11 × 4–14 cm, margin repand, lobed; lobes 3–5, triangular, apex acute. Scapes 12–20 cm tall, glabrous or sparsely pubescent. Flowers 1.3–1.6 cm in diam. Pedicel 5–8 mm. Sepals elliptic to obovate, 7–8 × 3–5 mm, glabrous. Fl. May–Jun, fr. Jun–Jul. $2n = 16^*$.

• Forests, shady places by streams; 1000–1100 m. N Guangxi, Guizhou, Hubei, Hunan, SW Sichuan, E Yunnan.

2. *Asteropyrum peltatum* (Franchet) J. R. Drummond & Hutchinson, Bull. Misc. Inform. Kew 1920. 155. 1920.

星果草 xing guo cao

Isopyrum peltatum Franchet, Nouv. Arch. Mus. Hist. Nat., sér 2, 8: 190. 1885.

Leaves 2–6; petiole 2.5–6 cm, retrorsely pubescent; leaf blade suborbicular to inconspicuously 5-sided, 0.8–3.2 × 1–3.7 cm, margin repand-crenate and obscurely 5-lobulate to subentire, apex obtuse to rounded. Scapes 6–10 cm tall, sparsely retrorse pubescent. Flowers 1.2–1.5 cm in diam. Pedicel 3–8 mm. Sepals obovate, 6–7 × 4–5 mm, glabrous. Follicles ca. 8 mm. Fl. May–Jun, fr. Jun–Jul. $2n = 16^*$.

Forests, grassy places at forest margins; 2000–4000 m. W Hubei, Sichuan, NW Yunnan [Bhutan, N Myanmar].

14. ENEMION Rafinesque, J. Phys. Chim. Hist. Nat. Arts 91: 70. 1820.

拟扁果草属 ni bian guo cao shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial. Rhizome short, inconspicuous. Roots many, slender. Leaves 1 or 2 × ternately compound. Inflorescences terminal or axillary, umbelliform or 1-flowered, bracteate. Flowers radially symmetric. Sepals petaloid. Petals absent. Stamens numerous; filaments apically thickened; anthers yellow. Pistils 3–6. Follicles shortly beaked. Seeds rugose.

Five species: NE Asia, Europe, W North America; one species in China.

1. *Enemion raddeanum* Regel, Bull. Soc. Imp. Naturalistes Moscou 34(2): 61. 1861.

拟扁果草 ni bian guo cao

Stem 1–3, erect, 20–40 cm tall, 2.5–3.5 mm in diam., basally villous, glabrate. Basal leaf 1, deciduous, 2-ternate; petiole 11–13 cm, sheath membranous; leaf blade triangular. Stem leaf usually 1, borne on upper 1/3 of stem; leaf blade triangular, ternate; petiolules 1.8–4.5 cm; leaflet blade 2.5–7 × 2.5–7 cm, 3-sect; lateral segment petiolule 0.2–2.5 cm; segment blade obliquely ovate, abaxially glabrous to subglabrous, unequally parted; central segment rhombic, 1–1.2 cm wide, apically 3-lobed, unequally toothed.

Inflorescences 1–8-flowered, glabrous; bracts 3, leaflike, subsessile, ovate-rhombic, to 5 cm. Flowers 1–1.5 cm in diam. Pedicel 0.7–3 cm. Sepals 5, white, elliptic, 4–6 mm, apex obtuse. Anthers ellipsoid. Pistils obliquely ovoid. Follicles obliquely ovoid-ellipsoid, ca. 8 × 3 mm, glabrous; veins raised; persistent styles ca. 2 mm, slightly curved. Seeds usually 2, ovoid to ellipsoid, ca. 1.5 mm, densely and finely setose. Fl. May, fr. May–Jul.

Forests in mountains. Heilongjiang, Jilin, Liaoning [Japan, Korea, Russia].

15. ISOPYRUM Linnaeus, Sp. Pl. 1: 557. 1753, nom. cons.

扁果草属 bian guo cao shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial. Stem erect, smooth, glabrous. Leaves 2 × ternately compound. Basal leaves abaxially pale green, adaxially green. Stem leaves shortly petiolate; petiole sheathed; sheath white, membranous. Inflorescences paniced or cymose; bracts 1 or 2 × ternately compound, 3-lobed, or 3-sect. Flowers radially symmetric, small. Pedicel slender. Sepals 5, white, petaloid. Petals 5, much smaller than sepals, basally tubulose or shallowly scrotiform and shortly clawed. Stamens 20–30; filaments sublinear, 1-veined; anthers yellow, broadly ellipsoid. Pistils 1–5, free, erect, narrowly ovate; ovules numerous, arranged in 2 rows on ventral suture. Follicles 1–5, ellipsoid-ovoid, flat, horizontally veined, apically with a curved beak. Seeds numerous, black to blackish, ovoid to ellipsoid, smooth.

Four species: Asia, Europe, North America; two species (one endemic) in China.

1a. Basal leaves numerous; bracts ovate, 3-parted to 3-sect 1. *I. anemonoides*

1b. Basal leaves few; bracts subtriangular, lower ones 2-ternate, uppermost one ternate 2. *I. manshuricum*

1. *Isopyrum anemonoides* Karelín & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 15: 135. 1842.

扁果草 bian guo cao

Rhizome blackish brown, slender, 1–1.5 mm in diam. Stem soft, 10–23 cm tall. Basal leaves numerous, glabrous; petiole 3.2–9 cm; leaf blade triangular, to 6.5 cm wide; central leaflet petiolule slender; leaflet blade rhombic to obovate, 1–1.5 × 1–1.5 cm, 3-foliolate to 3-parted; segments unequally 2- or 3-parted or lobed, apically entire or with 3 obtuse teeth. Stem leaves 1 or 2, similar to basal leaves but smaller. Inflorescences 2- or 3-flowered; bracts ovate, 3-lobed to 3-sect. Flowers 1.5–1.8 cm in diam. Pedicel to 6 mm, glabrous. Sepals elliptic to obovate, 7–8.5 × 4–5 mm, apex rounded to obtuse. Petals oblong, 2.5–3 mm, basally tubulose. Stamens ca. 20; filaments 4.5–5 mm; anthers ca. 0.5 mm. Pistils 2–5. Follicles ca. 6.5 × 3 mm; persistent styles slightly curved, glabrous. Seeds ellipsoid, ca. 1.5 mm. Fl. Jun–Jul, fr. Jul–Sep.

Forests, grassy slopes; 2300–3500 m. Gansu, Qinghai, Xinjiang [Afghanistan, N India, Kashmir, Pakistan, Russia].

2. *Isoyrum manshuricum* Komarov, Bot. Mater. Gerb. Glavn. Bot. Sada SSSR 6(1): 5. 1926.

东北扁果草 *dong bei bian guo cao*

Semiaquilegia manshurica Komarov; *Isoyrum yamatsutanum* Ohwi.

Rhizome long, with many lateral roots and fusiform root block; root block black, 4–10 mm, 1.3–1.7 mm in diam. Stem 10–18 cm tall. Basal leaves few, glabrous; petiole 5.5–7.5 cm; leaf blade subtriangular, to 6 cm wide, central leaflet petiolule slender; leaflet blade subflabellate, 0.8–1.5 × 1.5–2 cm, 3-parted; segments obovate, apically with 3 obtuse teeth. Inflorescences 2- or 3-flowered; bracts leaflike, subtriangular; lower bracts 2-ternate, uppermost bract ternate; segments 3-parted. Pedicel 1.5–6 mm. Sepals elliptic to narrowly obovate, 6.5–7.5 × 3–3.5 mm, apex obtuse. Petals obovate-elliptic, ca. 3 mm, basally shallowly scrotiform; claw ca. 0.4 mm. Stamens 20–30, ca. 5 mm; anthers ca. 0.6 mm. Pistils (1 or)2; ovary narrowly obovoid, flat, ca. 3 mm. Styles ca. 2 mm. Fl. May.

• Forests; ca. 800 m. Heilongjiang, Jilin, Liaoning.

16. LEPTOPYRUM Reichenbach, Fl. Germ. Excurs. 747. 1832.

蓝堇草属 *lan jin cao shu*

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs annual with a taproot. Branches declinate. Leaves mostly ternate, some leaves imperfectly 2-ternate. Basal leaves several. Stem leaves 1 or 2. Inflorescences terminal, cymose to umbelliform, few flowered; bracts foliaceous, similar to stem leaves. Flowers radially symmetric, tubular, bisexual. Pedicel slender. Sepals 5, petaloid. Petals 2 or 3, ± bilabiate. Stamens 10–15; filaments filiform, often basally slightly dilated; anthers subglobose. Pistils 6–20. Follicles erect, reticulate on lateral surfaces; persistent styles slender. Seeds 4–14, black to dark brown, slightly rugose.

One species: China, Kazakhstan, Korea, Mongolia, Russia (Siberia).

1. *Leptopyrum fumarioides* (Linnaeus) Reichenbach, Hist Nat. Vég. 7: 328. 1839.

蓝堇草 *lan jin cao*

Isoyrum fumarioides Linnaeus, Sp. Pl. 1: 557. 1753.

Stems (2–)4–9(–17), 8–30 cm tall, sparsely branched, glabrous or subglabrous. Basal leaves glabrous; petiole 2.5–13 cm; leaf blade triangular-ovate, 0.8–2.7 × 1–3 cm; lateral leaflets sessile, unequally divided; central leaflet petiolule slender; leaflet blade rhombic, ca. 1.2 × 1.1 cm, 3-sect; segments narrowly elliptic-obovate to linear-obovate, margin entire or sparsely obtusely

toothed. Stem leaves shortly petiolate, similar to basal leaves but smaller. Flowers 3–5 mm in diam. Pedicel 0.3–3 cm, glabrous. Sepals yellowish, elliptic, 3–4.5 × 1.2–2 mm, apex acute or obtuse, 3-veined. Petals ca. 1 mm, glabrous. Stamens ca. 3 mm; anthers ca. 0.5 mm. Pistils ca. 2 mm, glabrous. Follicles linear-ellipsoid, 8–10 mm, glabrous. Seeds ovoid to narrowly ovoid, 0.5–0.7 mm. Fl. May–Jul, fr. Jun–Jul.

Forest margins, grassy places, by fields; 100–1400 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shanxi, Xinjiang [Kazakhstan, Korea, Mongolia, Russia (Siberia)].

17. PARAQUILEGIA J. R. Drummond & Hutchinson, Bull. Misc. Inform. Kew 1920: 156. 1920.

拟耧斗菜属 *ni lou dou cai shu*

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial. Rhizomes robust, densely covered with basal remnants of old petioles and leaves. Leaves many, basal, 1 or 2 × ternately compound; petiole long, basally sheathed; leaf blade papery. Scapes 1–8, erect, usually ± as long as leaves; bracts 2, usually opposite, basally sheathed; sheath broad, membranous. Flowers terminal, solitary,

actinomorphic, bisexual. Sepals 5, petaloid. Petals 5, yellow, much shorter than sepals, basally pouchlike. Stamens numerous; filaments filiform, sometimes basally slightly dilated; anthers yellow, ellipsoid. Pistils 5–(8); ovary 2 × as long as style; ovules many, in 2 series. Follicles erect or slightly spreading, surface conspicuously striate-reticulate; persistent styles ca. 3 × shorter than follicle. Seeds smooth or densely rugose.

Five species: Afghanistan, Bhutan, China, N India, Japan, Kazakhstan, Kyrgyzstan, N Myanmar, Nepal, N Pakistan, Tajikistan; SW Asia (Iran); three species in China.

1a. Scapes and leaves densely glandular puberulous; leaves ternate 1. *P. caespitosa*

1b. Scapes and leaves glabrous; leaves 2-ternate.

2a. Seeds densely rugose, gray-brown 3. *P. anemonoides*

2b. Seeds smooth, brown 2. *P. microphylla*

1. *Paraquilegia caespitosa* (Boissier & Hohenacker) J. R. Drummond & Hutchinson, Bull. Misc. Inform. Kew 1920: 158. 1920.

密丛拟耧斗菜 mi cong ni lou dou cai

Isopyrum caespitosum Boissier & Hohenacker, Diag. Pl. Orient., ser. 1, 8: 7. 1849.

Leaves ternate; petiole ca. 2 cm; leaf blade grayish green, broadly ovate, 6–8 × 3–4 mm, densely glandular puberulous; leaflet shortly petiolulate, broadly obovate to broadly rhombic, ca. 5 × 4 mm, 3-parted to 3-sect, base rounded to broadly cuneate; segments oblong, margin entire or 1-toothed. Scapes 5–8, densely glandular puberulous; bracts linear, ca. 3 mm. Flowers 2.5–3 cm in diam. Pedicel ca. 2 mm. Sepals purplish red to pink, oblong, ca. 12 × 7 mm, glabrous, apex obtuse. Petals narrowly obovate, 4–6 mm, glabrous, apex retuse. Stamens ca. 4.5 mm, glabrous; anthers ca. 0.8 mm. Pistils 3–7(–8), glabrous. Follicles ca. 1 cm. Seeds ca. 2 mm, densely and minutely rugose.

Gravelly and shady slopes; ca. 2900 m. SW Xinjiang (Wuqia Xian) [Afghanistan, Kashmir, Kyrgyzstan, Russia, Tajikistan; SW Asia].

2. *Paraquilegia microphylla* (Royle) J. R. Drummond & Hutchinson, Bull. Misc. Inform. Kew 1920: 157. 1920.

拟耧斗菜 ni lou dou cai

Isopyrum microphyllum Royle, Ill. Bot. Himal. Mts. 1: 54. 1839; *I. grandiflorum* Fischer ex de Candolle var. *microphyllum* (Royle) Finet & Gagnepain.

Leaves usually 2-ternate, glabrous; petiole 2.5–11 cm; leaf blade green, deltoid-ovate, ca. 1.5 × 2–6 cm; leaflet long to shortly petiolate, broadly rhombic to flabellate, 4–8 × 4–10 mm, 3-parted to 3-sect, base broadly cuneate; segments narrowly rhombic-obovate, base obliquely cuneate, margin 2- or 3-lobed. Scapes 3–18 cm tall, glabrous; bracts narrowly oblanceolate, 4–12 mm. Flowers 2.8–5 cm in diam. Pedicel 0.3–3 cm, glabrous. Sepals purplish to purplish red, rarely white, obovate to elliptic-obovate, 1.4–2.5 × 0.9–1.5 cm,

apex subrounded. Petals obovate to elliptic-obovate, ca. 5 mm, apex retuse. Stamens 6–9 mm, glabrous; filament 5–8.5 mm; anthers 0.8–1 mm. Pistils 5(–8), glabrous. Follicles erect, 0.9–1.2 cm; persistent styles 2–4 mm. Seeds brown, narrowly ovoid, 1.3–1.8 mm, smooth, narrowly winged. Fl. Jun–Aug, fr. Aug–Sep. Cliffs, fissures of rocks; 2700–4300 m. SW Gansu, Qinghai, W Sichuan, Xinjiang, Xizang [Kazakhstan, Nepal, N Pakistan, Russia, Sikkim, Tajikistan].

3. *Paraquilegia anemonoides* (Willdenow) Ulbrich, Repert. Spec. Nov. Regni Veg. Beih. 12: 369. 1922.

乳突拟耧斗菜 ru tu ni lou dou cai

Aquilegia anemonoides Willdenow, Ges. Naturf.

Freunde Berlin Mag. Neuesten Entdeck. Gesammten Naturk. 5: 401. 1811; *Isopyrum grandiflorum* Fischer ex de Candolle; *Paraquilegia grandiflora* (Fischer ex de Candolle) J. R. Drummond & Hutchinson.

Leaves 2-ternate, glabrous; petiole 1.5–6 cm; leaf blade green, subdeltoid, ca. 1 × 1–2 cm; leaflet petiolule 1.5–4 mm; leaflet blade broadly rhombic to subreniform, ca. 6 × 10 mm, 3-parted to 3-sect, base broadly cuneate; segments cuneiform-obovate, apically 3-lobulate or with 3 obtuse teeth. Scapes 1–3, 6–9 cm tall, glabrous; bracts narrowly oblanceolate, 5–9 mm, undivided or 3-sect. Flowers ca. 2 cm in diam. Pedicel 5–14 mm, glabrous. Sepals bluish to purplish, broadly elliptic to obovate, ca. 1.3 × 0.8 cm, glabrous, apex obtuse. Stamen filament 3–8 mm; anthers ca. 1 mm. Pistils usually 4 or 5, glabrous. Follicles 8–10 mm; persistent styles ca. 2 mm. Seeds few, grayish brown, narrowly ellipsoid to ellipsoid, 1.6–2 mm, densely rugose. Fl. Jun–Jul, fr. Aug–Oct.

Alpine meadows, fissures of rocks; 2600–3400 m. N Gansu, Ningxia, N Qinghai, Xinjiang, W Xizang [Afghanistan, Bhutan, Kashmir, Kazakhstan, Mongolia, Pakistan, Russia].

18. UROPHYSA Ulbrich, Notizbl. Bot. Gart. Berlin-Dahlem 10: 868. 1929.

尾囊草属 wei nang cao shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial. Rhizomes robust, ± woody. Leaves basal, palmately 3-foliolate, long petiolate; petiole basally sheathed. Scapes usually several. Inflorescences umbellate, 1–3-flowered. Flowers actinomorphic, bisexual. Sepals 5, petaloid. Petals 5, base saccate to shortly clawed. Stamens numerous, glabrous; filaments linear-filiform, 1-veined;

anthers ellipsoid. Staminodes ca. 7, inserted between stamens and pistils, membranous. Pistils 5(–8); ovary ca. 1/2 as long as style; ovules many. Styles persistent. Follicles ovoid, swollen. Seeds densely rugose.

• Two species.

1a. Inflorescences 3-flowered; sepals 1–2 cm; petals base saccate, not spurred 1. *U. henryi*

1b. Inflorescences 1-flowered; sepals ca. 2 cm; petals shortly spurred 2. *U. rockii*

1. *Urophysa henryi* (Oliver) Ulbrich, Notizbl. Bot. Gart. Berlin-Dahlem 10: 870. 1920.

尾囊草 wei nang cao

Isopyrum henryi Oliver, Hooker's Icon. Pl. 18: t. 1745.

1888; *Anemone boissiae* H. Léveillé & Vaniot;

Aquilegia henryi (Oliver) Finet & Gagnepain;

Semiaquilegia henryi (Oliver) J. R. Drummond & Hutchinson.

Leaves ca. 8; petiole 3.6–12 cm, spreading puberulous; leaf blade broadly ovate, 1.4–2.2 × 3–4.5 cm, sparsely puberulous, base cordate; lateral leaflets sessile, slightly larger than central segment, obliquely flabellate, unequally 2-lobed; central leaflet sessile or shortly petiolulate, flabellate-ovate to flabellate-rhombic, 1.7–3 cm wide, margin 3-lobed and sparsely obtusely toothed. Scapes nearly as long as leaves. Inflorescences ca. 5 cm, 3-flowered; bracts cuneate, cuneate-ovate, or spatulate, 1–2.2 cm, entire or 3-lobed. Flowers 2–2.5 cm in diam. Pedicel 1.5–7 cm. Sepals blue to pinkish white, obovate-elliptic, 1–1.4 × 0.5–7 cm, abaxially pilose, adaxially glabrous. Petals narrowly elliptic-navicular, ca. 5 × 1.3 mm, not spurred; claw ca. 1 mm. Stamens 3.5–9 mm. Staminodes narrowly ellipsoid, 2.5–3.5 mm, acuminate. Pistils 5(–8). Follicles 4–5 mm, transversely densely veined, pubescent; persistent styles ca. 2 mm. Seeds narrowly ellipsoid, ca. 1.2 mm. Fl. Mar–Apr.

• Cliffs, fissures of rocks. Guizhou, W Hubei, NW Hunan, Sichuan.

2. *Urophysa rockii* Ulbrich, Notizbl. Bot. Gart. Berlin-Dahlem 10: 869. 1929.

距瓣尾囊草 ju ban wei nang cao

Semiaquilegia rockii (Ulbrich) J. R. Drummond & Hutchinson.

Basal leaves ca. 10; petiole 8.5–14 cm, puberulous; leaf blade ovate to broadly ovate, 2.3–5.2 × 2.6–7 cm, sparsely puberulous, base cordate; lateral leaflets sessile or petiolule 1–2 mm, obliquely flabellate, unequally 2-parted; central leaflet petiolulate, broadly rhombic to flabellate-rhombic, 1.8–3.5 cm wide, 3-parted, margin sparsely obtusely toothed. Scapes 7–12 cm; inflorescences usually 1-flowered; bracts 1 or 2, linear to linear-lanceolate, 3–6 × ca. 1 mm. Pedicel 4.5–10 mm. Sepals blue, obovate to broadly elliptic, ca. 20 × 7–8 mm, abaxially sparsely pubescent, adaxially glabrous. Petals navicular, ca. 6 mm, apex obtuse; spur ca. 2 mm. Stamens 8–10 mm, glabrous. Staminodes lanceolate, as long as petals. Pistils 5. Follicles ca. 4 mm, transversely veined, sparsely puberulous; persistent styles to 8 mm. Seeds ellipsoid, ca. 1.5 mm. Fl. Mar–Apr, fr. Apr.

• Wet places by streams. N Sichuan (upper reaches of the Fu Jiang).

19. AQUILEGIA Linnaeus, Sp. Pl. 1: 533. 1753.

耧斗菜属 lou dou cai shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial. Stems numerous, erect. Basal leaves 1–3 × ternately compound, long petiolate; leaflets lobed or parted. Stem leaves similar to basal ones but smaller. Inflorescences cymose, umbelliform, or sometimes 1-flowered; bracts leaflike, not involucre. Flowers radially symmetric, bisexual. Sepals 5, spreading. Petals 5, erect to suberect, usually smaller than sepals, base usually prolonged into a spur. Stamens numerous; filaments linear-filiform, 1-veined. Staminodes ca. 7, membranous. Pistils (4) or 5(–10); style ca. 1/2 as long as ovary; ovules numerous. Follicles narrowly cylindrical, prominently veined; styles persistent. Seeds numerous, black, narrowly obovoid, smooth.

About 70 species: temperate regions of the N hemisphere; 13 species (four endemic) in China.

1a. Petal spur absent 1. *A. ecalcarata*

1b. Petal spur present.

2a. Petal spur straight or basally slightly incurved.

3a. Stem leaves usually absent; flowers suberect 3. *A. parviflora*

3b. Stem leaves present; flowers pendulous.

4a. Sepals blue to purple.

5a. Sepals 2–3 cm; stamens shorter than petals; anthers black 2. *A. rockii*

5b. Sepals 1.4–2.1 cm; stamens slightly longer than or nearly as long as petals; anthers yellow

..... 4. *A. moorcroftiana*

4b. Sepals white or yellowish green.

6a. Sepals yellowish green, 0.7–1.5 cm; flowers 1.6–2 cm in diam. 5. *A. viridiflora*

- 6b. Sepals white, 1.4–2 cm; flowers ca. 2.5 cm in diam. 6. *A. lactiflora*
- 2b. Petal spur basally conspicuously incurved, hooked, or coiled.
- 7a. Flowers 6–9 cm in diam.; sepals 3–4.5 cm; spur shorter than petal 13. *A. glandulosa*
- 7b. Flowers 2.2–4.2 cm in diam.; sepals 1.5–3.1 cm; spur longer than petal (nearly as long as petal in *A. sibirica*).
- 8a. Stem leaves absent or strongly reduced; pistils glabrous.
- 9a. Stems sparsely spreading pubescent; sepal apex obtuse to rounded 11. *A. japonica*
- 9b. Stems glabrous; sepal apex slightly acute 12. *A. sibirica*
- 8b. Stem leaves present; pistils hairy.
- 10a. Flowers ca. 2.2 cm in diam.; spur 1.2–1.5 cm; sepals abaxially glabrous 9. *A. incurvata*
- 10b. Flowers 3–4 cm in diam.; spur 1.5–2 cm; sepals abaxially hairy.
- 11a. Petals dark purple; spur base incurved to an angle of ca. 100° 10. *A. atrovinosa*
- 11b. Petals purple or yellowish white; spur base incurved to an angle greater than 150°.
- 12a. Sepals purple and petals yellowish white 7. *A. oxysepala*
- 12b. Sepals and petals purple 8. *A. yabeana*

1. *Aquilegia ecalcarata* Maximowicz, Fl. Tang. 20. 1889.
无距耧斗菜 wu ju lou dou cai

Aquilegia ecalcarata f. *semicalcarata* (Schipczinski) Handel-Mazzetti; *Semiaquilegia ecalcarata* (Maximowicz) Sprague & Hutchinson; *S. ecalcarata* f. *semicalcarata* Schipczinski; *S. simulatrix* J. R. Drummond & Hutchinson.

Stems 1–4, 20–60(–80) cm tall, sparsely spreading pubescent, often apically branched. Basal leaves several, 2-ternate; petiole 7–15 cm; leaf blade abaxially sparsely pubescent or glabrous, adaxially glabrous; lateral leaflets obliquely ovate, unequally 2-parted; central leaflet broadly obovate to flabellate, 1.5–4 × 1.5–3.6 cm, 3-parted to 3-lobed and segments with 2 or 3 obtuse teeth. Stem leaves 1–3. Inflorescences cymose, 2–6-flowered. Flowers 1.5–2.8 cm in diam. Pedicel to 6 cm, pubescent. Sepals purple, narrowly ovate, 10–14 × 4–6 mm. Petals purple, suberect, oblong-elliptic, nearly as long as sepals; spur absent. Stamens ca. 1/2 as long as petals; anthers blackish, oblong. Staminodes linear, ca. 4 mm. Pistils 4 or 5, sparsely pilose or glabrous. Follicles 8–11 mm; persistent styles 3–5 mm. Seeds ca. 1.5 mm. Fl. May–Jun, fr. Jun–Aug.

• Sparse forests, scrub, grassy slopes, alongside roads; 1800–3500 m. Gansu, Guizhou, Henan, Hubei, Ningxia, Qinghai, Shaanxi, Sichuan, E Xizang.

2. *Aquilegia rockii* Munz, Gentes Herb. 7: 95. 1946.
直距耧斗菜 zhi ju lou dou cai

Stems 40–80 cm tall, basally sparsely pubescent, apically densely glandular pubescent and often branched. Basal leaves few, 2-ternate; petiole 8–22 cm; leaf blade abaxially basally pubescent, adaxially subglabrous; lateral leaflets obliquely ovate, unequally 2-lobed to middle; central leaflet cuneate-obovate, 1.5–4.5 × 1.2–4.5 cm, 3-lobed. Stem leaves 2 or 3 or more. Inflorescences cymose, 1–3-flowered; bracts 3-parted. Flowers pendulous or in a ± 90° angle, 3.5–4 cm in diam. Pedicel to 12 cm, densely glandular pubescent. Sepals purple to blue, narrowly ovate, 2–3 × 0.7–0.9

cm. Petals purple to blue, suberect, oblong, 1–1.5 cm, apex rounded-truncate; spur 1.6–2 cm, pubescent, straight or basally slightly incurved. Stamens shorter than petals; anthers black, oblong, ca. 1 mm. Staminodes lanceolate, 6–7 mm. Pistils 5, erect, densely glandular hairy. Follicles 1.5–2.1 cm; persistent styles 5–7 mm. Seeds ca. 2 mm. Fl. Jun–Aug, fr. Jul–Sep.

• Mixed forests, alongside roads; 2500–3500 m. SW Sichuan, SE Xizang, NE Yunnan.

3. *Aquilegia parviflora* Ledebour, Mém. Acad. Imp. Sci. St. Pétersbourg Hist. Acad. 5: 544. 1815.

小花耧斗菜 xiao hua lou dou cai

Stems 15–45 cm tall, glabrous, unbranched or apically branched. Basal leaves few, 2-ternate; petiole 4–14 cm; leaf blade subleathery, abaxially sparsely pubescent or glabrous, adaxially glabrous; lateral leaflets usually sessile, obliquely obovate, unequally 2-lobed; central leaflet obovate to obovate-cuneate, 1.6–3.5 × 1.1–2.2 cm, 3-lobed and segments with 2 or 3 teeth. Stem leaves usually absent. Inflorescences cymose, 3–6-flowered; bracts parted. Flowers suberect, ca. 3 cm in diam. Pedicel 2–4 cm. Sepals spreading, bluish purple or seldom white, ovate, 1.2–2 × 0.9–1.2 cm. Petals bluish purple, suberect, broadly ovate, ca. 6 mm; spur 3–5 mm, straight or basally slightly bent. Stamens shorter than petals; anthers yellow, oblong. Staminodes narrowly elliptic, 5–6 mm. Pistils 5, glandular pubescent. Follicles 1.2–2.3 cm; persistent styles ca. 4 mm. Seeds ca. 2 mm. Fl. Jun.

Forests, margin of forests; 2500–3500 m. N Heilongjiang [Japan, Mongolia, Russia (E Siberia)].

4. *Aquilegia moorcroftiana* Wallich ex Royle, III. Bot. Himal. Mts. 1: 55. 1834.

腺毛耧斗菜 xian mao lou dou cai

Stems 20–40 cm tall, glandular pubescent. Basal leaves few, 2-ternate; petiole 6–10 cm; leaf blade abaxially sparsely pubescent to subglabrous, adaxially glabrous; lateral leaflets obliquely ovate, unequally 2-lobed; central leaflet broadly obovate to flabellate, 1.5–2 × 1.5–2.8 cm, 3-parted and segments with 2 or 3 obtuse

teeth. Stem leaves several. Inflorescences cymose, 2- to several flowered; bracts linear, ca. 5 mm. Flowers usually pendulous, ca. 3.5 cm in diam. Pedicel 1.8–2.5 cm. Sepals blue to bluish purple, nearly spreading, narrowly ovate, 1.4–2.1 × 0.6–1 cm. Petals yellow to yellow tinged with blue, erect, broadly obovate, 1–1.3 cm; spur 1.3–1.9 cm, straight. Stamens slightly longer than or nearly as long as petals; anthers yellow, oblong, 1–1.5 mm. Staminodes lanceolate, 6–6.5 mm. Pistils 5 or 6, white villous. Follicles 1.6–2.4 cm; persistent styles 7–10 mm. Seeds ca. 1.7 mm. Fl. Jun–Jul, fr. Jul–Aug.

Shady places near rivers; ca. 3700 m. W Xizang (Zanda Xian) [NW India, Pakistan, Russia].

5. *Aquilegia viridiflora* Pallas, Acta Acad. Sci. Imp. Petrop. 3(2): 260. 1779.

耨斗菜 lou dou cai

Stems 15–50 cm tall, pubescent or densely glandular hairy, often apically branched. Basal leaves few, 2-ternate; petiole to 18 cm; leaf blade abaxially pubescent to subglabrous, adaxially glabrous; lateral leaflets obliquely obovate, unequally 2-lobed; central leaflet broadly obovate, 1.5–4 × 1–5 cm, 3-lobed and segments with 2 or 3 obtuse teeth. Stem leaves several.

Inflorescences cymose, 3–7-flowered; bracts 3-sect. Flowers pendulous, 1.6–2 cm in diam. Pedicel 2–7 cm. Sepals elliptic-ovate, 0.7–1.5 × 0.4–0.8 cm. Petals erect, obovate, nearly as long as sepals, apex subtruncate; spur 1.2–1.8 cm, straight or basally slightly incurved. Stamens to 2 cm, exerted; anthers yellow, narrowly ellipsoid. Staminodes narrowly lanceolate, 7–8 mm. Pistils 5, densely glandular hairy. Style as long as ovary or longer. Follicles ca. 1.5 cm; persistent styles 7–12 mm. Seeds ca. 2 mm, conspicuously striate. Fl. May–Jul, fr. Jul–Aug.

Forests, grassy slopes, valleys, wet places, by streams, rocky places by streams; 200–2400 m. Gansu, Hebei, Heilongjiang, Hubei, Jilin, Liaoning, Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shandong, Shanxi [Japan, Mongolia, Russia (Siberia)].

1a. Sepals and petals yellowish green 5a. var. *viridiflora*

1b. Sepals and petals dark purple 5b. var. *atropurpurea*

5a. *Aquilegia viridiflora* var. *viridiflora*

耨斗菜(原变种) lou dou cai (yuan bian zhong)

Sepals and petals yellowish green.

Grassy slopes, wet places, by streams; 200–2400 m. Gansu, Hebei, Heilongjiang, Hubei, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi [Japan, Mongolia, Russia (Siberia)].

5b. *Aquilegia viridiflora* var. *atropurpurea* (Willdenow) Finet & Gagnepain, Bull. Soc. Bot. France 51: 413. 1904.

紫花耨斗菜 zi hua lou dou cai

Aquilegia atropurpurea Willdenow, Enum. Pl. 577.

1809; *A. viridiflora* f. *atropurpurea* (Willdenow)

Kitagawa.

Sepals and petals dark purple.

Forests, valleys, rocky places by streams. Hebei, S Liaoning, Nei Mongol, E Qinghai, E Shandong, Shanxi [Mongolia, Russia (Siberia)].

6. *Aquilegia lactiflora* Karelina & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 1841: 374. 1841.

白花耨斗菜 bai hua lou dou cai

Stems 40–80 cm tall, pubescent or glandular pubescent, apically branched. Basal leaves 1- or 2-ternate; petiole to 20 cm; leaf blade abaxially pubescent, adaxially subglabrous; lateral leaflets obliquely obovate, unequally 2-parted; central leaflet cuneate-obovate, 1–2 × 1–2 cm, 3-parted and segments with 1–3 obtuse teeth. Stem leaves 2 to several. Inflorescences cymose, 2- to several flowered; bracts linear, ca. 5 mm. Flowers pendulous, ca. 2.5 cm in diam. Pedicel 1.5–6 cm. Sepals white, lanceolate-oblong, 1.4–2 × ca. 0.5 cm, pubescent, apex acute. Petals white, sometimes tinged with yellow, suberect, cuneate-oblong, 7–10 mm, apex rounded; spur 1.5–2.2 cm, straight or basally slightly incurved. Stamens nearly as long as to slightly longer than petals; anthers yellow, oblong, 1–1.5 mm. Pistils 5 or 6, densely glandular hairy. Follicles 1.3–1.5 cm; persistent styles 6–7 mm. Fl. Jun–Aug.

Grassy slopes. NW Xinjiang [Kazakhstan, Russia].

7. *Aquilegia oxysepala* Trautvetter & C. A. Meyer, Fl. Ochot. 10. 1856.

尖萼耨斗菜 jian e lou dou cai

Stems 40–80 cm tall, subglabrous to sparsely pubescent, apically branched. Basal leaves several, 2-ternate; petiole 10–20 cm; leaf blade abaxially glabrous to subglabrous, adaxially glabrous; lateral leaflets obliquely obovate, unequally 2-lobed; central leaflet cuneate-obovate, 2–6 × 1.8–5 cm, 3-parted and segments with 2 or 3 obtuse teeth. Stem leaves several. Inflorescences cymose, 3–5-flowered; bracts 3-sect, apex obtuse. Flowers slightly pendulous, ca. 4 cm in diam. Pedicel 1–3 cm. Sepals purple, narrowly ovate, 1.6–3.1 × 0.8–1.2 cm, apex acute. Petals yellowish white, suberect, broadly oblong, 1–1.3 cm, apex subtruncate; spur 1.5–2 cm, basally incurved into a hook. Stamens nearly as long as petals; anthers black, oblong, 1.5–2 mm. Staminodes narrowly lanceolate, ca. 7 mm. Pistils 5, white pubescent. Follicles 1.2–3 cm; persistent styles 3–10 mm. Seeds ca. 2 mm. Fl. May–Jun, fr. Jul–Aug.

Forest margins, grassy slopes; 400–2700 m. Gansu, Guizhou, Hebei, Hubei, Heilongjiang, Jilin, Liaoning, Nei Mongol, S Ningxia, E Qinghai, S Shaanxi, Sichuan, N Yunnan [Korea, Russia (Far East)].

1a. Sepals 2.5–3.1 cm; follicles 2.5–3 cm 7a. var. *oxysepala*

1b. Sepals 1.6–2.5 cm; follicles 1.2–2 cm

..... 7b. var. *kansuensis*

7a. *Aquilegia oxysepala* var. *oxysepala*

尖萼耨斗菜(原变种) jian e lou dou cai (yuan bian zhong)

Aquilegia oxysepala f. *pallidiflora* Kitagawa; *A. vulgaris* Linnaeus var. *oxysepala* (Trautvetter & C. A. Meyer) Regel.

Sepals 2.5–3.1 cm; follicles 2.5–3 cm.

Forest margins, grassy slopes; 400–1000 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol [Korea, Russia (Far East)].

7b. *Aquilegia oxysepala* var. *kansuensis* Brühl, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 61: 285. 1892.

甘肃耧斗菜 gan su lou dou cai

Sepals 1.6–2.5 cm; follicles 1.2–2 cm.

•Grassy slopes; 1300–2700 m. Gansu, Guizhou, S Ningxia, E Qinghai, S Shaanxi, Sichuan, N Yunnan.

8. *Aquilegia yabeana* Kitagawa, Rep. Exped. Manchoukuo, Sect. 4, 4: 81. 1936.

华北耧斗菜 hua bei lou dou cai

Aquilegia oxysepala Trautvetter & C. A. Meyer var. *yabeana* (Kitagawa) Munz; *A. yabeana* f. *luteola* S. H. Li & Y. H. Huang.

Stems 40–60 cm tall, sparsely pubescent or glandular hairy, apically branched. Basal leaves several, 1- or 2-ternate; petiole 8–25 cm; leaf blade abaxially sparsely pubescent, adaxially glabrous; lateral leaflets obliquely obovate, unequally 2-lobed; central leaflet rhombic-obovate to broadly rhombic, 2.5–5(–8.5) × 2.5–4(–5) cm, 3-lobed and toothed. Stem leaves several, long petiolate, 2-ternate lower on stem, ternate apically.

Inflorescences cymose, few flowered; bracts 3-lobed or undivided, narrowly oblong. Flowers ca. 4 cm in diam., densely glandular pubescent. Pedicel 1–6 cm. Sepals purple, narrowly ovate, (1.6–)2–2.6 × 0.7–1 cm. Petals purple, suberect, broadly oblong, 1.2–1.5 cm, apex rounded-truncate; spur 1.7–2 cm, sparsely pubescent, basally incurved into a hook. Stamens to 1.2 cm; anthers oblong. Staminodes ca. 5.5 mm. Pistils 5, densely glandular hairy. Follicles (1.2–)1.5–2 cm, conspicuously striate; persistent styles 5–7 mm. Seeds ca. 2 mm. Fl. May–Jun.

•Forest margins, grassy slopes. Hebei, Henan, Hubei, W Liaoning, Nei Mongol, S Shaanxi, Shanxi.

9. *Aquilegia incurvata* P. K. Hsiao in T. N. Ho & S. W. Liu, Fl. Tsinling. 1(2): 602. 1974.

秦岭耧斗菜 qin ling lou dou cai

Stems 40–60 cm tall, sparsely pubescent, apically branched. Basal leaves several, 2-ternate; petiole 4–10 cm; leaf blade glabrous or basally sparsely pilose; lateral leaflets obliquely obovate, 2-lobed; central leaflet rhombic-obovate, 1.2–3 × 1.1–2.4 cm. Stem leaves present. Inflorescences cymose, 2–5-flowered; bracts 3-parted. Flowers ca. 2.2 cm in diam. Pedicel 6–10 cm. Sepals purple, elliptic to ovate, 1.4–1.8 × ca. 1 cm, apex acute. Petals purple, suberect, oblong, 7–8 mm, glabrous, apex truncate; spur 1.2–1.5 cm, basally coiled. Stamens 5–9 mm; anthers oblong, ca. 1 mm. Staminodes lanceolate, ca. 5 mm, pilose or glandular hairy. Pistils 5, pubescent. Follicles 1.4–1.5 cm, glabrous; persistent styles 5–6 mm. Fl. May–Jun, fr. Jun–Jul.

•Grassy slopes, grassy places by streams; 1000–2000 m. S Gansu, S Shaanxi, NE Sichuan.

10. *Aquilegia atrovinosa* Popov ex Gamajouva, Bot. Mater. Gerb. Inst. Bot. Akad. Nauk Kazakhsk. S.S.R. 2: 12. 1964.

暗紫耧斗菜 an zi lou dou cai

Stems 30–60(–90) cm tall, spreading pubescent, unbranched. Basal leaves few, 2-ternate; petiole 8–19 cm; leaf blade abaxially sparsely pubescent to subglabrous, adaxially glabrous; lateral leaflets obliquely obovate-cuneate, unequally 2-lobed; central leaflet obovate-cuneate, 1.5–3.5 × 1.2–2.8 cm, 3-lobed and segments with 2 or 3 obtuse teeth. Stem leaves few.

Inflorescences cymose, 1–5-flowered; bracts linear-lanceolate, to 1.6 cm. Flowers 3–3.5 cm in diam.

Pedicel 1.2–5 cm. Sepals dark purple, narrowly ovate, ca. 2.5 × 0.8–0.9 cm. Petals dark purple, suberect, broadly oblong, ca. 1.2 cm, apex subtruncate; spur ca. 1.5 cm, basally incurved. Stamens nearly as long as petals; anthers yellow, broadly ellipsoid, 1.5–2 mm. Staminodes ovate, ca. 5.5 mm. Pistils 5; ovary densely hairy. Follicles 1.5–2.5 cm; persistent styles ca. 5 mm. Fl. May–Jul.

Forests, along trails in valleys; 1800–3600. N Xinjiang [Kazakhstan].

11. *Aquilegia japonica* Nakai & H. Hara, Bot. Mag. (Tokyo) 49: 7. 1935.

白山耧斗菜 bai shan lou dou cai

Stems 15–40 cm tall, sparsely spreading pubescent, unbranched or apically branched. Leaves basal, few, 2-ternate; petiole 3.9–19 cm; leaf blade abaxially sparsely pubescent or glabrous, adaxially glabrous; lateral leaflets obliquely flabellate to obovate; central leaflet broadly obovate to flabellate, 0.9–2.4 × 1.3–3.3 cm, 3-lobed and segments with 2 or 3 obtuse teeth.

Inflorescences 1–3-flowered; bracts linear-lanceolate, 4–7 mm, 1–3-lobed. Flowers 3.5–4.2 cm in diam.

Pedicel 1–2.5 cm. Sepals spreading, bluish purple, elliptic-obovate, 1.5–2.5 × 0.7–1.5 cm, apex obtuse to subrounded. Petals yellowish white or white, suberect, broadly oblong, 0.7–1.2 cm, apex obtuse; spur purple, 1–1.6 cm, basally incurved into a hook. Stamens as long as petals; anthers yellow or grayish, broadly ellipsoid, ca. 2 mm. Staminodes white, ca. 8 mm. Pistils 5, glabrous; ovary ca. 6 mm. Follicles 1.5–2.5 cm; persistent styles ca. 5 mm. Fl. Jul.

Grassy slopes; 1400–2500 m. S Heilongjiang, E Jilin [Japan, Korea].

12. *Aquilegia sibirica* Lamarck, Encycl. 1: 150. 1783.

西伯利亚耧斗菜 xi bo li ya lou dou cai

Stems 25–70 cm tall, glabrous, unbranched or seldom 1–3-branched. Leaves basal, few, ternate; petiole 5.5–20 cm; leaf blade abaxially glabrous or basally with a few hairs, adaxially glabrous; lateral leaflets orbicular-reniform, slightly oblique, unequally 2-parted; central leaflet orbicular-reniform, 1.2–3.5 × 1.5–5 cm, 3-parted to 3-sect and apically with 3 obtuse teeth.

Inflorescences 1–4-flowered; bracts 1–3. Flowers pendulous, ca. 4 cm in diam. Pedicel 1–5 cm. Sepals spreading, blue to purplish red, broadly ovate, 1.9–3 × 1–1.7 cm, apex slightly acute. Petals blue to purplish red, suberect, sometimes white, oblong, 0.9–1.3 cm,

apex rounded; spur 0.6–1.2 cm, basally incurved. Stamens nearly as long as petals; anthers yellow, broadly ellipsoid, ca. 1.5 mm. Staminodes linear, ca. 9 mm. Pistils 5, erect, glabrous; ovary ca. 7 mm; styles ca. 3 mm. Fl. Jun–Jul.

Wet places by rivers; 1600–2000 m. Xinjiang [Kazakhstan, Mongolia, Russia (Siberia)].

13. *Aquilegia glandulosa* Fischer ex Link, Enum. Hort. Berol. 2(2): 84. 1822.

大花楼斗菜 da hua lou dou cai

Stems 20–40 cm tall, apically pubescent, unbranched or apically branched. Basal leaves few, (1-or)2-ternate; petiole 6–16 cm; leaf blade abaxially sparsely pubescent or glabrous, adaxially glabrous; lateral leaflets obliquely flabellate, unequally 2-parted; central leaflet orbicular-obovate to flabellate, 1.5–4 × 2–4 cm,

3-lobed and segments with 2 or 3 obtuse teeth. Stem leaves absent or 1. Inflorescences 1(–3)-flowered; bracts 1–3, lanceolate to oblong. Flowers 6–9 cm in diam. Pedicel 2–8 cm, densely covered with spreading white hairs. Sepals blue, spreading, ovate to oblong-ovate, 3–4.5 × 1.5–2.5 cm, apex acute or obtuse. Petals blue or white, suberect, orbicular-ovate, 1.5–2.5 × 1–1.5 cm, apex obtuse to rounded; spur 0.6–1.2 cm, basally conspicuously incurved. Stamens 5–10 cm; anthers blackish, narrowly ellipsoid. Staminodes linear, ca. 8 mm. Pistils 8–10, densely spreading villous. Follicles 2–3 cm; persistent styles 6–7 mm. Fl. Jun–Aug.

Coniferous forests, grassy slopes, by rivers in valleys; 1900–2700 m. Xinjiang [Mongolia, Russia (Siberia)].

20. SEMIAQUILEGIA Makino, Bot. Mag. (Tokyo) 16: 119. 1902.

天葵属 tian kui shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial. Roots tuberous. Leaves basal and cauline, 1-ternately compound. Inflorescences monochasial straight or scorpioid cymes; bracts small, 3-parted or undivided. Flowers actinomorphic. Sepals 5, petaloid. Petals 5, basally gibbous. Stamens 8–14; filaments filiform, basally slightly thickened; anthers yellow, broadly ellipsoid. Staminodes ca. 2, as long as filaments. Pistils 3 or (4 or)5. Style ca. 1/6–1/5 as long as ovary. Follicles widely divergent, glabrous, apically with a small beak. Seeds brown to black-brown, densely rugose.

One species: China, Japan, Korea.

1. *Semiaquilegia adoxoides* (de Candolle) Makino, Bot. Mag. (Tokyo) 16: 119. 1902.

天葵 tian kui

Isopyrum adoxoides de Candolle, Syst. Nat. 1: 324. 1817; *Semiaquilegia adoxoides* var. *grandis* D. Q. Wang; *S. dauciformis* D. Q. Wang.

Tuber blackish brown, 1–2 cm, 3–6 mm in diam. Stem 1–5, 10–32 cm tall, 1–2 mm in diam., sparsely white hairy, branched. Basal leaves numerous, sheathed; petiole 3–12 cm; leaf blade ovate, suborbicular, or reniform, 1.2–3 cm, glabrous; leaflets flabellate-rhombic to obovate-rhombic, 0.6–2.5 × 1–2.8 cm, 3-parted; segments 2- or 3-lobed. Stem leaves shortly

petiolate, similar to basal leaves but smaller. Bracts oblanceolate to obovate. Flowers 4–6 mm in diam. Pedicel slender, 1–2.5 cm, spreading white pubescent. Sepals white usually tinged with purple, narrowly elliptic, 4–6 × 1.2–2.5 mm, apex acute. Petals spatulate, 2.5–3.5 mm, apex subtruncate. Staminodes white, linear-lanceolate, membranous, glabrous. Follicles ovoid-ellipsoid, 6–7 × ca. 2 mm, striate; striae transversely raised. Seeds ovoid-ellipsoid, ca. 1 mm. Fl. Mar–Apr, fr. Apr–May.

Forests, roadside; 100–1100 m. Anhui, Fujian, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, E Yunnan, Zhejiang [Japan, Korea].

21. THALICTRUM Linnaeus, Sp. Pl. 1: 545. 1753.

唐松草属 tang song cao shu

Fu Dezhi (傅德志); Zhu Guanghua (朱光华)

Physocarpum Berchtold & J. Presl; *Praticola* Ehrhart; *Ruprechtia* Opiz (1852), not C. A. Meyer (1840); *Schlagintweitiella* Ulbrich; *Tripterium* Berchtold & J. Presl.

Herbs perennial, from woody rhizomes, caudices, or tuberous roots. Leaves basal and cauline, proximal leaves petiolate, distal leaves sessile; cauline leaves alternate. Leaf blade 1–4-ternately or -pinnately compound, rarely simple (*Thalictrum rotundifolium*); leaflets cordate-reniform, obovate, lanceolate, or linear, sometimes lobed, margin entire or crenate. Inflorescences terminal, sometimes also axillary, monochasial cymes, or sometimes racemelike, paniculate, flat topped, or umbel-like, 1–200-flowered; involucre absent or present, involucre bracts 2 or 3, leaflike, often resembling a whorl of 6–9 simple bracts, not closely subtending flowers. Flowers usually all

bisexual, rarely bisexual and unisexual (*T. smithii*), or all unisexual (not in China), radially symmetric; sepals 4–10, whitish to greenish yellow or purplish, lanceolate to reniform or spatulate, flat, 1–18 mm, not persistent in fruit; petals absent; stamens 7–70; filaments filiform to clavate or distally swollen; staminodes absent; carpels 1–50(–70), 1-ovulate; style usually present and persistent, less often absent. Fruits achenes, usually aggregated, sessile or stipitate, fusiform to ovoid, obovoid, falcate, or discoid, laterally prominently ribbed; persistent style (when present) forming straight to circinately coiled beak. $x = 7$.

About 150 species: worldwide, mainly in temperate regions; 76 species (49 endemic) in China.

Our understanding of the genus *Thalictrum* is far from complete. Numerous species and varieties are poorly defined owing to insufficient field studies and because highly variable characters have been used as diagnostic features in the literature. Useful characters in identifying species of *Thalictrum* include leaflet shape, indumentum (glands and/or hairs) of leaves and achenes, degree of dilation of filaments, anther length, shape of anther apex, and achene shape and venation patterns. Leaflets described in this treatment are the terminal, ultimate ones on the main rachis of leaves at the middle of the stem (where available); proximal and distal leaves on the stem are more variable and are often not representative of the species. Filament and stigma colors cited refer to fresh material.

Thalictrum punduanum Wallich (Pl. Asiat. Rar. 2: 26. 1831), from NE India and N Thailand, has not yet been recorded from China, but might be expected to occur in Xizang and/or Yunnan.

Thalictrum ussuriense Lufarov (Bjull. Moskovsk. Obshch. Isp. Prir., Otd. Biol., 94(5): 103. 1989) was described from the Far East region of Russia and was also said to occur in NE China and N Korea. However, no Chinese specimens have been seen by the current authors, and the species is therefore not described here.

The identities of the taxa to which the following names apply could not be ascertained. All were described from China, but none of the types has been seen by the present authors: *Thalictrum micrandrum* Hayata (Icon. Pl. Formos. 3: 4. 1913), described from Taiwan; *T. morii* Hayata (Icon. Pl. Formos. 3: 5. 1913), described from Taiwan; *T. oshimae* Masamune (J. Soc. Trop. Agric., Taiwan 6: 569. 1934), described from Taiwan; *T. pumilum* Ulbrich (Bot. Jahrb. Syst. 48: 623. 1913), described from Yunnan; *T. rockii* B. Boivin (J. Arnold Arbor. 26: 115. 1945), described from Gansu and Qinghai; and *T. silvestrii* Pampanini (Nuovo Giorn. Bot. Ital., n.s., 22: 291. 1915), described from Hubei.

Thalictrum sinense Loureiro (Fl. Cochinch. 1: 346. 1790) was regarded by Merrill (Trans. Amer. Philos. Soc., n.s., 24(2): 403. 1935) as a doubtful species and certainly not a *Thalictrum*.

- 1a. Leaves simple 50. *T. rotundifolium*
- 1b. Leaves pinnately or ternately compound.
 - 2a. Flowers unisexual or bisexual; stigma flagelliform, longer than ovary 58. *T. smithii*
 - 2b. Flowers always bisexual, never unisexual; stigma never flagelliform, rarely longer than ovary.
 - 3a. Leaflets linear 19. *T. foeniculaceum*
 - 3b. Leaflets ovate, obovate, or orbicular, often lobed.
 - 4a. Leaflets peltate; petiolule inserted above base 28. *T. ichangense*
 - 4b. Leaflets not peltate; petiolule inserted at base.
 - 5a. Flowers solitary, axillary 60. *T. squamiferum*
 - 5b. Flowers in few- to many-flowered, terminal inflorescences.
 - 6a. Inflorescence racemelike; leaves all basal 2. *T. alpinum*
 - 6b. Inflorescence cymose; cauline leaves usually present.
 - 7a. Plants hairy.
 - 8a. Leaves densely branched stellate hairy adaxially 9. *T. cirrhosum*
 - 8b. Leaves not as above.
 - 9a. Style reflexed or curved, often hooded, stigma inconspicuous.
 - 10a. Achenes sessile or subsessile.
 - 11a. Leaflets 3–8 cm 48. *T. robustum*
 - 11b. Leaflets 1.2–3 cm.
 - 12a. Leaflets glandular hairy 6. *T. brevisericum*
 - 12b. Leaflets pubescent, not glandular hairy.
 - 13a. Anthers apically obtuse 76. *T. yunnanense*
 - 13b. Anthers apically mucronate 54. *T. scabrifolium*
 - 10b. Achenes stipitate.
 - 14a. Sepals purplish, 10–15 mm 12. *T. diffusiflorum*
 - 14b. Sepals white, 2–3 mm.
 - 15a. Inflorescence many flowered.
 - 16a. Inflorescence paniculate; achene body 2–2.2 mm 69. *T. uncinulatum*
 - 16b. Inflorescence racemelike, monochasial; achene body 8.5–11 mm 23. *T. fusiforme*
 - 15b. Inflorescence few flowered.
 - 17a. Leaflets papery 32. *T. laxum*
 - 17b. Leaflets herbaceous.
 - 18a. Leaflet veins flat; plants to 60 cm tall 49. *T. rostellatum*
 - 18b. Leaflet veins raised abaxially, at least on larger leaflets; plants ca. 1 m tall 7. *T. chayense*

- 45b. Leaflets 1.2–2.5 cm 30. *T. javanicum*
- 31b. Styles erect, never hooded, stigma conspicuous or rarely inconspicuous.
- 46a. Stigma not conspicuously thicker than style.
- 47a. Plants 20–30 cm tall; sepals pink, 13–20 × 5–10 mm; leaflet margin entire 26. *T. grandiflorum*
- 47b. Plants 60–200 cm tall; sepals pale purple, 5.5–9(–12) × 2.2–4.5(–5) mm; leaflet margin 3-lobed 11. *T. delavayi*
- 46b. Stigma conspicuously thicker than style, often winged.
- 48a. Distal cauline leaves with axillary buds 8. *T. chelidonii*
- 48b. Distal cauline leaves without axillary buds.
- 49a. Filaments conspicuously enlarged distally.
- 50a. Achenes sessile or subsessile.
- 51a. Inflorescence a sparsely flowered monochasium or 3- or 4-flowered cincinnus 74. *T. wuyishanicum*
- 51b. Inflorescence a flat-topped, densely flowered pleiochasium.
- 52a. Styles inconspicuous 47. *T. reticulatum*
- 52b. Styles conspicuous.
- 53a. Filaments conspicuously broader than anthers 42. *T. petaloideum*
- 53b. Filaments narrower than or as broad as anthers.
- 54a. Leaflets 0.7–2.2 × 0.7–2.9 cm; styles 1.5–2 mm 31. *T. lancangense*
- 54b. Leaflets 1–2.8 × 1–4.6 cm; styles 0.2–0.3 mm 34. *T. leve*
- 50b. Achenes stipitate.
- 55a. Cauline leaves 3–5, 3- or 4-pinnately ternate; styles conspicuous.
- 56a. Achene stipe equaling or longer than achene.
- 57a. Achenes obovoid, with 3 or 4 wings 3. *T. aquilegiifolium*
- 57b. Achenes strongly compressed, wingless 59. *T. sparsiflorum*
- 56b. Achene stipe 1–2 mm, shorter than achene.
- 58a. Achenes ovoid or broadly ellipsoid 5. *T. baicalense*
- 58b. Achenes fusiform.
- 59a. Achenes 2–5 15. *T. fargesii*
- 59b. Achenes 6–13 75. *T. xingshanicum*
- 55b. Cauline leaves 1 or 2, or absent, simple, ternate, or 2-ternate; styles inconspicuous.
- 60a. Cauline leaves 2, opposite, simple 16. *T. filamentosum*
- 60b. Cauline leaves alternate, ternate or 2-ternate.
- 61a. Achenes 1.5–1.8 mm 36. *T. microgynum*
- 61b. Achenes 2–3 mm.
- 62a. Inflorescence globose, few flowered; stamens 3–7; filaments narrower than anthers 39. *T. oligandrum*
- 62b. Inflorescence flat topped, many flowered; stamens more than 10; filaments broader than anthers.
- 63a. Leaflets obovate or orbicular 67. *T. umbricola*
- 63b. Leaflets ovate.
- 64a. Rootlets with tubers; cauline leaves often opposite 66. *T. tuberiferum*
- 64b. Rootlets without tubers; cauline leaves often alternate 1. *T. acutifolium*
- 49b. Filaments linear or only slightly enlarged distally.
- 65a. Stigma wingless.
- 66a. Inflorescence 1- or 2-flowered 63. *T. tenuisubulatum*
- 66b. Inflorescence several to many flowered.
- 67a. Inflorescence a racemelike pleiochasium; achenes reflexed 52. *T. rutifolium*
- 67b. Inflorescence an elongated panicle; achenes erect.
- 68a. Leaflets 1.5–4 mm 13. *T. elegans*
- 68b. Leaflets 4.4–8.5 mm 27. *T. honanense*
- 65b. Stigma winged.
- 69a. Leaflets entire 62. *T. tenue*
- 69b. Leaflets lobed or ± toothed.
- 70a. Stigma elongate, narrowly winged 33. *T. leuconotum*

- 70b. Stigma not elongate, broadly winged.
 71a. Leaflets 1.5–4 mm 29. *T. isopyroides*
 71b. Leaflets more than 6 mm.
 72a. Inflorescence spreading, slender; anther apex obtuse 64. *T. trichopus*
 72b. Inflorescence not spreading, stout; anther apex acute.
 73a. Panicles flat topped; achenes 5–6 mm 61. *T. squarrosus*
 73b. Panicles racemelike; achenes less than 4 mm.
 74a. Cauline leaves and inflorescence branches erect 57. *T. simplex*
 74b. Cauline leaves and inflorescence branches spreading.
 75a. Stigmas broadly winged, triangular.
 76a. Veins abaxially on leaflets raised 37. *T. minus*
 76b. Veins abaxially on leaflets flat.
 77a. Leaflets 0.6–1(–1.5) cm; achenes strongly compressed 20. *T. foetidum*
 77b. Leaflets 4–7 cm; achenes slightly compressed 18. *T. flavum*
 75b. Stigmas narrowly winged, linear or narrowly triangular.
 78a. Veins abaxially on leaflets flat; filaments weakly clavate 41. *T. osmundifolium*
 78b. Veins abaxially on leaflets raised; filaments filiform.
 79a. Achenes stipitate, body strongly compressed; leaflets abaxially powdery white when dry 10. *T. cultratum*
 79b. Achenes sessile, body slightly compressed; leaflets abaxially not powdery white when dry 21. *T. foliolosum*

1. *Thalictrum acutifolium* (Handel-Mazzetti) B. Boivin, *Rhodora* 46: 364. 1944.

尖叶唐松草 *jian ye tang song cao*

Thalictrum clavatum de Candolle var. *acutifolium*

Handel-Mazzetti, *Akad. Wiss. Wien Sitzungsber.*,

Math.-Naturwiss. Kl., Abt. 1, 43: 1. 1926; *T. chiaonis*

B. Boivin; *T. clavatum* var. *cavaleriei* H. Léveillé; *T.*

declinatum B. Boivin; *T. unguiculatum* B. Boivin.

Plants 25–65 cm tall, glabrous. Roots succulent, ca. 5 × 0.4 cm thick. Stems branched, smooth. Leaves 1 or 2, basal; petiole 10–20 cm; leaf blade 2-ternate, 7–18 cm; petiolule long; leaflet blade ovate, 2.3–5 × 1–3 cm, herbaceous, base rounded, cuneate, or subcordate, apex entire or inconspicuously 3-lobed; lobes toothed; veins raised abaxially. Inflorescence monochasial, few flowered. Pedicel 3–8 mm. Sepals 4, early deciduous, white or pinkish, ovate, ca. 2 mm. Stamens many, ca. 5 mm; filament base filiform, apex oblanceolate, ca. 3 × as broad as anther; anther oblong, 0.8–1.3 mm. Carpels 6–12; style short. Achene stipe slender, 1–2.5 mm; body compressed, narrowly cylindrical, 3–3.8(–4.5) × 0.6–0.8(–1.2) mm; veins ca. 8, weak. Fl. Apr–Jul.

• Forest margins, slopes, damp rocky ledges; 600–2000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Sichuan, Zhejiang.

2. *Thalictrum alpinum* Linnaeus, *Sp. Pl.* 1: 545. 1753.

高山唐松草 *gao shan tang song cao*

Plants 5–40 cm tall, glabrous. Roots fibrous. Rhizome slender. Stems simple or rarely branched, erect. Leaves 4 or more, all basal; petiole 1.5–3 cm; leaf blade pinnately 2-ternate, 1.5–4 cm; leaflets cuneate-obovate to orbicular-ovate, 3–5 × 3–5(–20) mm, thinly leathery, apex 3(–5)-lobed; lobes crenate. Inflorescence racemelike, few flowered; peduncle simple or branched. Pedicel erect or recurved at anthesis, recurved in fruit.

Sepals early deciduous, purplish tinged, ovate to elliptic, ca. 2 mm. Stamens 7–10(–15); filament purplish, filiform; anther yellow, 1.2–3 mm, apex mucronate. Carpels (2–)3–5(–6); stigma purple, narrowly triangular, equaling ovary. Achenes shortly stipitate or sessile; body narrowly ovoid to lanceolate-obovoid, 2–3.5 mm; persistent style broadly triangular; veins ca. 8, stout. Fl. Jun–Aug.

Damp valleys, slopes, meadows, bogs; 2400–5300 m. Gansu, Hebei, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Afghanistan, Bhutan, India, Kazakhstan, Mongolia, N Myanmar, Nepal, Pakistan, Russia (Siberia), Sikkim, Vietnam; Europe, North America].

1a. Achenes shortly stipitate 2c. var. *microphyllum*

1b. Achenes sessile.

2a. Flowering pedicels recurved; leaflets

3–5 mm wide 2a. var. *alpinum*

2b. Flowering pedicels erect; leaflets

10–20 mm wide 2b. var. *elatum*

2a. *Thalictrum alpinum* var. *alpinum*

高山唐松草(原变种) *gao shan tang song cao* (yuan bian zhong)

Thalictrum alpinum var. *hebetum* B. Boivin.

Plants 5–20 cm tall. Leaflets 3–5 mm wide. Peduncle simple. Flowering pedicels recurved. Achenes sessile. Fl. Jun–Aug.

Damp valleys, wet meadows, bogs; 4400–5300 m. Xinjiang, Xizang [Afghanistan, Bhutan, India, Kazakhstan, Mongolia, Nepal, Pakistan, Russia (Siberia), Sikkim, Vietnam; Europe, North America].

This variety may be found near sea-level in North America.

2b. *Thalictrum alpinum* var. *elatum* Ulbrich, *Notizbl. Bot.*

Gart. Berlin-Dahlem 10: 877. 1929.

直梗高山唐松草 *zhi geng gao shan tang song cao*

Thalictrum alpinum var. *acutibulum* H. Hara; *T.*

alpinum var. *elatum* f. *puberulum* W. T. Wang & S. H.

Wang; *T. alpinum* var. *setulosinerve* (H. Hara) W. T. Wang; *T. esquirolii* H. Léveillé & Vaniot; *T. nudum* H. Léveillé & Vaniot ex Handel-Mazzetti; *T. setulosinerve* H. Hara; *T. tofieldioides* Diels.

Plants 20–40 cm tall. Leaflets 10–20 mm wide, sometimes abaxially pubescent. Peduncle sometimes branched. Flowering pedicels erect. Achenes sessile. Slopes, meadows; 2400–4600 m. S Gansu, NW Hebei, S Shaanxi, NW Shanxi, W Sichuan, S Xizang, N Yunnan [Bhutan, India, N Myanmar, Nepal, Sikkim].

2c. *Thalictrum alpinum* var. *microphyllum* (Royle) Handel-Mazzetti, Symb. Sin. 7: 311. 1931.

柄果高山唐松草 *bing guo gao shan tang song cao*
Thalictrum microphyllum Royle, Ill. Bot. Himal. Mts. 1: 51. 1834.

Plants 5–20 cm tall. Leaflets 3–5 mm wide. Peduncle simple. Flowering pedicels recurved. Achenes shortly stipitate.

• Wet meadows; 3000–4000 m. S Xizang, NW Yunnan [Sikkim].

3. *Thalictrum aquilegifolium* Linnaeus var. *sibiricum* Regel & Tiling, Fl. Ajan. 23. 1858.

唐松草 *tang song cao*
Thalictrum aquilegifolium subsp. *asiaticum* (Nakai) Kitakawa; *T. aquilegifolium* var. *asiaticum* Nakai; *T. aquilegifolium* var. *daisenense* (Nakai) Emura; *T. contortum* Linnaeus; *T. daisenense* Nakai; *T. rubellum* Siebold & Zuccarini.

Plants 0.6–1.5 m tall, glabrous. Stems branched, robust, ca. 1 cm in diam. Basal leaves withered at anthesis. Stipules membranous; petiole 4.5–8 cm; leaf blade 3- or 4-ternate, 10–30 cm; leaflet blade obovate or broadly orbicular, 1.5–2.5 × 1.2–3 cm, herbaceous, base rounded-cuneate or subcordate, apex rounded to almost obtuse; lobes 3, entire or 1- or 2-toothed; veins flat on both surfaces or slightly raised abaxially. Inflorescence umbel-like, many flowered. Pedicel 4–17 mm. Sepals early deciduous, white or abaxially purplish tinged, elliptic, 3–3.5 mm. Stamens many, 6–9 mm; filament base filiform, apex oblanceolate, slightly narrower or broader than anther; anther ca. 1.2 mm, apex obtuse. Carpels 6–8; style persistent, 0.3–0.5 mm. Achene stipe 3–5 mm; body obovoid, 4–7 mm, broadly winged. Fl. Jul.

Forests, forest margins, grassy slopes, meadows; 500–1800 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shandong, Shanxi, Zhejiang [Japan, Korea, Mongolia, Russia (Siberia)].

Thalictrum aquilegifolium var. *aquilegifolium*, which occurs in SW Asia (Turkey) and Europe, has pyriform achenes long stipitate at the base.

4. *Thalictrum atriplex* Finet & Gagnepain, Bull. Soc. Bot. France 50: 613. 1903.

狭序唐松草 *xia xu tang song cao*

Plants 40–80 cm tall, glabrous. Stems branched, sulcate. Leaves both basal and cauline; stipules membranous; petiole ca. 12 cm; leaf blade 4-ternate, ca. 15 cm; petiolule ca. 1.2 cm; leaflet blade cuneate-obovate, broadly rhombic, or orbicular, 0.8–2.2 × 0.8–3 cm,

leathery, base broadly cuneate, rounded, or subcordate, apex entire or obtusely 3-lobed; veins flat on both surfaces. Inflorescence a racemelike monochasium, many flowered. Pedicel 1–5 mm. Sepals 4, early deciduous, white or greenish yellow, elliptic, 2.5–3.5 × 1–1.5 mm. Stamens 7–10; filament filiform proximally, clavate distally. Carpels 4 or 5(–8); style persistent, circinate, 1–2 mm. Achenes sessile; body broadly ovoid, ca. 2.5 mm. Fl. Jun–Jul, fr. Aug–Sep.

• Forests, forest margins, slopes; 2300–3600 m. Sichuan, Xizang, Yunnan.

5. *Thalictrum baicalense* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 11: 85. 1838.

贝加尔唐松草 *bei jia er tang song cao*
Plants 40–80 cm tall, glabrous. Stems simple or branched. Cauline leaves petiolate; stipules membranous; petiole 1–2.5 cm; leaf blade 3-ternate, 9–16 cm; petiolule 0.2–3 mm; leaflet blade broadly rhombic or broadly rhomboid-obovate, 1.8–4.5 × 2–5 cm, herbaceous, base rounded or broadly cuneate, apex 3-lobed; lobes crenate; veins raised abaxially. Inflorescence paniculate, 2.5–4.5 cm. Pedicel 4–9 mm.

Sepals 4, early deciduous, greenish white, elliptic, ca. 2 mm. Stamens (10–)15–20; filament filiform distally, apex narrowly oblanceolate, as broad as anther; anther oblong, ca. 0.8 mm. Carpels 3–7; style straight or slightly apically recurved, 0.5–1.2 mm; stigma elliptic or linear-lanceolate. Achene stipe ca. 0.2 mm; body ovoid or broadly ellipsoid, ca. 3 mm. Fl. May–Jun.

Forests, wet meadows, damp rocky ledges; 900–3000 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Qinghai, Shaanxi, Sichuan, Xizang [Korea, Mongolia, Russia (Siberia)].

- 1a. Style straight, ca. 0.5 mm, stigma elliptic 5a. var. *baicalense*
- 1b. Style slightly apically recurved, 1–1.2 mm, stigma linear-lanceolate 5b. var. *megalostigma*

5a. *Thalictrum baicalense* var. *baicalense*

贝加尔唐松草(原变种) *bei jia er tang song cao* (yuan bian zhong)

Thalictrum giraldii Ulbrich.

Style straight, ca. 0.5 mm; stigma elliptic. Fl. May–Jun. Montane forests, wet meadows; 900–2800 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Qinghai, Shaanxi, Xizang [Korea, Mongolia, Russia (Siberia)].

5b. *Thalictrum baicalense* var. *megalostigma* B. Boivin, Rhodora 46: 963. 1944.

长柱贝加尔唐松草 *chang zhu bei jia er tang song cao*

Thalictrum megalostigma (B. Boivin) W. T. Wang.

Style slightly apically recurved, 1–1.2 mm; stigma linear-lanceolate. Fl. May–Jun.

• Forests, damp rocky ledges; 2200–3000 m. Gansu, Sichuan.

6. *Thalictrum brevisericum* W. T. Wang & S. H. Wang, Fl. Tsinling. 1(2): 603. 1974.

绢毛唐松草 *juan mao tang song cao*

Plants 30–80 cm tall, pubescent. Stems branched, sulcate. Basal leaves withered at anthesis. Cauline

leaves shortly petiolate; stipules semiorbicular, margin fimbriate; petiole 3.5–6.5 cm, pubescent; leaf blade 3-ternate, 12–18 cm; petiolule 3.5–6.5 mm; leaflet blade orbicular or rhomboid, 2–3 × 2–3 cm, papery, base rounded, broadly cuneate, or subcordate, abaxially pubescent; lobes 3, margin obtusely toothed, apex acute; veins raised abaxially. Inflorescence paniculate, 12–15 cm, many flowered. Bracts subulate-linear, pubescent. Pedicel 3–4 mm. Sepals 5, early deciduous, purplish tinged, elliptic-obovate, ca. 2.5 × 1.5 mm, abaxially pubescent. Stamens many; filament oblanceolate-linear, slightly narrower than anther; anther 1–1.2 mm, apex obtuse. Carpels 8–16; style circinate. Achenes sessile; body fusiform, ca. 4 mm; veins ca. 6. Fl. Jun.

• Montane forest margins; 900–2300 m. Gansu, Shaanxi, Yunnan. This species is similar to *Thalictrum javanicum*, but differs in being pubescent; it is also similar to *T. uncinulatum*, which differs in having leaflets long and narrow and achenes shortly stipitate.

7. *Thalictrum chayuense* W. T. Wang, Acta Bot. Yunnan. 4: 136. 1982.

察隅唐松草 cha yu tang song cao

Plants ca. 1 m tall, sparsely white pubescent. Stems branched. Basal and proximal cauline leaves withered at anthesis. Cauline leaves shortly petiolate; stipules present, margin entire; petiole 1.5–4 cm; leaf blade 2- or 3-ternate, 6–27 cm; petiolule slender; leaflet blade broadly ovate or orbicular, 1.2–3 × 1.2–2.8 cm, herbaceous, abaxially pubescent, base subcordate, apex rounded or obtuse; lobes 3, apex acute; veins conspicuous, raised abaxially. Inflorescence monochasial, 2–6-flowered. Pedicel slender, 9–19 mm. Sepals white, elliptic, ca. 2 × 1 mm, glabrous. Stamens ca. 7; filament filiform; anther oblong, ca. 0.8 mm. Carpels 3 or 4; style long. Achene stipe 1.8–2 mm; body obliquely narrowly ovoid or cylindrical, laterally compressed, ca. 7 × 1.5–1.8 mm; veins ca. 8, weak. Fl. Jun.

• Forests in mountain valleys; ca. 2700 m. SE Xizang (Zayu Xian). This species is similar to *Thalictrum rostellatum*, but differs in having a taller stem and leaflets with conspicuous veins that are raised abaxially, at least on the larger leaflets.

8. *Thalictrum chelidonii* de Candolle, Prodr. 1: 11. 1824.

珠芽唐松草 zhu ya tang song cao

Plants ca. 1 m tall, glabrous. Stems branched. Distal cauline leaves with axillary buds; leaf blade 3-pinnate; leaflet blade variously cuneate-oblong, cuneate-obovate, orbicular-ovate, or cordate, 1–3 cm, herbaceous, margin acutely or obtusely toothed, apex 3-lobed; veins slightly raised abaxially. Inflorescence paniculate, many flowered. Pedicel filiform, 4–10 mm. Sepals 4, pinkish tinged, ovate; 5–8 × 2.5–4 mm. Stamens many, ca. 4.5 mm; anther yellowish, narrowly oblong, 1.5–2 mm, apex obtuse or mucronate. Carpels 6–8; style shorter than ovary. Achene stipe ca. 0.6 mm; body hemiobovoid, ca. 4 mm. Fl. Aug.

Montane forests; ca. 2600 m. S Xizang [Bhutan, ?NE India (Assam), ?Kashmir, Nepal, Sikkim].

9. *Thalictrum cirrhosum* H. Léveillé, Repert. Spec. Nov. Regni Veg. 7: 97. 1909.

星毛唐松草 xing mao tang song cao

Plants 28–55 cm tall, glandular pubescent. Stems branched. Basal leaves withered at anthesis. Cauline leaves shortly petiolate; petiole 0.5–1 cm; leaf blade 3-pinnate, ca. 10 cm; petiolule 1–9 mm; leaflet blade orbicular-rhombic, broadly rhombic, or rhomboid, 1–1.3 × 0.8–1.5 cm, papery, abaxially densely branched stellate hairy, base rounded or subcordate, apex entire or 3-lobed. Inflorescence paniculate, several flowered. Pedicel 5–10 mm. Sepals 4, early deciduous, yellowish tinged, narrowly elliptic, ca. 4 mm. Stamens many; filament filiform; anther ca. 2 mm, apex mucronate. Carpels 3–5; style subulate. Achenes sessile; body obliquely ellipsoid-obovoid, ca. 3 mm; veins ca. 8. Fl. Jun.

• Scrub, slopes, damp rocky ledges; 2200–2400 m. C Yunnan. This species is similar to *Thalictrum cultratum*, but differs in having leaflets abaxially gray branched hairy, stigmas wingless, and achenes slightly compressed.

10. *Thalictrum cultratum* Wallich, Pl. Asiat. Rar. 2: 26. 1831.

高原唐松草 gao yuan tang song cao

Thalictrum deciternatum B. Boivin; *T. yui* B. Boivin.

Plants 50–120 cm tall, glabrous or pubescent. Stems branched distally. Basal and proximal cauline leaves withered at anthesis. Middle cauline leaves petiolate; petiole 1–4 cm; leaf blade 3- or 4-pinnate, 9–20 cm; leaflet blade rhombic-obovate, broadly rhombic, or orbicular, 0.5–1(–1.4) × 0.3–1(–1.4) cm, thinly leathery, base rounded or subcordate, apex acute, 3-lobed; lobes entire or 2-toothed; veins raised abaxially. Inflorescence paniculate. Pedicel slender, 4–14 mm. Sepals deciduous, greenish white, narrowly elliptic, 3–4 mm. Stamens many, 6–8 mm; filament filiform; anther narrowly oblong, 2–2.6 mm, apex mucronate. Carpels 4–9. Achenes sessile; body hemiobovoid, ca. 3.5 mm; veins ca. 8. Fl. Jun–Jul.

Scrub, slopes, wet meadows, damp rocky ledges; 1700–3800 m. Gansu, Sichuan, Xizang, NW Yunnan [Bhutan, Kashmir, Nepal, Sikkim].

11. *Thalictrum delavayi* Franchet, Bull. Soc. Bot. France 33: 367. 1886.

偏翅唐松草 pian chi tang song cao

Plants 0.6–2 m tall, glabrous. Stems branched. Basal leaves withered at anthesis. Stipules semiorbicular, margin lobed or entire; petiole 1.4–8 cm; leaf blade 3- or 4-pinnate, ca. 40 cm; leaflet blade orbicular-ovate, obovate, or elliptic, 0.5–3 × 0.3–2(–2.5) cm, herbaceous, base rounded or cuneate, apex obtuse or acute, 3-lobed; lobes entire or 1–3-toothed; veins flat or raised abaxially. Inflorescence paniculate, 15–40 cm. Pedicel 8–25 mm. Sepals 4(or 5), purplish tinged, oblong or long elliptic to ovate or broadly so, 6–14 × 2.2–7 mm.

Stamens many, 5–7 mm; filament filiform, dilated distally; anther oblong, 0.1–1.8 mm, apex mucronate, mucro 0.01–1.5 mm. Carpels 15–22; style short; stigma inconspicuous. Achene stipe erect, 1–3 mm; body obliquely obovoid, 5–8 × 2.5–3.2 mm; veins ca. 8. Fl. Jun–Sep.

• Forests, scrub, hills, grassy slopes, shady places, along streams, damp rocky ledges; 1800–3400 m. W Guizhou, W Sichuan, Xizang, Yunnan.

1a. Anther mucro 0.9–1.5 mm .. 11d. var. *mucronatum*

1b. Anther mucro (0.01–)0.1–0.7 mm.

2b. Sepals broadly ovate, 4.8–7 mm wide 11c. var. *decorum*

2a. Sepals oblong or long elliptic to ovate, 2.2–5 mm wide.

3a. Anther mucro (0.01–)0.1–0.15(–0.4) mm; sepals oblong or long elliptic

to ovate, 6–11 mm 11a. var. *delavayi*

3b. Anther mucro 0.1–0.7 mm; sepals long elliptic to narrowly ovate, 9.5–14 mm .. 11b. var. *acuminatum*

11a. *Thalictrum delavayi* var. *delavayi*

偏翅唐松草(原变种) pian chi tang song cao (yuan bian zhong)

Thalictrum delavayi var. *parviflorum* Franchet; *T. dipterocarpum* Franchet; *T. duclouxii* H. Léveillé.

Sepals oblong or narrowly elliptic to ovate, 6–11 × 2.2–5 mm. Anther mucro (0.01–)0.1–0.15(–0.4) mm. Fl. Jun–Sep.

• Forests, scrub, damp rocky ledges; 1900–3400 m. W Sichuan, Xizang, Yunnan.

This variety is used medicinally.

11b. *Thalictrum delavayi* var. *acuminatum* Franchet, Pl. Delavay. 11. 1889.

渐尖偏翅唐松草 jian jian pian chi tang song cao

Sepals narrowly elliptic to narrowly ovate, 9.5–14 × 4–5 mm. Anther mucro 0.1–0.7 mm.

• Shady places, along streams; ca. 1800 m. SW Sichuan (Dechang Xian), NW Yunnan (Heqing Xian).

Wang (Acta Phytotax. Sin. 31: 214. 1993) recognized two forms under var. *acuminatum*: f. *acuminatum* (Franchet) W. T. Wang, with anther mucro 0.1–0.25(–0.4) mm, and f. *appendiculatum* W. T. Wang, with anther mucro 0.5–0.7 mm.

11c. *Thalictrum delavayi* var. *decorum* Franchet, Pl. Delavay. 11. 1889.

宽萼偏翅唐松草 kuan e pian chi tang song cao

Sepals broadly ovate, 7–11 × 4.8–7 mm. Anther mucro 0.01–0.025(–0.04) mm.

• Forests, hills; ca. 3000 m. NW Yunnan (Eryuan Xian, Lijiang Naxi Zu Zizhixian).

11d. *Thalictrum delavayi* var. *mucronatum* (Finet & Gagnepain) W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 571. 1979.

角药偏翅唐松草 jiao yao pian chi tang song cao

Thalictrum dipterocarpum var. *mucronatum* Finet & Gagnepain, J. Bot. (Morot) 21: 21. 1908.

Sepals elliptic or broadly so to ovate, 6–9 × 3–7 mm. Anther mucro 0.9–1.5 mm.

• Forests, grassy slopes. W Guizhou, SE Yunnan.

12. *Thalictrum diffusiflorum* C. Marquand & Airy Shaw, J. Linn. Soc., Bot. 48: 153. 1929.

堇花唐松草 jin hua tang song cao

Plants 60–100 cm tall, glandular pubescent. Stems branched. Stipules membranous; petiole 1.5–4 cm; leaf blade 3- or 4-pinnate, 8–15 cm; leaflet blade orbicular-rhombic or broadly ovate, 4–12 × 3.5–10 mm, herbaceous, apex 3–5-lobed; veins slightly raised abaxially, flat adaxially. Inflorescence paniculate, few flowered. Pedicel 1–3 cm, glandular pubescent. Sepals 4 or 5, purplish tinged, ovate or narrowly so; 10–15 × 5–7 mm. Stamens many, ca. 8 mm; filament filiform; anther yellow, linear, 2–2.8 mm, apex mucronate. Carpels 10–15; style ca. 3 mm; stigma inconspicuous. Achene stipe recurved, ca. 1.2 mm; body hemiobovoid, ca. 4.5 mm. Fl. Jun–Aug.

• Forests, damp rocky ledges; 2900–3800 m. SE Xizang.

13. *Thalictrum elegans* Wallich ex Royle, Ill. Bot. Himal. Mts. 1: 51. 1834.

小叶唐松草 xiao ye tang song cao

Thalictrum samariferum B. Boivin.

Plants 20–90 cm tall, glabrous. Stems simple or branched. Basal leaves withered at anthesis. Stipules membranous; petiole absent or 0.5–1.5 cm; leaf blade 3- or 4-pinnate, 1.3–5 cm; leaflet blade orbicular, orbicular-ovate, obovate, or rhombic-obovate, 1.5–4 × 1.5–4 mm, herbaceous, base cuneate, rounded, or subcordate, margin 3-lobed; veins slightly raised abaxially, flat adaxially. Inflorescence paniculate. Pedicel slender, ca. 3.3 cm. Sepals elliptic. Stamens many; filament narrowly linear; anther short, apex mucronate. Carpels 6–20; stigma persistent, recurved. Achene stipe erect, 3–4 mm; body obliquely obovoid, compressed, 5–7 × 3–4.2 mm, with narrow, lateral wings. Fl. Jul–Aug.

Forest margins, grassy slopes; 2700–4000 m. SW Sichuan, S Xizang, NW Yunnan [Bhutan, India, Kashmir, Nepal, Pakistan, Sikkim].

The main characters of this species are small leaflets and compressed achenes with narrow, lateral wings.

14. *Thalictrum faberi* Ulbrich, Notizbl. Bot. Gart. Berlin-Dahlem 9: 222. 1925.

大叶唐松草 da ye tang song cao

Thalictrum macrophyllum Migo.

Plants (35–)45–110 cm tall, glabrous. Stems branched distally. Basal leaves withered at anthesis. Stipules narrow; petiole 4.5–6 cm; leaf blade 2- or 3-ternate, ca. 30 cm; petiolule 1.5–4 cm; leaflet blade broadly ovate or rhombic, papery, base rounded or subcordate, apex entire or 3-lobed; lobes obtuse or acute at apex; veins raised abaxially. Inflorescence paniculate, 20–40 cm. Pedicel slender, 3–7 mm. Sepals early deciduous, white, broadly elliptic, 3–3.5 mm. Stamens many; filament 5–7 mm, as broad as anther; anther oblong, 1–2 mm. Carpels 3–6; style circinate, equaling ovary. Achene body narrowly ovoid, 5–6 mm; veins ca. 10. Fl. Jul–Aug.

• Forests; 600–1300 m. Anhui, Fujian, Henan, Hunan, Jiangsu, Jiangxi, Zhejiang.

This species is similar to *Thalictrum robustum*, which differs in being pubescent.

15. *Thalictrum fargesii* Franchet ex Finet & Gagnepain, Bull. Soc. Bot. France 50: 608. 1903.

西南唐松草 xi nan tang song cao

Thalictrum pallidum Franchet.

Plants ca. 50 cm tall, glabrous. Stems branched, slender. Basal leaves withered at anthesis. Cauline leaf stipules membranous; petiole 3.5–5 cm; leaf blade 3- or 4-ternate, 8–14 cm; petiolule 3–20 mm; leaflet blade rhombic-obovate, broadly obovate, or orbicular, 1–3 × 1–2.5 cm, herbaceous, papery, or leathery, base cuneate, rounded, or subcordate, apex entire or 1–3-toothed; veins raised abaxially. Inflorescence an umbel of monochasia. Pedicel slender, 10–35 mm. Sepals 4, deciduous, white or purplish tinged, elliptic, 3–6 mm. Stamens many; filament slightly broader than anther; anther narrowly oblong, ca. 1 mm. Carpels 2–5; style straight; stigma narrowly elliptic or linear. Achenes shortly stipitate; body fusiform, 4–5 mm. Fl. May–Jun.

• Forests, slopes, meadows, damp rocky ledges; 1300–2400 m. Gansu, Guizhou, Henan, Hubei, Shanxi, Sichuan.

This species is similar to *Thalictrum tsawarungense* and *T. wangii*, but differs in having leaflets conspicuously veined, filaments broader, and achenes fusiform.

16. *Thalictrum filamentosum* Maximowicz, Mém. Acad. Imp. Sci. St.-Pétersbourg Divers Savans 9: 13. 1859.

花唐松草 hua tang song cao

Thalictrum clavatum de Candolle var. *filamentosum* (Maximowicz) Finet & Gagnepain.

Plants 15–35 cm tall, glabrous. Roots tuberous, globose. Stems erect. Basal leaf 1, 15–25 cm; petiole 7–13 cm; leaf blade 2-ternate, (4.5–)6.5–9 cm; leaflet blade ovate or broadly so, herbaceous, base rounded or cordate, margin inconspicuously 3-lobed; veins flat on both surfaces. Cauline leaves 2, opposite, sessile,

simple, ovate or broadly so. Inflorescence flat topped, 1.5–5.5 cm. Sepals early deciduous, white, oblong, ca. 2 × 0.5 mm. Stamens 5–8 mm; filament base filiform, apex oblanceolate, 3–4 × as broad as anther; anther elliptic, ca. 0.6 mm. Carpels 2–5; style obscure. Achene stipe slender. Fl. May.

Forests, scrub. Heilongjiang, Jilin [Russia].

17. *Thalictrum finetii* B. Boivin, J. Arnold Arbor. 26: 113. 1945.

滇川唐松草 dian chuan tang song cao

Plants 0.5–2 m tall, glabrous. Stems branched. Basal and proximal cauline leaves withered at anthesis. Distal cauline leaf stipules narrow, margin irregular lobed; petiole ca. 2 cm; leaf blade 3- or 4-ternate or -pinnate, ca. 18 cm; leaflet blade rhombic-obovate, broadly ovate, or orbicular, 0.9–2.0 × 0.7–2 cm, herbaceous, base broadly cuneate or rounded, apex shortly acute, 3-lobed; lobes entire or a few toothed; veins abaxially raised or flat, pubescent. Inflorescence paniculate, few flowered. Pedicel slender, 0.4–1.8 mm. Sepals 4 or 5, deciduous, white or green, tinged yellowish, elliptic-ovate. Stamens ca. 6 mm; filament filiform; anther narrowly oblong, 1.5–2 mm, apex mucronate. Carpels 7–14; style ca. 1.2 mm. Achenes glabrous; stipe ca. 0.4 mm; body hemispheric or hemiobovoid, ca. 4 × 1.5 mm; vein 1. Fl. Jul–Aug.

• Forests, forest margins, grassy slopes; 2200–4000 m. W Sichuan, SE Xizang (Medôg Xian), NW Yunnan.

This species is similar to *Thalictrum cultratum*, but differs in having stigmas wingless, and achenes compressed, pubescent, and narrowly winged.

18. *Thalictrum flavum* Linnaeus, Sp. Pl. 1: 546. 1753.

黄唐松草 huang tang song cao

Thalictrum altissimum Thomas ex De Massas (1838), not Wenderoth (1826); *T. angustatum* Weinmann ex Lecoyer; *T. anonymum* Wallroth ex Lecoyer; *T. belgicum* Jordan; *T. capitatum* Jordan.

Plants ca. 1.5 m tall, glabrous. Cauline leaves petiolate; leaf blade of proximal ones 3-pinnate, ca. 30 cm; leaflet blade cuneate-obovate or narrowly obovate, 4–7 × 2.5–5.5 cm, base rounded or obtuse, apex 3-toothed or 3-lobed. Distal cauline leaf blade 9–15 cm; leaflets cuneate or cuneate-obovate, ca. 4 × 1.8 cm, base cuneate or obtuse, apex 3-toothed or 3-lobed. Inflorescence paniculate, ca. 25 cm, many flowered. Bracts narrowly linear or subulate, ca. 2.5 mm. Pedicel slender, 5–10 mm. Sepals 4, deciduous, narrowly ovate, ca. 4 mm. Stamens ca. 8 mm; filament filiform; anther linear, ca. 2.5 mm, apex inconspicuously mucronate. Carpels ca. 10; stigma triangular winged. Achenes slightly compressed. Fl. Jul.

Grasslands, streamsides; ca. 500 m. Xinjiang [N and W Asia, Europe].

19. *Thalictrum foeniculaceum* Bunge, Mém. Acad. Imp. Sci. St.-Pétersbourg Divers Savans 2: 76. 1835.

丝叶唐松草 si ye tang song cao

Isopyrum trichophyllum H. Léveillé, Repert. Spec. Nov. Regni Veg. 9: 224. 1911.

Plants 10–80 cm tall, glabrous. Stems branched or simple. Basal leaves 2–6, 5–18 cm; petiole 1.5–9 cm; leaf blade 2–4-ternate, 2.5–10 cm; leaflet blade subulate, linear, or narrowly linear, 0.6–3 × 0.5–1.5 cm, thinly leathery, margin recurved, apex acute. Cauline leaves 2–4, similar to basal leaves. Inflorescence cymose, flat topped. Pedicel slender, 20–45 mm. Sepals 4, pinkish or white, elliptic or narrowly obovate; 6–10 × 3–5 mm. Stamens 2.8–3 mm; filament filiform, short; anther oblong, ca. 2 mm, apex mucronate. Carpels 7–11; style short. Achenes sessile; body fusiform, 3.5–4.5 mm; veins 8–10. Fl. Jun–Jul.

• Slopes, meadows, damp rocky ledges; 600–1000 m. Gansu, Hebei, Liaoning, Shaanxi, Shanxi.

20. *Thalictrum foetidum* Linnaeus, Sp. Pl. 1: 545. 1753.

腺毛唐松草 xian mao tang song cao

Plants 15–100 cm tall, pubescent or glabrous. Stems branched or simple. Basal and proximal cauline leaves withered at anthesis. Distal cauline leaves shortly petiolate; stipules membranous; leaf blade 3-pinnate, 5.5–12 cm; leaflet blade rhombic, broadly ovate, or ovate, 4–15 × 3.5–15 mm, herbaceous, base rounded-cuneate, rounded, or subcordate, apex obtuse or acute, 3-lobed; lobes entire or few toothed; veins slightly raised abaxially, pubescent or glandular hairy. Inflorescence paniculate, several or many flowered. Pedicel slender, 5–15 mm. Sepals 5, yellow, tinged greenish, ovate, 2.5–4 × ca. 1.5 mm, pubescent abaxially. Filament base filiform, apex narrowly linear; anther 2.5–3.5 mm, apex mucronate. Carpels 4–8; stigma triangular winged. Achenes sessile; body hemiovoid, laterally compressed, 3–5 mm, pubescent. Fl. May–Jul.

Slopes, grasslands, damp rocky ledges; 900–4500 m. Gansu, Hebei, Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang [widely distributed in Asia and Europe].

This species is similar to *Thalictrum cultratum*, but differs in having stigmas triangular and achenes strongly compressed and pubescent.

1a. Plants pubescent 20a. var. *foetidum*

1b. Plants glabrous 20b. var. *glabrescens*

20a. *Thalictrum foetidum* var. *foetidum*

腺毛唐松草(原变种) xian mao tang song cao (yuan bian zhong)

Plants pubescent. Fl. May–Jul.

Slopes, grasslands, damp rocky ledges; 900–4500 m. Gansu, Hebei, Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang [widely distributed in Asia and Europe].

20b. *Thalictrum foetidum* var. *glabrescens* Takeda, J. Jap. Bot. 48: 266. 1910.

扁果唐松草 bian guo tang song cao

Plants glabrous. Fl. May–Jul.

Grassy slopes; 1700–2000 m. Hebei, Shaanxi [Japan].

21. *Thalictrum foliolosum* de Candolle, Syst. Nat. 1: 175. 1817.

多叶唐松草 duo ye tang song cao

Thalictrum dalingo Buchanan-Hamilton ex de Candolle.

Plants 0.9–1.2 m tall, glabrous. Stems branched. Petiole 1.5–5 cm; leaf blade 3-ternate, ca. 35 cm; leaflet blade rhombic-elliptic or ovate, 1–2.5 × 0.5–1.5 cm, leathery, abaxially not white powdery, base rounded or subcordate, apex obtuse or rounded, 3-lobed; lobes few; veins slightly raised abaxially, flat adaxially.

Inflorescence terminal or axillary, paniculate, ca. 20 cm, many flowered. Sepals 4, early deciduous, yellow, greenish tinged, narrowly elliptic, 3–4.5 mm. Stamens many, 6–7 mm; filament filiform; anther narrowly oblong, ca. 2.5 mm, apex mucronate. Carpels 4–6; style equaling ovary; stigma linear. Achenes sessile; body fusiform, ca. 3 mm; veins ca. 8. Fl. Aug–Sep.

Montane forests, slopes; 1500–3200 m. Sichuan, Xizang, Yunnan [India, Myanmar, Nepal, Sikkim, Thailand].

This species is similar to *Thalictrum trichopus*, but differs in having pedicels short, anthers mucronate at the apex, and stigmas long.

22. *Thalictrum fortunei* S. Moore, J. Bot. 16: 130. 1878.

华东唐松草 hua dong tang song cao

Plants 20–65 cm tall, glabrous. Rootlets enlarged. Stems branched. Leaves all basal; stipules semiorbicular, membranous, margin entire; petiole ca. 6 cm; leaf blade 2- or 3-ternate, 5–10 cm; leaflet blade orbicular, 1–2 cm, herbaceous, base rounded or subcordate, apex rounded, inconspicuously 3-lobed; veins raised abaxially. Inflorescence monochasial, not enlarged. Pedicel filiform, 0.6–1.6 mm. Sepals 4, white or purplish tinged, obovate, 3–4.5 mm. Filaments oblanceolate, apex narrower or broader than anther; anther elliptic, 0.5–1.2 mm, apex obtuse. Carpels 3–6; style straight, short. Achenes fusiform, 4–5 mm; veins 6–8. Fl. Mar–May.

• Forests, slopes, damp rocky ledges; 100–1500 m. Anhui, Jiangsu, Jiangxi, Zhejiang.

23. *Thalictrum fusiforme* W. T. Wang, Acta Bot. Yunnan. 4: 137. 1982.

纺锤唐松草 fang chui tang song cao

Plants 80–100 cm tall, sparsely white pubescent. Leaves both basal and cauline; leaf blade 3-ternate, glabrous; leaflet blade elliptic or broadly so, herbaceous, margin obtusely 3-lobed; lobes 1- or 2-toothed; veins flat on both surfaces. Inflorescence terminal, monochasial, racemelike, many flowered. Pedicel 5–16 mm, glabrous or subglabrous. Flowers not seen. Achene stipe 1–1.3 mm; body fusiform, 8.5–11 mm; persistent style circinate, ca. 3 mm. Fr. Jul.

• Mixed forests by riversides; ca. 2000 m. SE Xizang (Zayü Xian).

This species is similar to *Thalictrum atriplex*, but differs in having pubescent stem, leaves, and peduncle, longer pedicels, and stipitate, fusiform achenes.

24. *Thalictrum glandulosissimum* (Finet & Gagnepain) W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 567. 1979.

金丝马尾连 jin si ma wei lian

Thalictrum foetidum Linnaeus var. *glandulosissimum* Finet & Gagnepain, Bull. Soc. Bot. France 50: 618. 1903.

Plants 60–85 cm tall, glandular pubescent. Rhizome short. Stems branched, sulcate. Cauline leaves ca. 9; petiole ca. 4 cm; leaf blade 3-pinnate, 5–9.5 cm; petiolule 0.5–1 mm, with hairs 0.2–0.4 mm; leaflet blade obovate to orbicular, 0.7–2.5 × 0.7–2.5 cm, papery, abaxially glandular pubescent, base rounded or subcordate, margin 3-lobed; lobes entire or 2- or 3-toothed; veins flat on both surfaces. Inflorescence paniculate, few flowered. Pedicel slender, 3–20 mm. Sepals early deciduous, yellow-white, elliptic, pubescent abaxially. Stamens ca. 25, ca. 5 mm, glabrous; filament narrowly linear or filiform; anther oblong, ca. 2 mm, apex obtuse or mucronate. Carpels 4–8; style persistent, ca. 1.2 mm; stigma triangular winged or broadly so. Achenes sessile; body fusiform or obliquely ovoid, ca. 3 mm; veins 2 or 3. Fl. Jun–Aug.

• Montane forests, slopes, meadows; 1600–2500 m. Yunnan.

- 1a. Leaflet blade 0.7–1.6 × 0.7–1.6 cm, petiolule hairs ca. 0.2 mm; anthers mucronate at apex 24a. var. *glandulosissimum*
1b. Leaflet blade 1.5–2.5 × 1.5–2.5 cm, petiolule hairs ca. 0.4 mm; anthers obtuse at apex 24b. var. *chaotungense*

24a. *Thalictrum glandulosissimum* var. *glandulosissimum*

金丝马尾连(原变种) jin si ma wei lian (yuan bian zhong)

Petiolule hairs ca. 0.2 mm; leaflet blade 0.7–1.6 × 0.7–1.6 cm. Anther apex mucronate. Stigma triangular winged. Fl. Jun–Aug.

• Slopes, meadows; ca. 2500 m. W Yunnan.

This variety is used medicinally.

24b. *Thalictrum glandulosissimum* var. *chaotungense* W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 619. 1979.

昭通唐松草 zhao tong tang song cao

Petiolule hairs ca. 0.4 mm; leaflet blade 1.5–2.5 × 1.5–2.5 cm. Anther apex obtuse. Stigma broadly triangular winged.

• Montane forests; ca. 1600 m. Yunnan.

25. *Thalictrum grandidentatum* W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 617. 1979.

巨齿唐松草 ju chi tang song cao

Plants ca. 80 cm tall, glabrous. Stems branched. Petiole 3–4.8 cm; leaf blade 2-ternate, ca. 25 cm; petiolule 1.9–

4.5 mm; leaflet blade rhombic to ovate, 5.5–13 × 3–6 cm, papery, base cuneate or broadly so, apex acute or mucronate, 3-lobed; lobes 2–5-toothed, apex rounded or obtuse; veins raised abaxially, flat adaxially.

Inflorescence paniculate, many flowered. Bracts lanceolate. Pedicel 6–10 mm. Sepals early deciduous, obovate, ca. 3.5 mm. Stamens 3–4 mm; filament narrowly oblanceolate, broader than anther; anther narrowly oblong, 0.8–1 mm, apex obtuse. Carpels 10–13; style circinate, equaling ovary; stigma persistent, ca. 1 mm. Achenes sessile; body narrowly ovoid, ca. 3 mm; veins ca. 8. Fl. Jul.

• C Sichuan (Emei Shan).

This species is similar to *Thalictrum faberi*, which differs in having leaflets 3-lobed and base rounded, truncate, or subcordate, margin 5–10-toothed on each side, and achenes 3–6.

26. *Thalictrum grandiflorum* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 11. 1890.

大花唐松草 da hua tang song cao

Plants 20–30 cm tall, glabrous. Stems branched. Petiole 3–6 cm; leaf blade 3-ternate, 4.5–9.5 cm; leaflet blade narrowly ovate to orbicular-ovate, 0.5–2.3 × 0.2–1.4 cm, papery or thinly leathery, base cuneate, rounded, or subcordate, apex rounded or acute, 3-lobed or 1-toothed; veins inconspicuous. Inflorescence cymose, flat topped, few flowered. Pedicel 1.6–5 cm. Sepals 4, pinkish, narrowly ovate, 13–20 × 5–10 mm. Stamens many, ca. 5 mm; filament filiform; anther narrowly oblong, ca. 3 mm, apex inconspicuously mucronate. Carpels ca. 40; style ca. 1.5 mm, equaling ovary. Achenes shortly stipitate; body fusiform, ca. 5 mm; veins 6–8. Fl. Aug–Oct.

• Slopes; ca. 1000 m. S Gansu, N Sichuan.

This species is similar to *Thalictrum foeniculaceum*, but differs in having ovate, entire leaflets and many shortly stipitate achenes.

27. *Thalictrum honanense* W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 620. 1979.

河南唐松草 he nan tang song cao

Plants 0.8–1.5 m tall, glabrous. Stems few branched. Basal and proximal cauline leaves withered at anthesis. Distal cauline leaf petiole 0.9–4 cm; leaf blade 2- or 3-ternate, ca. 25 cm; leaflet blade orbicular or cordate, 4.4–8.5 × 4.2–8.5 cm, papery, base cuneate, rounded, or subcordate, apex obtuse, 3-lobed; lobes toothed; veins raised on both surfaces. Inflorescence paniculate, 30–40 cm; branches few, 2–8 cm, many flowered. Bracts triangular. Pedicel 4–6 mm. Sepals 4, deciduous, red tinged, elliptic; 3–4.5 × ca. 2.2 mm. Stamens ca. 35, ca. 6.5 mm; filament narrowly linear; anther narrowly oblong, ca. 2 mm, apex rounded. Carpels 3–9; style short; stigma persistent, 0.6–1 mm. Achenes sessile; body narrowly ovoid, ca. 4.5 mm; veins ca. 6, stout. Fl. Aug–Sep.

• Forests, scrub; 800–1800 m. C Henan.

28. *Thalictrum ichangense* Lecoyer ex Oliver, Hooker's Icon. Pl. 18: t. 1765. 1888.

盾叶唐松草 dun ye tang song cao

Isoopyrum multipeltatum Pampanini; *Thalictrum multipeltatum* (Pampanini) Pampanini; *T. tripeltatum* Maximowicz.

Plants 14–30 cm tall, glabrous. Stems simple or distally branched. Basal leaf petiole 5–12 cm; leaf blade 1–3-ternate, 8–25 cm; leaflets peltate, petiolule 15–25 mm, leaflet blade ovate, broadly so, broadly elliptic, or orbicular, 2–4 × 1.5–4 cm, herbaceous, apex obtuse to rounded, 3-lobed; lobes toothed at margin; veins flat on both surfaces. Cauline leaves 1–3. Inflorescence monochasial. Pedicel filiform, 3–20 mm. Sepals early deciduous, white, ovate, ca. 3 mm. Stamens 4–6 mm; filament base filiform, apex oblanceolate, broader than anther; anther elliptic, ca. 0.6 mm. Carpels 5–12(–16). Achene stipe slender, ca. 1.5 mm; body falcate, ca. 4.5 mm; veins ca. 8, weak. Fl. May–Jul.

• Forests, scrub, damp rocky ledges; 600–1900 m. Guizhou, Hubei, Liaoning, Shanxi, Sichuan, Yunnan, Zhejiang.

29. *Thalictrum isopyroides* C. A. Meyer in Ledebour, Fl. Altaic. 2: 346. 1830.

紫堇叶唐松草 *zi jin ye tang song cao*

Plants 20–40 cm tall, glabrous. Basal leaves 3. Cauline leaves stout; petiole 1–1.8 cm; leaf blade 4-pinnate, ca. 4.5 cm; petiolule short; leaflet blade broadly rhombic, 1.5–4 × 1.5–4 mm, thick, 3-lobed; lobes lanceolate-linear or narrowly oblanceolate, entire; veins inconspicuous. Inflorescence paniculate, 12–20 cm, few flowered. Bracts ovate. Pedicel ca. 4.8 mm in fruit. Sepals 4, greenish tinged, ovate, ca. 2 mm. Stamens 5–8; filament filiform, ca. 2.5 mm; anther oblong, ca. 1.5 mm, apex mucronate. Carpels 3–5; style ca. 0.5 mm; stigma persistent, triangular winged. Achenes sessile; body narrowly ellipsoid, ca. 4 mm; veins ca. 8, stout. Fl. Jun.

Slopes, rocky ledges; ca. 1200 m. W Xinjiang [C and SW Asia].

30. *Thalictrum javanicum* Blume, Bijdr. Fl. Ned. Ind. 2: 1825.

爪哇唐松草 *zhao wa tang song cao*

Plants (30–)50–100 cm tall, glabrous or glandular pubescent. Stems branched. Basal leaves withered at anthesis. Cauline leaves petiolate; stipules brown, 2–3 mm wide, membranous, margin fimbriate; petiole ca. 5.5 cm; leaf blade 3- or 4-ternate, 6–25 cm; petiolule 0.5–1.4 mm; leaflet blade obovate, elliptic, or orbicular, 1.2–2.5 × 1–1.8 cm, papery, base broadly cuneate, rounded, or subcordate, margin toothed, apex 3-lobed; veins raised abaxially. Inflorescence pleiochasial, few or many flowered. Pedicel 3–7(–10) mm. Sepals 4, early deciduous, 2.5–3 mm. Stamens many, 2–5 mm; filament base filiform, apex oblanceolate, broader than anther; anther 0.6–1 mm. Carpels 8–35; style circinate, 0.6–2 mm. Achene body narrowly ovoid, 2–3 mm; veins 6–8. Fl. Apr–Jul.

Forests, scrub, slopes, damp rocky ledges; 1500–3400 m. Gansu, Guangdong, Guizhou, Hubei, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Indonesia, Nepal, Sikkim, Sri Lanka].

1a. Plants glabrous 30a. var. *javanicum*

1b. Plants glandular pubescent 30b. var. *puberulum*

30a. *Thalictrum javanicum* var. *javanicum*

爪哇唐松草(原变种) *zhao wa tang song cao* (yuan bian zhong)

Thalictrum argyi H. Léveillé & Vaniot; *T. glyphocarpum* Wight & Arnott; *T. lecoyeri* Franchet; *T. sessile* Hayata.

Plants glabrous. Inflorescence pleiochasial, few or many flowered. Carpels 8–15; style 0.6–1 mm. Fl. Apr–Jul.

Forests, slopes, damp rocky ledges; 1500–3400 m. Gansu, Guangdong, Guizhou, Hubei, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Indonesia, Nepal, Sikkim, Sri Lanka].

This variety is used medicinally.

30b. *Thalictrum javanicum* var. *puberulum* W. T. Wang in W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 617. 1979.

微毛爪哇唐松草 *wei mao zhao wa tang song cao*

Plants glandular pubescent. Inflorescence flat topped, few flowered. Carpels 16–35; style 1.5–2 mm.

• Forests, scrub, slopes; 1500–3200 m. Guizhou, Sichuan

31. *Thalictrum lancangense* Y. Y. Qian, Acta Phytotax. Sin. 35: 262. 1997.

澜沧唐松草 *lan cang tang song cao*

Plants 17–70 cm tall, glabrous. Stems branched, erect. Leaves both basal and cauline; stipules leaflike, 1–6 mm, membranous; petiole 0.8–15 cm; leaf blade 1- or 2-ternate, 5–10 cm; petiolule 0.5–1.2 mm; leaflet blade orbicular or cuneate-obovate, 0.7–2.2 × 0.7–2.9 cm, papery, base cordate, margin 3(–9)-lobed; lobes crenate, apex obtuse or sometimes very shortly mucronate; veins abaxially prominent, adaxially inconspicuous. Inflorescence terminal or axillary, paniculate, several flowered. Sepals 4, early deciduous, white, obovate, 3.7–4.2 mm. Stamens ca. 30; filament whitish, 2.4–2.7 mm, apex strongly dilated, narrower than anther; anther ca. 1–1.2 mm, apex obtuse. Carpels (5–)9–15; style 1.5–2.2 mm; stigma conspicuous. Achenes shortly stipitate; body narrowly cylindrical-ovoid, 2.5–3 mm; persistent style straight to circinate, 0.2–0.3 mm; veins 6–8, stout. Fl. Jun–Aug, fr. Sep–Oct.

• Sparse forests; ca. 2000 m. SW Yunnan (Lancang Lahu Zu Zi-zhixian).

This species is similar to *Thalictrum leve*, but differs in having much smaller leaflets and much longer styles.

32. *Thalictrum laxum* Ulbrich, Notizbl. Bot. Gart. Berlin-Dahlem 9: 225. 1925.

疏序唐松草 *shu xu tang song cao*

Plants ca. 70 cm tall, glabrous. Stems branched. Leaf blade 2-ternate; petiolule 20–40 mm; leaflet blade ovate or narrowly so, 5–8 × 3–5 cm, papery, base rounded, subtruncate, or shallowly cordate, margin unevenly 2–

6-toothed on each side, apex subacute; veins raised abaxially; lateral leaflets smaller, shortly petiolulate. Inflorescence terminal or axillary, paniculate, ca. 7.5 cm. Bracts linear, 2–5 mm. Sepals early deciduous. Stamens many; filament filiform, 2–3 mm; anther linear, ca. 1 mm. Carpels 6–8; style circinate, ca. 1 mm. Achenes cylindrical-ovoid, ca. 2 mm. Fl. Mar.

• W Hubei.

This species is similar to both *Thalictrum faberi* and *T. grandidentatum*, but differs from the former species in having leaflets obtusely toothed apically, inflorescence pubescent, and filaments slender, and from the latter species in having leaflets slightly cordate at the base, inflorescence pubescent, filaments slender, and achenes few. *Thalictrum laxum* is also similar to *T. robustum*, which differs in having stems and leaves glabrous and leaflets acutely toothed apically.

33. *Thalictrum leuconotum* Franchet, Pl. Delavay. 15. 1889.

白茎唐松草 bai jing tang song cao

Thalictrum macrostigma Finet & Gagnepain (1906), not Edgeworth (1846), nor Lecoyer (1885); *T. mairei* H. Léveillé; *T. sinomacrostigma* W. T. Wang.

Plants 0.5–1.5 m tall, glabrous. Stems branched, sulcate. Leaves both basal and cauline; stipules membranous, margin entire; petiole ca. 10 cm; leaf blade 3-ternate or -pinnate, 6–14 cm; leaflet blade cuneate-obovate, orbicular-rhombic, or orbicular, 7–9 × 4.5–12 mm, herbaceous, base cuneate, orbicular, or subcordate, apex rounded, 3-lobed; veins flat on both surfaces.

Inflorescence racemose. Pedicel 3–10 mm. Sepals 4, deciduous, yellow, tinged greenish, ovate, 3–4 mm. Stamens 6–7 mm; filament filiform; anther oblong, ca. 2 mm, apex mucronate. Carpels 2–5; style persistent, recurved, ca. 1.2 mm; stigma narrowly winged. Achene stipe slender; body lunate, ca. 8 × 2 mm. Fl. May–Jun.

• Grassy slopes; 2500–3800 m. S Qinghai, W Sichuan, NW Yunnan.

This species is similar to *Thalictrum rutifolium*, which differs in having small sepals and short, wingless stigmas.

34. *Thalictrum leve* (Franchet) W. T. Wang, Acta Phytotax. Sin. 31: 211. 1993.

鹤庆唐松草 he qing tang song cao

Thalictrum scabrifolium Franchet var. *leve* Franchet, Pl. Delavay. 17. 1889.

Plants ca. 60 cm tall, glabrous. Stems branched, erect, sulcate or sometimes smooth. Leaves both basal and cauline; petiole 2–9 cm; leaf blade 2- or 3-ternate, 10–18 cm; leaflet blade orbicular or cuneate-obovate, 1–2.8 × 1–4.6 cm, papery, base cordate, margin 6–9-lobed; lobes crenate. Inflorescence terminal or axillary, pleiochasial, flat topped, many flowered. Sepals 4, early deciduous, whitish green, ca. 3.5 mm. Stamens many; filament whitish, 3–4 mm, apex strongly dilated, slightly narrower than anther; anther ca. 1 mm, apex obtuse. Carpels 4–15; style 0.2–0.3 mm; stigma conspicuous. Achenes sessile; body narrowly cylindrical-ovoid, 1–3 mm; persistent style straight, 0.2–0.3 mm; veins 6–8, stout. Fl. Aug–Sep.

• Forested and stony hills, meadows in forests; ca. 1900 m. NW Yunnan (Heqing Xian).

This species differs from *Thalictrum scabrifolium* in being glabrous and having leaflets with fewer crenate lobes and much shorter styles. *Thalictrum leve* may be synonymous with *T. calcicola* T. Shimizu (Acta Phytotax. Geobot. 24: 41. 1969), described from N Thailand, as was noted by Tamura (J. Phytogeogr. Taxon. 28: 16. 1980; and in Thai Forest Bull., Bot. 25: 980. 1997), but further study is required. If the two taxa are indeed conspecific, then the name *T. calcicola* has priority.

35. *Thalictrum macrorhynchum* Franchet, J. Bot. (Morot) 4: 302. 1890.

长喙唐松草 chang hui tang song cao

Plants 45–65 cm tall, glabrous. Stems branched. Leaves both basal and cauline; stipules membranous, margin entire; petiole ca. 8 cm; leaf blade 2- or 3-ternate, 9.5–13 cm; petiolule 0.9–1.6 mm; leaflet blade broadly obovate or orbicular, (1.4–) 2–4 × (1.2–) 2.5–4 cm, herbaceous, base rounded or subcordate, apex 3-lobed; veins slightly raised abaxially, flat adaxially. Inflorescence paniculate. Pedicel 1.2–3.2 mm. Sepals early deciduous, white, elliptic, ca. 3.5 mm. Stamens ca. 4 mm; filament narrowly oblanceolate, broader than anther; anther elliptic, 0.8–1 mm. Carpels 10–20; style circinate, ca. 2.2 mm, equaling ovary. Achene stipe ca. 0.8 mm; body narrowly ovoid, 7–9 mm; veins ca. 8. Fl. Jun.

• Forests, scrub; 900–2900 m. Gansu, Hebei, Hubei, Shaanxi, Shanxi, Sichuan.

36. *Thalictrum microgynum* Lecoyer ex Oliver, Hooker's Icon. Pl. 18: t. 1766. 1888.

小果唐松草 xiao guo tang song cao

Thalictrum scaposum W. E. Evans.

Plants 20–40 cm tall, glabrous. Stems branched. Basal leaf 1; petiole 8–15 cm; leaf blade 2- or 3-ternate, 10–15 cm; petiolule long; leaflet blade cuneate-obovate, rhombic, or ovate, 2–6.5(–9.5) × 1.5–4(–5) cm, herbaceous, apex entire, toothed, or 3-lobed; veins flat on both surfaces. Inflorescence umbel-like. Bracts spatulate, ca. 1.5 mm. Pedicel filiform, ca. 15 mm. Sepals early deciduous, white, narrowly elliptic, ca. 1.5 mm. Stamens 3.5–6.5 mm; filament base filiform, apex oblanceolate, broader than anther; anther ca. 1 mm, apex mucronate. Carpels 6–15. Achene stipe slender, ca. 1.2 mm; body narrowly ovoid, ca. 1.6 mm; veins ca. 6. Fl. Apr–Jul.

Forests, slopes, damp rocky ledges; 700–2800 m. Hubei, Hunan, Shanxi, Sichuan, Yunnan [N Myanmar].

37. *Thalictrum minus* Linnaeus, Sp. Pl. 1: 546. 1753.

亚欧唐松草 ya ou tang song cao

Plants glabrous. Cauline leaf petiole ca. 4 cm; leaf blade 4-ternate or -pinnate, ca. 20 cm; leaflet blade cuneate-obovate, broadly obovate, orbicular, or narrowly rhombic, 0.7–4(–5) × 0.4–4(–5) cm, papery or thinly leathery, abaxially greenish, sometimes

powdery white, base cuneate to rounded, margin 3-lobed; veins raised abaxially, sometimes inconspicuous. Inflorescence paniculate, ca. 30 cm. Pedicel 3–30 mm. Sepals 4, deciduous, greenish tinged, narrowly elliptic, ca. 3.5 mm. Stamens many, ca. 6 mm; filament filiform; anther narrowly oblong, ca. 2 mm, apex mucronate. Carpels 3–5; stigma triangular winged. Achenes sessile; body narrowly ellipsoid, ca. 3.5 mm; veins ca. 8. Fl. Jun–Jul.

Forests, scrub, mountains, slopes, damp rocky ledges, field margins; 1400–2700 m. Anhui, Gansu, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang [temperate Asia and Europe].

1a. Pedicel 15–30 mm 37c. var. *kemense*

1b. Pedicel 3–8 mm.

2a. Leaflet blade 0.7–1.5 × 0.4–1.3 cm 37a. var. *minus*

2b. Leaflet blade 1.5–4(–5) × 1.5–4(–5) cm 37b. var. *hypoleucum*

37a. *Thalictrum minus* var. *minus*

亚欧唐松草(原变种) *ya ou tang song cao* (yuan bian zhong)

Leaflet blade 0.7–1.5 × 0.4–1.3 cm, abaxially greenish; veins raised abaxially. Pedicel 3–8 mm. Fl. Jun–Jul.

Forests, scrub, slopes, field margins; 1400–2700 m. Gansu, Qinghai, Shanxi, Xinjiang [temperate Asia and Europe].

37b. *Thalictrum minus* var. *hypoleucum* (Siebold & Zuccarini) Miquel, Ann. Mus. Bot. Lugduno-Batavi 3: 3. 1867.

东亚唐松草 *dong ya tang song cao*

Thalictrum hypoleucum Siebold & Zuccarini, Abh.

Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4(2): 178.

1846; *T. amplissimum* H. Léveillé & Vaniot; *T. minus* var. *amplissimum* (H. Léveillé & Vaniot) H. Léveillé; *T. minus* var. *elatum* Lecoyer; *T. minus* var. *majus* Miquel; *T. minus* var. *thunbergii* (de Candolle) Voroschilov; *T. purdomii* Clark; *T. thunbergii* de Candolle; *T. thunbergii* var. *majus* (Miquel) Nakai.

Leaflet blade 1.5–4(–5) × 1.5–4(–5) cm, abaxially powdery white; veins raised abaxially. Pedicel 3–8 mm. Fl. Jun–Jul.

Forest margins, damp rocky ledges; ca. 1400 m. Anhui, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan [Japan, Korea].

37c. *Thalictrum minus* var. *kemense* (Fries) Trelease, Proc. Boston Soc. Nat. Hist. 23: 300. 1888.

长梗亚欧唐松草 *chang geng ya ou tang song cao*

Thalictrum kemense Fries, Fl. Hall. 95. 1817; *T.*

kemense var. *stipellatum* C. A. Meyer ex Maximowicz;

T. minus subsp. *kemense* (Fries) Cajander; *T. minus*

var. *stipellatum* (C. A. Meyer ex Maximowicz) Tamura.

Leaflet blade abaxially greenish; veins inconspicuously raised abaxially. Pedicel 15–30 mm. Fl. Jun–Jul.

Mountains; ca. 2500 m. Xinjiang [N Asia, N Europe].

38. *Thalictrum myriophyllum* Ohwi, Acta Phytotax. Geobot. 2: 156. 1933.

密叶唐松草 *mi ye tang song cao*

Plants 35–70 cm tall, glabrous. Stems branched. Leaves both basal and cauline; petiole 2.4–5.8 cm; leaf blade 4-ternate, 5–10 cm; leaflet blade ovate, obovate, or orbicular, 3–8 × 2.5–5 mm, papery, both surfaces glabrous except veins sometimes pubescent, base rounded or cuneate, apex 3-lobed; lobes entire.

Inflorescence paniculate, few flowered. Pedicel ca. 10 mm. Sepals 4, deciduous, yellow-green, elliptic, 2–3 mm. Stamens ca. 25; filament 2–2.5 mm, apex oblanceolate; anther elliptic, 0.5–0.7 mm, apex mucronate. Carpels 5–12; style persistent, slightly circinate. Achenes sessile; body fusiform, 2–3 mm; veins ca. 8. Fl. Jul.

• Forests, forest margins, mountains, open areas; above 3000 m. N Taiwan.

39. *Thalictrum oligandrum* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 16. 1890.

稀蕊唐松草 *xi rui tang song cao*

Plants 20–60 cm tall, glabrous. Stems simple or distally branched. Leaves all basal; stipules membranous, margin toothed; petiole 3.8–4.6 cm; leaf blade 3-ternate, ca. 6 cm; petiolule slender, 1.5–4 mm; leaflet blade cuneate-obovate or broadly obovate, 1–1.5 × 0.9–1.2 cm, herbaceous, base rounded or broadly cuneate, apex rounded, 3-lobed; veins flat on both surfaces.

Inflorescence paniculate, few branched. Pedicel slender, 2–12 mm. Sepals 4, deciduous, white, elliptic-ovate. Stamens 3–7; filament narrowly linear; anther yellow, elliptic, ca. 0.5 mm. Carpels 6–10; style short. Achene stipe 1–3.5 mm; body rhombic-ovoid, 2–3 mm; veins ca. 6, weak. Fl. Jul.

• Montane forests; 2600–3300 m. Gansu, Qinghai, Shanxi, Sichuan.

This species is similar to *Thalictrum umbricola*, but differs in having few-flowered, paniculate inflorescences and few stamens.

40. *Thalictrum omeiense* W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 617. 1979.

峨眉唐松草 *e mei tang song cao*

Plants 50–80 cm tall, glabrous. Stems branched. Leaves both basal and cauline; stipules 1–2.5 mm wide; petiole 10–12 cm; leaf blade 3-ternate, 16–25 cm; leaflet blade cuneate-obovate, obovate, or broadly ovate, 3–6.8 × 2–5 cm, papery, base broadly cuneate, apex 3-lobed; lobes toothed; veins raised abaxially, flat adaxially.

Inflorescence paniculate, many flowered. Pedicel 4–5 mm. Sepals 4, early deciduous, white, obovate, ca. 3 × 2 mm. Stamens many, 2–5 mm; filament base filiform, apex clavate, narrower than anther; anther yellow, elliptic, 0.5–0.8 mm, apex obtuse. Carpels 12–16; style straight or slightly curved, shorter than ovary. Achene body narrowly ovoid, 1.5–2.5 mm; veins ca. 6. Fl. Jul, fr. Aug.

• Streamsides, damp rocky ledges; 700–2000 m. C Sichuan (Emei Xian, Hongya Shan).

This species is similar to *Thalictrum faberi* and *T. grandidentatum*, but differs in having leaflets cuneate-obovate, obovate, or broadly ovate, with the lobe teeth apically rounded.

41. *Thalictrum osmundifolium* Finet & Gagnepain, Bull. Soc. Bot. France 50: 615. 1904.

川鄂唐松草 *chuan e tang song cao*

Plants 80–100 cm tall, glabrous. Stems branched, sulcate. Basal and proximal cauline leaves withered at anthesis. Cauline leaf stipules semiorbicular; petiole 1.8–2.3 cm; leaf blade 3- or 4-pinnate, 15–26 cm; leaflet blade ovate, broadly so, cuneate-obovate, or rhombic, 1.5–3 × 1–1.7(–2.3) cm, herbaceous, base rounded or subcordate, apex 3-lobed; lobes entire; veins flat on both surfaces. Inflorescence paniculate, ca. 30 cm. Pedicel slender, 8–25 mm. Sepals 4(or 5), deciduous, elliptic-ovate; 3–5 × ca. 2 mm. Stamens ca. 6 mm; filament narrowly linear, narrower than anther; anther 2–2.5 mm, apex mucronate. Carpels 12–14; style short; stigma elliptic. Achenes sessile; body obliquely narrowly obovoid, ca. 8 mm; veins ca. 8, stout. Fl. Jun. • Scrub, streamsides; 1400–1600 m. W Hubei, Sichuan.

42. *Thalictrum petaloideum* Linnaeus, Sp. Pl., ed. 2, 1: 771. 1762.

瓣蕊唐松草 *ban rui tang song cao*

Plants 18–80 cm tall, glabrous. Stems branched. Leaves all basal; petiole ca. 10 cm; leaf blade 3- or 4-ternate or -pinnate, 5–15 cm; petiolule 5–7 mm; leaflet blade narrowly oblong, lanceolate, narrowly ovate, rhombic, obovate, or orbicular, 0.3–1.2 × 0.2–1.5 cm, herbaceous, base cuneate or rounded-cuneate, apex 3-lobed; lobes entire; veins flat on both surfaces. Inflorescence flat topped, few or many flowered. Pedicel 5–25 mm. Sepals 4, early deciduous, white, ovate, 3–5 mm. Stamens many, 5–12 mm; filament oblanceolate, broader than anther; anther narrowly oblong, 0.7–1.5 mm, apex obtuse. Carpels 4–13; style ca. 1 mm. Achenes sessile; body ovoid, 4–6 mm; veins ca. 8. Fl. Jun–Jul.

Grassy slopes, dry slopes, meadows, field margins; 700–3000 m. E Anhui, Gansu, Hebei, W Henan, Heilongjiang, Hubei, Jilin, Liaoning, Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shandong, Shanxi, NW Sichuan, Zhejiang [Korea, Mongolia, Russia (Siberia)].

1a. Leaflet blade rhombic, obovate, or orbicular 42a. var. *petaloideum*

1b. Leaflet blade narrowly oblong, lanceolate, or narrowly ovate 42b. var. *supradecompositum*

42a. *Thalictrum petaloideum* var. *petaloideum*

瓣蕊唐松草(原变种) *ban rui tang song cao* (*yuan bian zhong*)

Thalictrum petaloideum var. *latifoliolatum* Kitagawa.

Leaflet blade rhombic, obovate, or orbicular. Fl. Jun–Jul.

Grassy slopes; 700–3000 m. E Anhui, Gansu, Hebei, W Henan, Heilongjiang, Hubei, Jilin, Liaoning, Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shandong, Shanxi, NW Sichuan, Zhejiang [Korea, Mongolia, Russia (Siberia)].

42b. *Thalictrum petaloideum* var. *supradecompositum* (Nakai) Kitagawa, Lin. Fl. Manshur. 227. 1939.

狭裂瓣蕊唐松草 *xia lie ban rui tang song cao*

Thalictrum supradecompositum Nakai, Bot. Mag. (Tokyo) 46: 54. 1932.

Leaflet blade narrowly oblong, lanceolate, or narrowly ovate. Fl. Jun–Jul.

• Dry slopes, meadows, field margins. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol.

43. *Thalictrum philippinense* C. B. Robinson, Bull. Torrey Bot. Club 35: 65. 1908.

菲律宾唐松草 *fei lu bin tang song cao*

Plants ca. 18 cm tall, glabrous. Stems branched. Leaves basal; petiole ca. 7 cm; leaf blade 3-ternate, ca. 5 cm; petiolule short; leaflet blade broadly ovate, broadly obovate, or orbicular, 1–1.4 × 1–1.6 cm, herbaceous, base rounded or subcordate, apex 3-lobed; veins raised abaxially, flat adaxially. Cauline leaves 2, 1.7–2 cm, shortly petiolate; leaf blade 1- or 2-ternate.

Inflorescence monochasial, few flowered. Pedicel 2–5 mm, to ca. 12 mm in fruit. Carpels 5; style ca. 0.8 mm. Achene stipe ca. 2 mm; body ellipsoid, laterally compressed, ca. 3.5 × 1.2 mm; veins ca. 3, weak. Fl. Apr–Jun.

Steep damp slopes; ca. 1600 m. Hainan [Philippines].

This species is similar to *Thalictrum urbainii*, which differs in having leathery leaflets; it also is similar to *T. umbricola*, which differs in having styles long and circinate and stigmas linear, ca. 0.8 mm.

44. *Thalictrum przewalskii* Maximowicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg, Sér. 3, 23: 305. 1877.

长柄唐松草 *chang bing tang song cao*

Plants 50–120 cm tall, mostly glabrous. Stems branched. Basal and proximal cauline leaves withered at anthesis. Proximal cauline leaf stipules semiorbicular, membranous, margin irregularly lobed; petiole ca. 6 cm; leaf blade 4-ternate, ca. 28 cm; leaflet blade ovate, rhombic-elliptic, obovate, or orbicular, 1–3 × 0.9–2.5 cm, herbaceous, base broadly cuneate, rounded, or subcordate, apex 3-lobed; veins raised abaxially, pubescent. Inflorescence paniculate, pubescent. Pedicel 3–5 mm. Sepals early deciduous, white or greenish yellow, narrowly ovate, 2.5–5 mm. Stamens many, 4.5–10 mm; filament base whitish, filiform, apex linear-lanceolate, narrower than anther; anther ca. 0.8 mm. Carpels 4–9; style ca. 1 mm, equaling ovary. Achene stipe 0.8–3 mm; body obliquely obovoid, 0.6–1.2 mm; veins ca. 4. Fl. Jun–Aug.

• Forests, scrub margins, grassy slopes; 800–3500 m. Gansu, Hebei, Henan, Hubei, S Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, E Xizang.

The fruits are used medicinally.

45. *Thalictrum ramosum* B. Boivin, J. Arnold Arbor. 26: 115. 1945.

多枝唐松草 *duo zhi tang song cao*

Plants 12–45 cm tall, glabrous. Rootlets never enlarged. Stems branched, sulcate. Leaves both basal and cauline; petiole 7–9 cm; leaf blade 2- or 3-ternate, 7–15 cm; leaflet blade broadly ovate, broadly obovate, or orbicular, 0.7–2 × 0.5–1.5 cm, herbaceous, base rounded or subcordate, apex obtuse, inconspicuously 3-lobed; lobes acute at apex; veins raised abaxially, flat adaxially. Inflorescence monochasial. Pedicel filiform, 5–10 mm. Sepals 4, early deciduous, white, tinged purplish, ovate, ca. 2 mm. Filament base filiform, 4–6 × as long as anther, apex narrowly oblanceolate; anther tinged yellow, ca. 0.7 mm. Carpels (6–)8–16; style recurved, slender, ca. 2 mm, slightly longer than ovary. Achenes sessile; body narrowly ovoid or lanceolate, 3.5–4.5 mm; veins ca. 8. Fl. Apr, fr. May–Jun.

• Scrub, hills; 500–1000 m. Guangxi, Hunan, Sichuan.

This species is similar to *Thalictrum fortunei*, but differs in having small sepals and many narrowly ovoid achenes; it is also similar to *T. javanicum*, which differs in being taller and having inflorescences much branched and many flowered, sepals long, and filaments broader than anthers.

Thalictrum ramosum is used medicinally.

46. *Thalictrum reniforme* Wallich, Pl. Asiat. Rar. 2: 26. 1831.

美丽唐松草 mei li tang song cao

Thalictrum menthosma Stocks ex Lecoyer; *T. neurocarpum* Royle.

Plants 0.8–1.5 m tall, glandular pubescent. Stems branched. Basal leaves withered at anthesis. Cauline leaf petiole 2–6 cm; leaf blade 3-pinnate, ca. 20 cm; leaflet blade broadly ovate, orbicular-ovate, or rhombic-obovate, 1.2–2.5 × 1.5–3.2 cm, herbaceous, abaxially glandular pubescent, base rounded or subcordate, margin 3-lobed; lobes entire or few crenate; veins slightly raised abaxially. Inflorescence paniculate, 20–30 cm. Pedicel 0.8–2.5 mm, glandular pubescent. Sepals 4, reddish pink, ovate or orbicular-ovate, 9–13 × 6–10 mm. Stamens many, ca. 8 mm; filament filiform; anther yellow, linear, 3–4 mm, apex mucronate. Carpels 15–20; style ca. 1.5 mm, slightly longer than ovary; stigma oblong. Achenes glandular pubescent; stipe ca. 1.5 mm; body obliquely narrowly obovoid, compressed, ca. 6 × 2.6 mm; veins ca. 3, weak. Fl. Jul–Oct.

Picea forests, scrub, slopes; 3100–3700 m. S Xizang [Bhutan, Nepal, Sikkim].

This species is similar to *Thalictrum diffusiflorum*, but differs in having leaflets larger and inflorescences with longer, glandular hairs; it is also similar to *T. chelidonii*, which differs in being glabrous and having cauline leaves with axillary buds; it is also similar to *T. delavayi*, which differs in being glabrous and having persistent, short styles and narrowly winged achenes.

47. *Thalictrum reticulatum* Franchet, Bull. Soc. Bot. France 33: 371. 1886.

网脉唐松草 wang mai tang song cao

Plants 25–40 cm tall, glabrous or subglabrous. Stems branched, sulcate. Leaves basal; stipules narrow, margin irregularly lobed; petiole 5.5–7.5 cm; leaf blade 3-ternate, 3.5–5 cm; leaflet blade broadly ovate or broadly rhombic, (0.5–)1–1.8 × (0.5–)1.3–2.2 cm, papery or thinly leathery, both surfaces glabrous or abaxially hispidulous along veins, base rounded or subcordate, apex rounded or obtuse, 3-lobed; lobes slightly toothed; veins raised abaxially, flat adaxially. Inflorescence pleiochasial, flat topped, ca. 10 cm, many flowered. Pedicel 3–7 mm. Sepals 4, early deciduous, white, broadly obovate, ca. 3 × 2 mm. Stamens 25–30; filament base filiform, apex oblanceolate, as broad as or broader than anther; anther oblong, apex obtuse or mucronate. Carpels 4–6; style short. Achenes sessile; body narrowly ovoid, 2–2.7 mm; veins ca. 8. Fl. Jun.

• Forests, scrub, grassy slopes; 2000–2500 m. Sichuan, Yunnan.

- 1a. Leaflet blade glabrous on both surfaces 47a. var. *reticulatum*
1b. Leaflet blade abaxially hispidulous along veins 47b. var. *hirtellum*

47a. *Thalictrum reticulatum* var. *reticulatum*

网脉唐松草(原变种) wang mai tang song cao (yuan bian zhong)

Leaflet blade glabrous on both surfaces.

• Forests, grassy slopes; 2200–2500 m. Sichuan, Yunnan.

This variety is used medicinally.

47b. *Thalictrum reticulatum* var. *hirtellum* W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 618. 1979.

毛叶网脉唐松草 mao ye wang mai tang song cao

Leaflet blade abaxially hispidulous along veins.

• Scrub; ca. 2100 m. Sichuan.

48. *Thalictrum robustum* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 18. 1890.

粗壮唐松草 cu zhuang tang song cao

Thalictrum clematidifolium Franchet; *T. falcatum* Pampanini.

Plants (0.5–)0.8–1.5 m tall, pubescent or glabrous. Stems branched. Basal and proximal cauline leaves withered at anthesis. Cauline leaf stipules membranous, irregularly lobed distally; petiole 3–7 cm; leaf blade 2- or 3-ternate, ca. 25 cm; petiolule 0.6–2 cm; leaflet blade ovate, (3–)6–8.5 × (1.3–)3–5 cm, herbaceous or papery, abaxially pubescent, base rounded or subcordate, apex acute or shortly acuminate, 3-lobed; veins raised abaxially. Inflorescence paniculate, many flowered. Pedicel 1.5–3 mm, pubescent. Sepals 4, early deciduous, elliptic, ca. 3 mm. Stamens many; filament base filiform, apex linear-oblanceolate, narrower than anther; anther narrowly oblong, ca. 1 mm, apex obtuse. Carpels 6–16; style circinate, 0.6–0.8 mm. Achenes sessile;

body ovoid-fusiform, 1.5–3 mm; veins 7 or 8. Fl. Jun–Jul.

• Forests, wet meadows, damp rocky ledges; 900–2100 m. Gansu, Henan, Hubei, Shanxi, Sichuan.

49. *Thalictrum rostellatum* J. D. Hooker & Thomson, Fl. Ind. 15. 1855.

小喙唐松草 *xiao hui tang song cao*

Plants 40–60 cm tall, glabrous. Stems branched. Basal and proximal cauline leaves withered at anthesis. Cauline leaf stipule margin entire; petiole 1–3 cm; leaf blade 3-ternate, 6–12 cm; petiolule slender, 0.6–1.8 mm; leaflet blade broadly ovate or orbicular, 0.8–1.7 × 0.8–1.7 cm, herbaceous, abaxially minutely puberulent, base subcordate, apex rounded or obtuse, 3-lobed; lobes acute at apex; veins flat on both surfaces. Inflorescence monochasial, few flowered. Pedicel slender, 3–12 mm, minutely puberulent. Sepals white, ovate or narrowly so, 2–3 mm. Stamens 8–12; filament filiform; anther oblong, ca. 1 mm, apex obtuse. Carpels 4–7; style hooked-curved, ca. 3 mm. Achene stipe 0.8–1 mm; body obliquely narrowly ovoid or cylindric, laterally compressed, ca. 7 × 1.2 mm; veins ca. 8, weak. Fl. May.

Forests, damp rocky ledges; 2500–3200 m. W Sichuan, S Xizang, NW Yunnan [Bhutan, NW India (Simla), Nepal, Sikkim].

50. *Thalictrum rotundifolium* de Candolle, Syst. Nat. 1: 185. 1817.

圆叶唐松草 *yuan ye tang song cao*

Plants 30–40 cm tall, glabrous. Stems simple or branched, erect, smooth. Cauline leaf stipules oblong-auriculate, margin entire; petiole 2–5 cm; leaf blade simple, broadly ovate or orbicular, 3–6 cm wide, abaxially glandular and finely reticulate, base rounded or cordate, margin 2–4-lobed; veins raised abaxially, flat adaxially. Inflorescence paniculate, flat topped, many branched. Pedicel 4–9 mm. Sepals deciduous, white, elliptic, ca. 5 mm. Filament filiform; anther yellow. Carpels 20–30. Achenes sessile; body ellipsoid or cylindric, ca. 2.5 mm. Fl. Apr–Jul.

Xizang [Nepal].

51. *Thalictrum rubescens* Ohwi, Acta Phytotax. Geobot. 2: 156. 1933.

淡红唐松草 *dan hong tang song cao*

Plants 10–20 cm tall, glabrous. Stems simple or distally shortly branched. Leaves all basal; stipules narrow; petiole 2–6 cm; leaf blade 3-ternate, 3–6 cm; leaflet blade elliptic, ovate-orbicular, or orbicular, 0.5–1 cm, papery, abaxially powdery white, base rounded or obtuse, apex obtuse or subacute, 3-lobed; lobes entire; veins flat on both surfaces. Inflorescence monochasial, 1- or 2 flowered. Pedicel 2–5 cm. Sepals white, narrowly elliptic, 5–6 mm. Anthers yellow, narrowly ovate, apex obtuse. Carpels 30–50; style circinate, ca. 1 mm. Achene stipe 0.3–0.5 mm; body fusiform, compressed, ca. 5 mm; veins ca. 8. Fl. Jun–Jul.

• Wet places at high elevations. N Taiwan.

52. *Thalictrum rutifolium* J. D. Hooker & Thomson, Fl. Ind. 14. 1855.

芸香叶唐松草 *yun xiang ye tang song cao*

Plants 10–15 cm tall, glabrous. Stems branched. Leaves both basal and cauline; stipules membranous, margin lobed; petiole ca. 6 cm; leaf blade 3- or 4-pinnate, 3–11 cm; leaflet blade cuneate-obovate, rhombic, elliptic, or orbicular, 0.3–0.8 × 0.2–0.7 cm, herbaceous, base cuneate or rounded, apex rounded, 3-lobed; lobes entire; veins flat on both surfaces. Inflorescence pleiochasial, long and racemelike. Pedicel 2–7 mm. Sepals 4, early deciduous, purplish tinged, ovate, ca. 1.5 × 1 mm. Stamens 4–18(–30), 2–3 mm; filament filiform; anther elliptic, 0.5–1.5 mm, apex mucronate. Carpels 3–5; style recurved, ca. 0.3 mm. Achene stipe ca. 1 mm; body falcate, slightly compressed, 4–6 mm; veins ca. 8. Fl. Jun.

Valleys, slopes, riversides; 2300–4300 m. Gansu, Qinghai, W Sichuan, Xizang, Yunnan [Sikkim].

53. *Thalictrum saniculiforme* de Candolle, Prodr. 1: 12. 1824.

叉枝唐松草 *cha zhi tang song cao*

Thalictrum radiatum Royle; *T. rupestre* Madden ex Lecoyer.

Plants 18–30 cm tall, glabrous. Stems often branched, erect, smooth. Leaves both basal and cauline; petiole 5.5–7 cm; leaf blade 2- or 3-ternate, 4.5–12 cm; petiolule 3–18 mm; leaflet blade broadly obovate, 1.5–2.5 × 1.3–2.3 cm, papery, both surfaces pubescent, base cuneate, rounded, or subcordate, margin slightly 3-lobed; lobes crenate, apex obtuse; veins raised. Inflorescence terminal or axillary, monochasial, few flowered. Sepals early deciduous, greenish white, ovate-elliptic, ca. 3.5 mm. Stamens 25–70; filament weakly dilated distally to filiform, 3–4 mm; anther yellow-white, ca. 1 mm, apex mucronate. Carpels 10–40; style circinate; stigma inconspicuous. Achenes sessile; body narrowly ovoid, ca. 2.5 mm; veins ca. 8, stout. Fl. Aug–Sep.

Slopes or meadows in forests; 2300–2500 m. S Xizang (Nyalam Xian), W Yunnan (Fengqing Xian) [?Bhutan, N India, Nepal, Sikkim]. This species is similar to *Thalictrum leve*, but differs in having unevenly branched and few-flowered inflorescences and achenes many per flower.

54. *Thalictrum scabrifolium* Franchet, Bull. Soc. Bot. France 33: 371. 1886.

糙叶唐松草 *cao ye tang song cao*

Plants 25–40 cm tall, pubescent. Stems branched, erect, smooth. Leaves both basal and cauline; petiole 8–15 cm; leaf blade 2- or 3-ternate; leaflet blade orbicular, 2–5.5 × 2–6 cm, papery, base cordate, margin toothed. Inflorescence terminal or axillary, pleiochasial, flat topped, many flowered. Sepals 4, early deciduous, whitish green, ca. 3.5 mm. Stamens many; filament whitish, 3–4 mm, apex strongly dilated, narrower or

sometimes slightly broader than anther; anther ca. 1 mm, apex obtuse. Carpels 6–15; style ca. 0.6 mm; stigma conspicuous. Achenes sessile; body narrowly cylindrical-ovoid, 2–3 mm; persistent style strongly hooked or circinate, 0.5–0.6 mm; veins ca. 8, stout. Fl. Aug–Sep.

• Forest margins; ca. 2000 m. C Yunnan (Binchuan Xian to Kunming Shi).

This species is similar to *Thalictrum leve* and *T. yunnanense* (see notes under those species).

55. *Thalictrum shensiense* W. T. Wang & S. H. Wang, Fl. Tsinling. 1(2): 603. 1974.

陕西唐松草 shan xi tang song cao

Plants ca. 70 cm tall, pubescent. Stems simple, sulcate. Cauline leaf petiole ca. 1.5 cm; leaf blade 3- or 4-ternate, ca. 12 cm; petiolule pubescent, 1–5 mm; leaflet blade cuneate-obovate, broadly rhombic, or broadly ovate, 1.2–2.2 × 0.7–2 cm, papery, abaxially pubescent, base cuneate, rounded, or subcordate, margin 3-lobed; lobes entire or 2-toothed, apex rounded, obtuse, or acute; veins flat on both surfaces. Inflorescence paniculate, ca. 13 cm, densely flowered. Pedicel 2–4 mm, pubescent. Sepals 4, deciduous, elliptic, ca. 3 × 1.8 mm, pubescent abaxially. Stamens ca. 7 mm, glabrous; filament filiform; anther narrowly oblong, ca. 2 mm, apex mucronate. Carpels ca. 3; stigma narrowly triangular. Achenes sessile. Fl. Jul–Aug.

• Mountain slopes. SE Shaanxi (Xunyang Xian).

This species is similar to *Thalictrum minus* var. *hypoleucum*, but differs in being pubescent and having wingless stigmas.

56. *Thalictrum simaoense* W. T. Wang & G. Zhu in W. T. Wang et al., Phytologia 79: 385. 1996.

思茅唐松草 si mao tang song cao

Plants 9–15 cm tall, glabrous. Stems branched. Leaves all basal, 7–13 cm, long petiolate; leaf blade 2-ternate, 5–9 × 6–8 cm; petiolule slender, 0.6–1.8 mm; leaflet blade suboblong, orbicular-ovate, or reniform, 0.9–1.8 × 1–2.8 cm, papery, abaxially pubescent, base subcordate, apex rounded or obtuse, 3-lobed; lobes acute at apex; veins flat on both surfaces. Inflorescence monochasial, 2(or 3)-flowered. Bracts shortly stipitate; blade temate, ca. 7 mm. Flowers ca. 1 cm diam.; pedicel slender, 1.7–2.2 mm. Sepals 4, white, elliptic or broadly so, 2–3 mm. Stamens 9–15, 3.5–4 mm; filament filiform, 2.2–3 mm; anther oblong, 1–1.2 mm, apex shortly acuminate. Carpels 10–13; style hooked apically to circinate, subulate, ca. 1.2 mm, subequaling ovary; stigma inconspicuous. Achenes sessile; body fusiform, ca. 1.9 × 0.5 mm.

• Cliffs; ca. 2000 m. SW Yunnan (Simao Xian).

This species is similar to *Thalictrum rostellatum*, which differs in having leaflets abaxially and pedicels minutely puberulent, anther apex obtuse, carpels 4–7, and achenes shortly stipitate.

57. *Thalictrum simplex* Linnaeus, Fl. Suec., ed. 2, 191. 1755.

箭头唐松草 jian tou tang song cao

Plants 50–100 cm tall, glabrous or glandular pubescent. Stems simple or proximally branched, smooth. Cauline leaves erect, proximal ones ca. 20 cm including petiole; leaf blade 2-pinnate; leaflet blade cuneate, narrowly so, orbicular-rhombic, broadly rhombic-ovate, or obovate, 2–4 × 1.4–4 cm, base narrowly cuneate to rounded, margin 3-lobed; lobes crenate, apex rounded, obtuse, or acute; veins raised abaxially. Distal cauline leaf blade small; leaflet blade cuneate-obovate, obovate, or orbicular, base obtuse or cuneate, apex acute. Inflorescence paniculate, 9–30 cm. Pedicel 1–7 mm. Sepals 4, early deciduous, narrowly elliptic, ca. 2.2 mm. Stamens ca. 15; filament filiform; anther narrowly oblong, ca. 2 mm, apex mucronate. Carpels 3–6; stigma broadly triangular. Achenes sessile; body narrowly ovoid or narrowly ellipsoid, ca. 2 mm; veins ca. 8. Fl. Jul.

Slopes, grasslands, wet meadows, rocky ledges; 900–2400 m. Gansu, Hebei, Heilongjiang, Hubei, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan Xinjiang [Japan, Korea, Mongolia, Russia (Siberia); C and SW Asia, Europe].

This species is used medicinally.

1a. Plants glandular pubescent . 57d. var. *glandulosum*
1b. Plants glabrous.

2b. Pedicel 1–4(–5) mm 57c. var. *brevipes*

2a. Pedicel 4–7 mm.

3a. Proximal cauline leaflet blade

orbicular-rhombic, broadly rhombic-ovate, or obovate 57a. var. *simplex*

3b. Proximal cauline leaflet blade

cuneate or narrowly so 57b. var. *affine*

57a. *Thalictrum simplex* var. **simplex**

箭头唐松草(原变种) jian tou tang song cao (yuan bian zhong)

Plants glabrous. Proximal cauline leaflet blade orbicular-rhombic, broadly rhombic-ovate, or obovate, base rounded; lobes crenate, apex rounded or obtuse. Pedicel ca. 7 mm. Fl. Jul.

Slopes, damp rocky ledges; 1400–2400 m. Nei Mongol, Xinjiang [C and SW Asia, Europe].

57b. *Thalictrum simplex* var. **affine** (Ledebour) Regel, Bull. Soc. Imp. Naturalistes Moscou 34: 44. 1861.

锐裂箭头唐松草 rui lie jian tou tang song cao

Thalictrum affine Ledebour, Fl. Ross. 1: 10. 1842.

Plants glabrous. Proximal cauline leaflet blade cuneate or narrowly so, base narrowly cuneate; lobes narrowly triangular, apex acute. Pedicel 4–7 mm.

Slopes, wet meadows. Heilongjiang, Jilin [Russia (Siberia)].

57c. *Thalictrum simplex* var. **brevipes** H. Hara, J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 6: 56. 1952.

短梗箭头唐松草 duan geng jian tou tang song cao

Plants glabrous. Proximal cauline leaflet blade cuneate; lobes narrowly triangular, apex acute. Pedicel 1–4(–5) mm.

Grasslands, rocky ledges. Gansu, Hebei, Hubei, Liaoning, Nei Mongol, Shaanxi, Shanxi, Qinghai, Sichuan [Japan, Korea].

57d. *Thalictrum simplex* var. *glandulosum* W. T. Wang in W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 620. 1979.

腺毛箭头唐松草 xian mao jian tou tang song cao

Plants glandular pubescent. Pedicel 1.5–2.5 × as long as achenes.

• SW Heilongjiang.

58. *Thalictrum smithii* B. Boivin, J. Arnold Arbor. 26: 114. 1945.

鞭柱唐松草 bian zhu tang song cao

Plants 30–90(–150) cm tall, glabrous. Stems simple or distally branched, smooth. Basal leaves withered at anthesis. Cauline leaf stipules narrow, margin irregularly lobed; petiole 1.5–5 cm; leaf blade 3-pinnate, 10–20 cm; petiolule pubescent; leaflet blade broadly rhombic or broadly ovate, 0.6–1.5 × 0.6–1.5 cm, herbaceous, both surfaces glabrous, base rounded to subcordate, margin 3-lobed; lobes few toothed; veins flat on both surfaces. Inflorescence paniculate, many flowered. Flowers unisexual or bisexual. Sepals 4, deciduous, yellow, tinged greenish, elliptic or elliptic-ovate, 1.5–2.8 mm. Stamens many, ca. 6 mm; filament filiform; anther oblong, 2.5–3 mm, apex mucronate. Carpels 6–9 in bisexual flowers, 10–20 in female flowers; ovary ovoid; stigma subulate. Achenes black; body ovoid, ca. 1.6 mm; veins ca. 8, stout. Fl. May–Jul(–Sep), fr. Oct.

• Forests, forest and thicket margins, slopes, field margins; 1500–3200 m. W Sichuan, S Xizang, Yunnan.

59. *Thalictrum sparsiflorum* Turczaninow ex Fischer & C. A. Meyer, Index Sem. Hort. Petrop. 1: 40. 1835.

散花唐松草 san hua tang song cao

Thalictrum clavatum Hooker (1829), not de Candolle (1818); *T. richardsonii* A. Gray.

Plants ca. 90 cm tall, glabrous. Roots dense, ca. 10 cm. Stems branched, smooth. Basal and proximal cauline leaves withered at anthesis. Cauline leaf petiole ca. 3 cm; leaf blade 3- or 4-ternate, 6–9 cm; leaflet blade obovate or orbicular, 1.3–2 × 1.2–1.8 cm, thinly herbaceous, base cuneate, rounded, or subcordate, margin 3-lobed; lobes crenate, apex shortly acute; veins flat on both surfaces. Inflorescence few flowered. Pedicel 0.5–1.5 mm, 10–30 mm in fruit. Sepals white, ovate, 2.5–3 mm. Stamens 10–15; filament filiform; anther ovate, ca. 1 mm, apex obtuse. Carpels 4–7; style equaling ovary, ca. 1 mm. Achene stipe 2–3 mm; body obliquely obovoid or hemiovoid, strongly compressed, ca. 7 mm; veins ca. 3. Fl. Jun.

Pinus forests, forest margins, slopes. E Heilongjiang, E Jilin [Korea, Russia; North America].

This species is similar to *Thalictrum przewalskii*, but differs in being glabrous and having stamens fewer, filaments narrower, and achenes stipitate and apically curved.

60. *Thalictrum squamiferum* Lecoyer, Bull. Soc. Roy. Bot. Belgique 16: 227. 1880.

石砾唐松草 shi li tang song cao

Schlagintweitiella fumarioides Ulbrich; *S. glareosa* (Handel-Mazzetti) Ulbrich; *Thalictrum cultratum* Wallich var. *tsangense* Brühl; *T. glareosum* Handel-Mazzetti.

Plants 6–20 cm tall, glabrous, powdery white, or sometimes glandular pubescent. Roots many, ca. 15 cm. Rhizomes present. Stems branched, ascending or erect. Cauline leaf petiole 0.3–1.5 cm; leaf blade 3- or 4-pinnate, 3–9 cm; leaflets sessile, ovate, broadly triangular-ovate, or cordate, 1–2 × 0.6 mm, thinly leathery, margin entire, revolute when dry; veins flat on both surfaces; lateral leaflets smaller, ovate, narrowly so, or elliptic. Inflorescence reduced to a solitary flower. Pedicel 1.5–6.5(–20) mm. Sepals 4, deciduous, yellow tinged, elliptic-ovate, 2–3 mm. Stamens 10–20; filament filiform; anther narrowly oblong, 1.8–2 mm, apex mucronate. Carpels 4–6; style persistent, ca. 0.8 mm. Achene body broadly ellipsoid, slightly compressed, ca. 3 mm; veins ca. 8, stout. Fl. Jul.

Forest margins, rocky slopes, damp rocky ledges; 3600–5000 m. S Qinghai, W Sichuan, S Xizang, NW Yunnan [Bhutan, Sikkim].

This species is used medicinally.

61. *Thalictrum squarrosum* Stephen ex Willdenow, Sp. Pl. 2: 1299. 1799.

展枝唐松草 zhan zhi tang song cao

Thalictrum dichotomum Steudel; *T. oligospermum*

Fischer ex Sweet; *T. repens* Schrader; *T. sibiricum*

Ledebour; *T. trigynum* Fischer ex Treviranus.

Plants 0.6–1.6 m tall, glabrous. Stems dichotomously branched, sulcate. Basal leaves withered at anthesis.

Cauline leaf petiole 1–4 cm; leaf blade 2- or 3-pinnate, 8–18 cm; leaflet blade oblong, cuneate-obovate, broadly obovate, or orbicular-ovate, 0.8–2(–3.5) × 0.6–1.5(–2.6) cm, papery or thinly leathery, abaxially powdery white, base cuneate to rounded, margin 3-lobed; lobes entire or 2- or 3-toothed, apex acute; veins flat on both surfaces. Inflorescence paniculate, dichotomously branched, flat topped. Pedicel slender, 1.5–3 mm. Sepals 4, deciduous, yellow, tinged greenish, narrowly ovate, ca. 3 × 0.8 mm. Stamens 5–15, 3–5 mm; filament filiform; anther ca. 2.2 mm, apex mucronate. Carpels 1–3(–5); stigma sagittate, ca. 0.6 mm. Achenes sessile; body narrowly obovoid or fusiform, 4–5.2 mm; veins ca. 8, stout. Fl. Jul–Aug.

Dry slopes, plain grasslands, field margins; 200–1900 m. N Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, N Shaanxi, Shanxi, NW Sichuan [Mongolia, Russia (Siberia)].

62. *Thalictrum tenue* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 5: 168. 1883.

细唐松草 xi tang song cao

Plants 25–70 cm tall, glabrous. Stems branched, smooth. Basal leaves withered at anthesis. Cauline leaf petiole 2–4 cm; leaf blade 3- or 4-pinnate, 5–17 cm; leaflet blade ovate or elliptic-obovate, 4–6 × 2–4 mm, herbaceous, base rounded, margin entire, apex rounded or obtuse; veins flat on both surfaces. Inflorescence monochasial, few flowered. Pedicel 7–30 mm. Sepals 4, deciduous, yellow, tinged greenish, obovate or elliptic, 2–3 mm. Stamens ca. 7 mm; filament filiform; anther

narrowly oblong, 2–2.8 mm, apex mucronate. Carpels 4–6; stigma persistent. Achene stipe ca. 0.7 mm; body narrowly obovoid, laterally compressed, ca. 6 × 2.2 mm; veins 2. Fl. Jun.

• Dry hill slopes, field margins. C Gansu, N Hebei, Nei Mongol, Ningxia, N Shaanxi, Shanxi.

63. *Thalictrum tenuisubulatum* W. T. Wang, Acta Bot. Yunnan. 4: 135. 1982.

钻柱唐松草 *zuan zhu tang song cao*

Plants ca. 40 cm tall, glabrous. Stems often branched, erect, smooth. Leaves both basal and cauline, 2–14 cm; leaf blade 3-ternate; petiolule 1.2–8 mm; leaflet blade broadly obovate, herbaceous, both surfaces pubescent, base cuneate, rounded, or subcordate, margin slightly 3-lobed; lobes crenate, apex obtuse; veins inconspicuous, flat abaxially. Inflorescence terminal or axillary, monochasial, 1- or 2-flowered. Sepals 4, white, elliptic, 7–8 × 4–5 mm. Stamens many, glabrous; filament narrowly linear or subfiliform; anther narrowly oblong, 1.5–1.8 mm. Carpels ca. 5; ovary fusiform, ca. 1.8 mm; style erect, ca. 2.2 mm; stigma conspicuously thicker than style, ?wingless. Achenes not seen. Fl. Aug–Sep.

• Mixed forests; ca. 3400 m. W Yunnan (Tengchong Xian).

This species is similar to *Thalictrum saniculiforme*, but differs in having leaflet veins inconspicuous, flat adaxially, sepals larger, carpels 5 (vs. 25–70), and style erect.

64. *Thalictrum trichopus* Franchet, Bull. Soc. Bot. France 33: 368. 1886.

毛发唐松草 *mao fa tang song cao*

Thalictrum tenii H. Léveillé.

Plants ca. 120 cm tall, glabrous. Stems branched, sulcate. Basal leaves withered at anthesis. Proximal cauline leaves ca. 30 cm (including petiole); stipules narrow, margin entire or lobed; petiole ca. 8 cm; leaf blade 3-pinnate, ca. 20 cm; leaflet blade ovate, rhombic-ovate, elliptic, or cuneate-obovate, 0.8–2.1 × 0.6–1.6 cm, herbaceous, base cuneate, rounded, or subcordate, margin 3-lobed; lobes entire; veins flat on both surfaces. Inflorescence paniculate, spreading, slender. Pedicel 20–35 mm. Sepals 4, early deciduous, white, obovate or narrowly ovate, 3–4 × 1.2–1.6 mm. Stamens ca. 4.5 mm; filament narrowly linear or filiform; anther narrowly oblong, 1.3–2 mm, apex obtuse. Carpels 2 or 3(–5); style short; stigma persistent, ca. 0.4 mm. Achenes sessile; body ovoid, 3–3.5 mm; veins 8 or 9. Fl. Jun–Jul.

• Scrub; 2000–2500 m. SW Sichuan, W Yunnan.

65. *Thalictrum tsawarungense* W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 618. 1979.

察瓦龙唐松草 *cha wa long tang song cao*

Plants 25–30 cm tall, glandular pubescent. Stems shortly branched, smooth. Cauline leaf petiole 3–4 cm; leaf blade 3-ternate, ca. 5 cm; petiolule 2–6 mm; leaflet blade broadly rhombic, broadly ovate, or orbicular-ovate, 0.5–1 × 0.6–1.3 cm, thinly herbaceous, base cuneate, rounded, or subcordate, apex 3-lobed; lobes entire or 2-toothed; veins slightly raised abaxially. Inflorescence flat topped, few flowered. Pedicel 4–8

mm. Sepals white, narrowly obovate, ca. 3.2 mm. Stamens ca. 15, ca. 3 mm; filament narrowly linear, narrower than anther; anther narrowly oblong, ca. 1.2 mm, apex obtuse. Carpels ca. 2; style persistent, ca. 1 mm; stigma elliptic, small. Achene stipe 1–1.2 mm; body obliquely globose, 2–2.7 × 1.5–2 mm; veins ca. 8, weak. Fl. Sep.

• Montane forest margins; ca. 3000 m. SE Xizang (Chawalong).

66. *Thalictrum tuberiferum* Maximowicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg, Sér. 3, 22: 227. 1876.

深山唐松草 *shen shan tang song cao*

Plants 50–70 cm tall, glabrous. Roots tuberous. Stems branched, smooth. Basal leaf 1, 25–30 cm; petiole 11–19 cm; leaf blade 3-ternate, 13–23 cm; leaflet blade ovate or rhombic-elliptic, 4–4.5 × ca. 3.5 cm, herbaceous, base rounded or subcordate, apex 3-lobed; veins raised abaxially. Cauline leaves 2, opposite, 3.5–6 cm; leaf blade 3-ternate. Inflorescence paniculate. Bracts ternate. Sepals early deciduous, elliptic, ca. 2 mm. Filament base filiform, apex oblanceolate, ca. 3 × as broad as anther; anther ovate, ca. 0.5 mm. Carpels 3–5; style absent; stigma capitate, small. Achene stipe ca. 1.6 mm; body obliquely narrowly ellipsoid, ca. 3.5 mm. Fl. Jun–Jul.

Scrub, slopes. 800–1100 m. Heilongjiang, Jilin, Liaoning [Japan, Korea, Russia (Siberia)].

This species is similar to *Thalictrum filamentosum*, which differs in having cauline leaves 2, opposite, and simple; it is also similar to *T. acutifolium*, which differs in having rootlets without tubers and cauline leaves often alternate.

67. *Thalictrum umbricola* Ulbrich, Notizbl. Bot. Gart. Berlin-Dahlem 9: 221. 1925.

阴地唐松草 *yin di tang song cao*

Thalictrum gueguenii B. Boivin

Plants 15–50 cm tall, glabrous. Stems branched, slender, sometimes smooth. Basal leaf 1; petiole ca. 12 cm; leaf blade 2- or 3-ternate, ca. 30 cm; leaflet blade broadly obovate, orbicular-rhombic, or orbicular, 1–2.5 × 1–2.5 cm, thinly herbaceous, base rounded to subcordate, margin 3-lobed; lobes 1- or 2-crenate; veins flat or raised abaxially. Cauline leaves small; leaf blade 1- or 2-ternate. Inflorescence flat topped, few flowered. Pedicel slender, 10–25 mm. Sepals 4, early deciduous, white, ovate, ca. 2 mm. Stamens many; filament base filiform, apex narrowly oblanceolate, broader than anther; anther yellow, elliptic or oblong, 0.5–0.8 mm. Carpels 6–9; stigma discoid. Achene stipe 1–2 mm; body fusiform, compressed, ca. 3 × 0.6–0.8 mm; veins ca. 8, weak. Fl. Mar–Apr.

• Montane forests, valley sides, damp rocky ledges; 1000–1300 m. Guangdong, Guangxi, SE Hunan, S Jiangxi.

68. *Thalictrum uncatum* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 14. 1890.

钩柱唐松草 *gou zhu tang song cao*

Plants 45–90 cm tall, glabrous. Stems branched, sulcate. Cauline leaf petiole ca. 7 cm; leaf blade 4- or 5-ternate, ca. 15 cm; leaflet blade cuneate-obovate or broadly rhombic, 0.9–1.3 × 0.5–0.7(–1) cm, thinly herbaceous, base cuneate or rounded, apex obtuse, 3-lobed; veins flat on both surfaces. Inflorescence racemelike, long. Pedicel slender, 2–4 mm. Sepals 4, purplish tinged, elliptic, ca. 3 × 1.2 mm. Stamens ca. 10; filament base filiform, apex narrowly linear; anther 1.8–2.2 mm, apex mucronate. Carpels 6–12; style circinate, ca. 2 mm, equaling ovary; stigma wingless or narrowly membranous winged. Achene stipe 1–2 mm; body lunate, compressed, 4–5 mm; veins ca. 8. Fl. May–Jul.

• Scrub margins, valley sides, slopes; 1600–3200 m. Gansu, Guizhou, Qinghai, W Sichuan, E Xizang, NW Yunnan.

This species is used medicinally.

- 1a. Stigma wingless 68a. var. *uncatum*
1b. Stigma narrowly membranous winged 68b. var. *angustialatum*

68a. *Thalictrum uncatum* var. *uncatum*

钩柱唐松草(原变种) *gou zhu tang song cao* (yuan bian zhong)

Thalictrum hamatum Maximowicz.

Stigma wingless. Fl. May–Jul.

• Scrub margins, slopes; 2700–3200 m. Gansu, Qinghai, W Sichuan, E Xizang, NW Yunnan.

68b. *Thalictrum uncatum* var. *angustialatum* W. T. Wang in W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 618. 1979.

狭翅钩柱唐松草 *xia chi gou zhu tang song cao*

Stigma narrowly membranous winged. Fl. May–Jul.

• Valley sides; ca. 1600 m. Guizhou.

69. *Thalictrum uncinatum* Franchet ex Lecoyer, Bull. Soc. Roy. Bot. Belgique 24(1): 169. 1885.

弯柱唐松草 *wan zhu tang song cao*

Plants 60–120 cm tall, pubescent. Stems dichotomously branched, smooth. Basal leaves withered at anthesis. Cauline leaf stipules pubescent, margin irregularly lobed or sinuate; petiole 2.5–7 cm, pubescent, base dilated; leaf blade 3-ternate, 10–20 cm; leaflet blade ovate, 1.6–3 × 1.3–2.9 cm, papery, base rounded to cordate, apex obtuse, 3-lobed; lobes toothed; veins raised abaxially, flat adaxially, pubescent. Inflorescence paniculate, many flowered. Pedicel 1.5–3.5 mm, densely pubescent. Sepals early deciduous, white, elliptic, ca. 2.5 mm, pubescent or abaxially glabrous. Stamens ca. 5 mm; filament base filiform, apex oblanceolate-linear, as broad as anther; anther oblong, ca. 1 mm. Carpels 6–8; style circinate, ca. 0.5 mm. Achene stipe short; body narrowly ellipsoid, 2–2.2 mm; veins ca. 6. Fl. Jul, fr. Aug.

• Forest margins, slopes; 1500–2600 m. Gansu, Guizhou, Hubei, Shanxi, Sichuan.

70. *Thalictrum urbainii* Hayata, Icon. Pl. Formos. 1: 25. 1911.

台湾唐松草 *tai wan tang song cao*

Plants 10–70 cm tall, glabrous. Stems 2 or 3, simple or distally few branched, smooth. Basal leaves many; leaf blade 2-ternate; leaflet blade rhombic-orbicular, 0.4–1 × 0.4–1 cm, leathery, base cuneate or rounded, apex rounded, 3-lobed; lobes entire or 1- or 2-crenate; veins inconspicuously raised abaxially. Cauline leaves 1 or 2, small. Inflorescence monochasial, few flowered.

Flowers 1–3 cm in diam.; pedicel 1–1.6 mm. Sepals 4–6, early deciduous, narrowly elliptic to obovate, 3–15 × 1.5–8 mm. Stamens ca. 4.3 mm; filament base filiform, ca. 4 mm, apex oblanceolate, ca. 3.5 × as broad as than anther; anther elliptic, apex obtuse. Carpels 11–17; style short. Achene stipe ca. 1.8 mm; body fusiform, compressed, 4–6 mm; veins ca. 6, weak. Fl. May.

• Mountains; ca. 1600 m. Taiwan.

1a. Flowers ca. 1 cm in diam.; sepals 4 70a. var. *urbainii*

1b. Flowers 2–3 cm in diam.; sepals often 6 70b. var. *majus*

70a. *Thalictrum urbainii* var. *urbainii*

台湾唐松草(原变种) *tai wan tang song cao* (yuan bian zhong)

Thalictrum fauriei Hayata, J. Coll. Sci. Imp. Univ. Tokyo 22: 7. Sep 1906, not H. Léveillé & Vaniot (Jul 1906), nor H. Léveillé (1909); *T. hayatanum* Koidzumi.

Plants 10–40 cm tall. Flowers ca. 1 cm in diam. Sepals 4, 3–3.5 × 1.5–2 mm. Fl. May.

• Taiwan.

70b. *Thalictrum urbainii* var. *majus* T. Shimizu, J. Fac. Textile Sci. Technol. Shinsu Univ., A, 10: 27. 1961.

大花台湾唐松草 *da hua tai wan tang song cao*

Plants (10–)20–70 cm tall. Flowers 2–3 cm in diam. Sepals often 6, 8–15 × 3–8 mm.

• Mountains, on limestone; ca. 1600 m. Taiwan.

71. *Thalictrum virgatum* J. D. Hooker & Thomson, Fl. Ind. 14. 1855.

帚枝唐松草 *zhou zhi tang song cao*

Thalictrum englerianum Ulbrich; *T. macrostigma* Lecoyer (1885), not Edgeworth (1846), nor Finet & Gagnepain (1906); *T. verticillatum* H. Léveillé; *T. virgatum* var. *stipitatum* Franchet.

Plants 15–65 cm tall, glabrous. Stems branched or simple, smooth. Cauline leaves 7–10, shortly petiolate or sessile; leaf blade 3-ternate; leaflets sessile, broadly rhombic or broadly rhombic-triangular, 1.1–2.5 × 0.6–2.4 cm, papery or thinly leathery, base cuneate to rounded or subcordate, apex rounded, 3-lobed; lobes crenate; veins raised on both surfaces. Inflorescence monochasial, simple or compound. Pedicel slender,

0.8–1.8 mm. Sepals 4 or 5, deciduous, white or pinkish, ovate, 4–8 × 2.5–4 mm. Stamens 4–7 mm; filament narrowly linear; anther narrowly oblong, apex obtuse. Carpels 10–25; stigma persistent, ca. 0.3 mm. Achene stipe ca. 0.4 mm; body ellipsoid, laterally compressed, ca. 3 mm; veins ca. 8. Fl. Jun–Aug.

Forests, forest margins; 2300–3500 m. Sichuan, Xizang, Yunnan [Bhutan, Nepal, Sikkim].

72. *Thalictrum viscosum* W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 619. 1979.

粘唐松草 nian tang song cao

Plants ca. 60 cm tall, glandular pubescent. Stems branched, smooth. Cauline leaf petiole ca. 2 cm; leaf blade 3-pinnate, ca. 12 cm; petiolule 2.5–5.5 mm; leaflet blade broadly ovate or broadly rhombic-ovate, 0.6–1.1 × 0.6–1.1 cm, leathery, abaxially glabrous and glandular, adaxially pubescent, base cordate, apex rounded or truncate, 3-lobed; lobes entire or 2- or 3-crenate. Inflorescence monochasial, 1.5–9 cm, 3- or 4-flowered, glandular pubescent. Pedicel 0.3–1.4 mm. Sepals 4, white or purplish tinged, elliptic, ca. 3 × 1.5 mm, abaxially pubescent. Stamens ca. 15, ca. 4 mm, glabrous; filament narrowly linear; anther ca. 1 mm, apex obtuse. Carpels 1–3; style subulate, ca. 1.2 mm; stigma narrowly linear. Achene body narrowly ovoid or narrowly ellipsoid, ca. 3 × 1.2 mm, densely glandular hairy. Fl. Aug.

• Grassy places in valleys, riversides; ca. 1800 m. NW Yunnan (Jinsha Jiang valley N of Lijiang).

This species is similar to *Thalictrum glandulosissimum*, but differs in having branches and leaf rachis pubescent, anthers obtuse at the apex, and stigmas wingless.

73. *Thalictrum wangii* B. Boivin, J. Arnold Arbor. 26: 116. 1945.

丽江唐松草 li jiang tang song cao

Plants 30–60 cm tall, glandular pubescent. Stems branched. Cauline leaf petiole 0.8–3 cm; leaf blade 3-ternate, 5.5–9.5 cm; leaflet blade orbicular-ovate, broadly rhombic-obovate, or orbicular-rhombic, 0.9–1.1 × 0.7–1.3 mm, thinly herbaceous, abaxially glandular pubescent, base rounded-cuneate or rounded, margin 3-lobed; lobes entire or 1- or 2-crenate; veins raised abaxially, flat adaxially. Inflorescence monochasial, ca. 3-flowered. Pedicel 7–14 mm. Sepals 4, early deciduous, white, narrowly oblong, ca. 5 mm. Stamens many, ca. 5.5 mm; filament base filiform, apex narrowly oblanceolate or linear, as broad as anther; anther white, narrowly oblong, ca. 1.5 mm, apex obtuse. Carpels 4–7; style ca. 2 mm, equaling ovary. Achene stipe ca. 0.5 mm; body falcate, compressed, ca. 4.5 mm; veins ca. 8, weak. Fl. Jun–Aug.

• Montane *Pinus* forests, slopes, damp rocky ledges; 2500–3100 m. SE Xizang (Zayü Xian), NW Yunnan.

74. *Thalictrum wuyishanicum* W. T. Wang & S. H. Wang, Fl. Reipubl. Popularis Sin. 27: 618. 1979.

武夷唐松草 wu yi tang song cao

Plants 17–30 cm tall, glabrous. Stems simple or distally branched. Basal leaves 1–3; petiole 8–12 cm; leaf blade 3-ternate, 4.5–9 cm; petiolule 1.5–2 cm; leaflet blade broadly ovate or broadly rhombic, 1.8–2.5 × 1.5–1.8 cm, papery or thinly leathery, base obtuse, apex obtuse, 3-lobed; lobes slightly toothed; veins raised on both surfaces or flat adaxially. Inflorescence terminal or axillary, monochasial, 2–4-flowered. Pedicel 1.2–3 mm. Sepals 4, early deciduous, pale pinkish red, elliptic or narrowly so, 3–4 × 1.5–2 mm, apex obtuse. Stamens 12–16; filament base filiform, to 2 × as broad as anther; anther oblong, ca. 0.8 mm, apex obtuse or mucronate. Carpels (4–)6 or 7; stigma sessile. Achene body fusiform, 3–4 mm; veins ca. 6. Fl. Apr.

• About 2000 m. N Fujian (Chong'an Xian: Wuyi Shan), EC Jiangxi (Nanfeng Xian).

This species is similar to *Thalictrum reticulatum*, but differs in having inflorescence monochasial, cymose, and 2-flowered or helicoid and 4-flowered.

75. *Thalictrum xingshanicum* G. F. Tao, Acta Phytotax. Sin. 22: 423. 1984.

兴山唐松草 xing shan tang song cao

Thalictrum pallidum Franchet.

Plants 40–60 cm tall, glabrous. Stems branched, slender. Cauline leaf stipules membranous; petiole 3.5–5 cm; leaf blade 1–3-ternate, 8–14 cm; petiolule 0.4–3 mm; leaflet blade ovate or obovate, 2–6 × 1.5–5 cm, herbaceous, base rounded or subcordate, apex entire or 3–9-toothed; veins raised abaxially. Inflorescence terminal, umbellate or monochasial, 3–9-flowered. Pedicel slender, 1–3.5 mm. Sepals 4, deciduous, white or purple, elliptic. Stamens many; filament linear, 1–1.5 mm, apex clavate, narrower than anther proximally, broader distally. Carpels 6–13; style erect, straight; stigma narrowly elliptic. Achenes shortly stipitate; body fusiform, slightly laterally compressed, 4–5 mm; ribs ca. 8. Fl. Apr–May, fr. May–Jun.

• Mountains; ca. 1700 m. W Hubei (Xingshan Xian).

This species is similar to *Thalictrum fargesii*, which differs in having leaflets 1–3 × 1–2.5 cm (vs. 2–6 × 1.5–5 cm) and carpels 2–5 (vs. 6–13).

76. *Thalictrum yunnanense* W. T. Wang in W. T. Wang & L. Q. Li, Acta Phytotax. Sin. 32: 471. 1994.

云南唐松草 yun nan tang song cao

Plants 20–60 cm tall, pubescent. Roots fibrous. Stems branched, erect, smooth. Leaves both basal and cauline; stipules to 6 mm, membranous, margin fimbriate, apex broadly acuminate; petiole 1.5–8 cm; leaf blade 2- or 3-ternate; petiolule 4–12 mm; leaflet blade 1.3–3 × 1.5–4 cm, papery to herbaceous, base rounded to cuneate-rounded, margin 3-lobed; lobes crenate-toothed, apex rounded to acute; veins abaxially prominent, adaxially inconspicuous. Inflorescence terminal or axillary, monochasial, several flowered. Bracts linear, 2–3 mm. Pedicel 7–15(–30) mm. Sepals 4, early deciduous, whitish green, oblong, ovate, or elliptic, 3–4 mm. Stamens many; filament whitish, 3–4 mm, apex

strongly dilated, slightly narrower than or as broad as anther; anther ca. 1 mm, apex mucronate. Carpels 10–50; style circinate or hooked, 0.5–1.3 mm; stigma purple, conspicuous. Achenes sessile; body oblong-ovoid, 1–3 mm; veins 4–6, stout. Fl. Jul–Aug, fr. Aug–Sep.

• Forests; ca. 2000 m. Yunnan.

This species is similar to *Thalictrum scabrifolium*, but differs in having smaller leaflets and stamens sometimes mucronate at the apex.

- 1a. Carpels (16–)25–50, style circinate, 0.5–0.6 mm 76a. var. *yunnanense*
- 1b. Carpels 10–25, style hooked, 0.8–1.3 mm 76b. var. *austroyunnanense*

76a. *Thalictrum yunnanense* var. *yunnanense*
云南唐松草(原变种) *yun nan tang song cao* (yuan bian zhong)

Leaflet blade 1.3–2 × 1.5–2.8 cm. Carpels (16–)25–50; style circinate, 0.5–0.6 mm. Achene body 1–3 mm.

• Forests; ca. 2000 m. Yunnan (Binchuan Xian, Kunming Shi).

76b. *Thalictrum yunnanense* var. *austroyunnanense* Y. Y. Qian, Acta Phytotax. Sin. 35: 262. 1997.

滇南唐松草 *dian nan tang song cao*

Leaflet blade 1.5–3 × 1.5–4 cm. Carpels 10–25; style hooked, 0.8–1.3 mm. Achene body 1.5–2 mm.

• Forests; ca. 2000 m. SW Yunnan (Lancang Lahu Zu Zizhixian).

22. **DICHOCARPUM** W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin. 9: 323. 1964.

人字果属 *ren zi guo shu*

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial, erect. Rhizomes present. Stem scapoid, unbranched or few branched, with few leaves or leafless. Leaves basal or basal and cauline, pedately compound, 3–13-foliolate, rarely simple; central leaflet entire. Inflorescences cymose, terminal or axillary, 1–8-flowered; bracts usually 3-lobed. Flowers radially symmetric, bisexual, sometimes cleistogamous. Sepals 5, petaloid, usually white, seldom yellowish or pinkish. Petals 5, golden-yellow, much smaller than sepals, clawed. Stamens 5–25; filaments narrowly linear, 1-veined; anthers yellow. Pistils 2, connate at base; ovary narrowly oblong, many ovuled; styles persistent. Follicles 2, divaricate, apically beaked. Seeds nitid, sometimes somewhat rugose or rough.

About 15 species: China, N India, Japan, N Myanmar, Nepal; 11 species (endemic) in China.

- 1a. Rhizome inconspicuous; tap root long; petals funnelform; seeds ellipsoid-fusiform 11. *D. fargesii*
- 1b. Rhizome 1–16 cm; tap root inconspicuous; petals flat (petals unknown in *D. basilare*, *D. carinatum*, and *D. hypoglaucum*); seeds globose to subglobose, rarely ellipsoid.
 - 2a. Stem leaves present.
 - 3a. Central leaflet rhombic to broadly rhombic-ovate, 1.8–6 × 1.5–5 cm 7. *D. auriculatum*
 - 3b. Central leaflet suborbicular, suborbicular-obovate, flabellate, or flabellate-obovate, 0.5–2.3 × 0.6–2.5 cm.
 - 4a. Stamens 5 or 10 10. *D. arisanense*
 - 4b. Stamens 20–45.
 - 5a. Central leaflet suborbicular-obovate to flabellate-obovate; flowers 1.1–2.3 cm in diam. 8. *D. sutchuenense*
 - 5b. Central leaflet suborbicular to subflabellate; flowers 0.4–0.6 cm in diam. 9. *D. franchetii*
 - 2b. Stem leaves absent.
 - 6a. Leaves 3-foliolate or sometimes simple; rhizome to 16 cm 1. *D. trifoliolatum*
 - 6b. Leaves (3)5–15-foliolate; rhizome 1–10 cm
 - 7a. Leaves 5-foliolate, rarely 3-foliolate 2. *D. basilare*
 - 7b. Leaves 7–15-foliolate.
 - 8a. Rhizome 5–10 cm.
 - 9a. Leaflets abaxially pruinose; seeds inconspicuously ridged, smooth 3. *D. hypoglaucum*
 - 9b. Leaflets abaxially not pruinose; seeds conspicuously ridged, rugose 6. *D. carinatum*
 - 8b. Rhizome 2–3(–5) cm.
 - 10a. Central leaflet lanceolate 5. *D. malipoenense*
 - 10b. Central leaflet not lanceolate.
 - 11a. Central leaflet rhombic 4. *D. dalzielii*
 - 11b. Central leaflet suborbicular, suborbicular-obovate, flabellate-obovate, or subflabellate.
 - 12a. Central leaflet suborbicular-obovate to flabellate-obovate; flowers 1.1–2.3 cm in diam. 8. *D. sutchuenense*
 - 12b. Central leaflet suborbicular to subflabellate; flowers 0.4–0.6 cm in diam. 9. *D. franchetii*

1. *Dichocarpum trifoliolatum* W. T. Wang & P. K. Hsiao, 三小叶人字果 *san xiao ye ren zi guo*
Acta Phytotax. Sin. 9: 324. 1964.

Plant glabrous. Rhizome ca. 16 cm, ca. 4 mm in diam., densely scaly; scales grayish, broadly ovate, ca. 2 mm, apically rounded. Leaves ca. 3, basal, 3-foliolate or sometimes simple, abaxially whitish green, apically toothed; veins inconspicuous; petiole 6.2–8.3 cm. Compound leaves with leaf blade 6–7.8 × 4.5–7 cm; lateral leaflets obliquely obovate; central leaflet rhombic-ovate, 3.7–4.3 × 2.3–2.8 cm, base cuneate, margin distally crenate, apex rounded. Simple leaves with leaf blade broadly obovate, ca. 3.8 × 3.3 cm. Flowering stem 23–25 cm tall. Inflorescences monochasial, 3-flowered; bracts sessile or shortly petiolate, obovate, ca. 1.5 mm, 3-lobed or entire. Pedicel 0.4–1.7 cm. Sepals pinkish, obovate, ca. 3.5 mm. Petal limbs flabellate, ca. 2.5 mm, apex retuse; claw longer than limb. Stamens ca. 3.5 mm; anthers ellipsoid, ca. 0.5 mm. Follicles linear, 8–10 × ca. 1.5 mm; persistent styles ca. 2.5 mm. Seeds brown, ellipsoid, ca. 2.5 mm in diam. Fl. and fr. Apr.

• Rocky areas by streams; 700–800 m. S Sichuan (Junlian Xian).

2. *Dichocarpum basilare* W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin. 9: 325. 1964.

基叶人字果 *ji ye ren zi guo*

Rhizome ca. 1 cm, to 6 mm in diam. Leaves 3–5, basal, (3–)5-foliolate; petiole 2–4.7 cm; leaf blade triangular or pentagonal, 1.5–3.4 × 2.2–4 cm; lateral leaflets 1 pair, obliquely rhombic, similar to central leaflet but smaller, or 2 pairs shortly petiolulate, obliquely rhombic to elliptic, unequal in size: lower leaflets 3.5–8 × 2.5 mm, upper leaflets 1.2–1.3 × 0.7–0.8 cm; central leaflet rhombic to rhombic-obovate, 1.2–2.7 × 0.8–2.8 cm, base broadly cuneate, apex obtuse. Flowering stem 16–19 cm tall, glabrous, 3–5-flowered; bracts obovate, ca. 5 × 2.5 mm, 3-lobed. Flowers unknown. Follicles linear, 7.5–10 mm, glabrous; persistent styles ca. 1.5 mm. Seeds dark purple, subglobose, ca. 1.5 mm, smooth. Fr. Jun.

• Grassy places; 500–600 m. S Sichuan (Yibin Xian).

3. *Dichocarpum hypoglaucom* W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin. 9: 327. 1964.

粉背人字果 *fen bei ren zi guo*

Plant glabrous. Rhizome robust, 5–10 cm, ca. 1 cm in diam. Leaves ca. 4, basal, 7–9-foliolate, abaxially pruinose; petiole 20–26 cm; leaf blade pentagonal, 14–16 × 10–16 cm; lateral leaflet petiolules 2–2.4 cm; leaflet blade obliquely rhombic-ovate, unequal in size, lower leaflets 3.5–5.2 cm, upper leaflets 8–9 × 3.8–4.5 cm; central leaflet petiolule ca. 4 cm; leaflet blade rhombic-ovate, 10–12 × 5–5.6 cm, base broadly cuneate, margin crenate and toothed. Flowering stem ca. 28 cm tall. Inflorescences monochasial, 3–7-flowered; lower bracts shortly petiolate, 2.4–3.2 cm, 3-foliolate; upper bracts 4–9 mm, 3-parted. Flowers unknown. Follicles oblanceolate-linear, ca. 1 cm, glabrous; persistent styles ca. 2 mm. Seeds dark purple,

subglobose, ca. 2.5 mm, inconspicuously ridged, smooth. Fr. May. $2n = 24^*$.

• Limestone under dense forests; 1200–1300 m. SE Yunnan (Xichou Xian).

4. *Dichocarpum dalzielii* (J. R. Drummond & Hutchinson) W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin. 9: 327. 1964.

蕨叶人字果 *jue ye ren zi guo*

Isopyrum dalzielii J. R. Drummond & Hutchinson, Bull. Misc. Inform. Kew 1920: 163. 1920; *I. flaccidum* Ulbrich; *I. pteridifolium* Handel-Mazzetti.

Plant glabrous. Rhizome ca. 3 cm. Leaves 3–11, basal, 11–15-foliolate, papery, glabrous; petiole 3.5–11.5 cm; leaf blade pentagonal, 3.5–10 cm wide; lateral leaflets petiolulate; leaflet blade obliquely rhombic to obliquely ovate, unequal in size, smallest ones ca. 8 × 4 mm; central leaflet rhombic, 2.5–6.5 (–7.5) × 1.7–3 (–3.5) cm, base cuneate, margin distally lobulate or crenate and toothed, apex obtuse. Flowering stems 3–11, 20–28 cm tall, 3–8-flowered; bracts sessile, 3-sect, lower bracts 1–2.1 cm, upper bracts 2–3 mm. Flowers 1.4–1.8 cm in diam. Pedicel 2–3 cm. Sepals white, obovate-elliptic, 8–10 × 3.8–4 mm, apex slightly acute to obtuse. Petal limbs suborbicular, 2.8–4.5 mm, apex retuse or entire, apically mucronate; claw longer than limb. Stamens numerous, 3.5–4.5 mm; anthers broadly ellipsoid, ca. 0.8 mm. Follicles obovoid-lanceolate, 11–12 mm; persistent styles ca. 2 mm. Seeds brown, subglobose, ca. 1 mm, smooth. Fl. Apr–May, fr. May–Jun.

• Forests, shady and wet places by streams; 700–1600 m. Anhui, W Fujian, Guangdong, Guangxi, Guizhou, Hainan, SW Hubei, S Hunan, Jiangxi, SE Sichuan, Zhejiang.

5. *Dichocarpum malipoense* D. D. Tao, Acta Phytotax. Geobot. 40: 179. 1989.

麻栗坡人字果 *ma li po ren zi guo*

Rhizome 2–3 cm, 1–1.8 cm in diam. Leaf 1, basal, 7–9-foliolate, papery, glabrous; petiole 1.5–1.8 cm, glabrous; lateral leaflets ovate-rhombic to ovate, unequal in size, smaller than central leaflet; central leaflet lanceolate, ca. 14.5 × 5 cm, base broadly cuneate, margin crenate, apex attenuate. Scapes 2, 4–6 cm tall, glabrous. Inflorescences 2- or 3-flowered, glabrous; bracts 3-foliolate. Flowers ca. 0.8 cm in diam., glabrous. Pedicel ca. 1 cm. Sepals white, obovate, 4–5 × 4–5 mm, apex obtuse. Petal limbs orbicular-ovate, shorter than sepals, apex emarginate; claw longer than limb. Stamens ca. 3 mm. Pistils linear, nearly as long as stamens; persistent styles short. Fl. Jan.

• By streams in woods; ca. 1300 m. SE Yunnan (Malipo Xian).

6. *Dichocarpum carinatum* D. Z. Fu, Acta Phytotax. Sin. 26: 258. 1988.

种脐人字果 *zhong qi ren zi guo*

Rhizome 8–10 cm, 5–6 mm in diam., often branched. Stem ca. 40 cm, glabrous. Leaves ca. 2, basal, 12–15-foliolate, papery, glabrous; petiole to 12 cm; lateral leaflets smaller, unequal in size; central leaflet

subrhombic to rhombic-ovate, 1.8–2.8 × 0.9–2 cm, apically 3-lobed, apex obtuse. Inflorescences 3–5-flowered, glabrous; bracts foliaceous. Flowers unknown. Follicles linear, ca. 1 cm; persistent styles short. Seeds subglobose, ca. 1 mm in diam., conspicuously ridged, rugose.

• Slopes; 500–700 m. Sichuan (Junlian Xian).

7. *Dichocarpum auriculatum* (Franchet) W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin. 9: 328. 1964.

耳状人字果 *er zhuang ren zi guo*

Plant glabrous. Rhizome blackish brown, (1–)2–3 cm, to 6 mm in diam. Stem (15–)20–36 cm. Leaves few, basal, 5-foliolate; petiole 5–11 cm; leaf pentagonal, 3–9 × 3–7.5 cm; lateral leaflets obliquely ovate, unequal in size, lower leaflets 0.4–2 × 0.4–1.9 mm, upper leaflets obliquely ovate, 1.1–3.5 × 0.9–3 cm; central leaflet rhombic to broadly rhombic-ovate, 1.8–6 × 1.5–5 cm, base cuneate, margin distally crenate, apex obtuse. Stem leaves 2(–4), petiole 2–5 cm, leaf blade similar to basal leaves. Inflorescences 7–19 cm, (1–)3–7-flowered; bracts simple or 3-sect; lower bracts foliaceous, upper bracts sessile, ca. 3 mm. Flowers 1–1.7 cm in diam., glabrous. Pedicel 2.5–3.5 cm. Sepals white, obovate-elliptic, 5–9 × 3–5.5 mm, apex obtuse. Petal limbs broadly obovate, ca. 4 mm, apex retuse or entire; claw longer than limb. Stamens ca. 20, 5–6 mm; anthers broadly ellipsoid, ca. 0.6 mm. Follicles obovoid-lanceolate, 1.1–1.5 cm; persistent styles ca. 2 mm. Seeds 8 or 9, yellowish brown, subglobose, ca. 1 mm in diam., smooth. Fl. Apr–May, fr. Apr–Jun.

• Near rocks in forests, shady wet places on slopes; 500–1500 m. Fujian, Guizhou, W Hubei, Sichuan, NE Yunnan.

1a. Leaflets glabrous 7a. var. *auriculatum*

1b. Leaflets abaxially glabrous, adaxially puberulous 7b. var. *puberulum*

7a. *Dichocarpum auriculatum* var. *auriculatum*

耳状人字果(原变种) *er zhuang ren zi guo (yuan bian zhong)*

Isopyrum auriculatum Franchet, Bull. Soc. Bot. France 33: 376. 1886; *I. auriculatum* Franchet (1897), not Franchet (1886); *I. delavayi* Franchet; *I. limprichtii* Ulbrich.

Leaflets glabrous.

• Near rocks in forests, shady wet places; 600–1500 m. Fujian, W Hubei, Sichuan, NE Yunnan.

7b. *Dichocarpum auriculatum* var. *puberulum* D. Z. Fu, Acta Phytotax. Sin. 26: 258. 1988.

毛叶人字果 *mao ye ren zi guo*

Leaflets abaxially glabrous, adaxially puberulous.

• Shady wet places on slopes; 500–600 m. Sichuan (Junlian Xian).

8. *Dichocarpum sutchuenense* (Franchet) W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin. 9: 328. 1964.

人字果 *ren zi guo*

Isopyrum sutchuenense Franchet, J. Bot. (Morot) 8: 247. 1894.

Plant glabrous. Rhizome to 6 mm in diam. Stem 1, 7.5–30 cm, unbranched. Basal leaves few, withered at anthesis, 5–13-foliolate; petiole 2.5–7.5 cm; leaf blade pentagonal, 1.5–4 × 1.9–4.5 cm; lateral leaflets shortly petiolulate or sessile; leaflet blade obliquely ovate, rhombic-ovate, or obliquely obovate, unequal in size; central leaflet suborbicular-obovate to flabellate-obovate, 0.5–2.3 × 0.6–2.5 cm, base broadly cuneate, margin 3–5-lobulate and with 3–5 obtuse teeth, apex obtuse to rounded. Stem leaf 1, sometimes absent; petiole ca. 5 cm; leaf blade 3–6(–9) cm wide, similar in shape to basal leaves. Flowering stems (1–)3–8-flowered; lower bracts similar to leaves but smaller, upper bracts sessile, 3-sect. Flowers 1.1–2.3 cm in diam. Pedicel 2–7 cm. Sepals white, obovate-elliptic to obovate, 3.5–11 × 2–6 mm, apex obtuse. Petal limbs suborbicular, 1–3 mm, apex retuse or entire; claw longer than or nearly as long as limb. Stamens 20–45, 2–7 mm. Follicles obovoid-lanceolate, 0.7–1.5 cm; persistent styles 0.2–2 mm. Seeds 8–10, yellowish brown, globose, ca. 1 mm, smooth. Fl. Apr–May, fr. May–Jun.

• Near rocks in forests; 1400–2200 m. Hubei, Sichuan, Yunnan, Zhejiang.

9. *Dichocarpum franchetii* (Finet & Gagnepain) W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin. 9: 329. 1964.

小花人字果 *xiao hua ren zi guo*

Isopyrum franchetii Finet & Gagnepain, Bull. Soc. Bot. France 51: 405. 1904.

Plant glabrous. Rhizome present, lateral roots dense. Stem 1–5, 9–26 cm tall. Basal leaves few, persistent or withering at anthesis; petiole 2.5–7 cm; leaf blade pentagonal, 1.5–3.3 × 1.2–3.2 cm; lateral leaflets subflabellate, obliquely ovate, or subround, unequal in size, smallest ones ca. 2 mm to almost as large as central leaflet; central leaflet suborbicular to subflabellate, 0.6–1.2 × 0.9–1.4 cm, margin apically 5-toothed; teeth apex retuse. Stem leaf 1, sometimes absent; petiole ca. 4.5 cm; leaf blade similar in shape to basal leaves. Flowering stems 5–11 cm, 3–7-flowered; lower bracts foliaceous, with a slender petiole, upper bracts sessile or shortly petiolate, 3–5-sect. Flowers 4.2–6 mm in diam. Pedicel slender. Sepals white, obovate, 3.5–4.5 × ca. 2 mm, apex obtuse. Petal limbs suborbicular, 1–1.2 mm, apex retuse or entire; claw as long as or slightly longer than limb. Stamens 2–3 mm; anthers ca. 0.3 mm. Follicles 7–9(–10) mm; persistent styles ca. 0.5 mm. Seeds 7 or 8, pale yellowish brown, globose, ca. 1 mm in diam., smooth. Fl. Apr–May, fr. May–Jun.

• Mountainous forests; 1300–3200 m. Guangxi, Guizhou, Hubei, Hunan, Sichuan, Yunnan.

10. *Dichocarpum arisanense* (Hayata) W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin. 9: 329. 1964.

台湾人字果 *tai wan ren zi guo*

Isopyrum adiantifolium J. D. Hooker & Thomson var. *arisanense* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 21. 1911.

Stem ca. 20 cm tall, subglabrous, apically branched. Basal leaves ca. 8; petiole 3–4 cm, shortly sheathed; leaf blade 4–5 cm; lateral leaflets 1–3, broadly rhombic to flabellate-obovate; central leaflet flabellate-obovate, ca. 7 × 8 mm, apically 3-lobed and lobes retuse. Stem leaves borne at base of branches, opposite, small, ternate. Inflorescences few flowered. Sepals narrowly ovate, ca. 4 mm, apex obtuse. Petal limbs orbicular, ca. 1 mm; claw as long as petal. Stamens 5 or 10; filaments flat, linear, ca. 2.5 mm; anthers subglobose. Pistils ca. 3 mm; styles very short. Follicles ca. 9 × 2.5 mm. Seeds ca. 10, ca. 0.75 mm in diam., dorsally slightly ridged. Fl. Apr–May, fr. May–Jun.

• Taiwan.

11. *Dichocarpum fargesii* (Franchet) W. T. Wang & P. K. Hsiao, Acta Phytotax. Sin. 9: 329. 1964.

纵肋人字果 *zong lei ren zi guo*

Isopyrum fargesii Franchet, J. Bot. (Morot) 11: 294. 1897.

Plant glabrous, with tap root. Rhizome inconspicuous. Stem 14–35 cm tall. Basal leaves few, 5–9-foliolate; petiole 3–8 cm; leaf blade ovate, 1.8–3.5 cm wide, papery; lateral leaflets petiolulate; leaflet blade obliquely ovate, unequal in size and shape, lower leaflets ovate, 0.5–0.9 × 0.5–0.9 cm, upper leaflets obliquely obovate, 0.6–1.4 × 0.4–1 cm; central leaflet reniform to flabellate, 0.5–1.2 × 0.7–1.6 cm, base broadly cuneate, rounded, or truncate, margin distally 3-lobulate or toothed, apex obtuse. Stem leaves opposite, shortly petiolate, similar to basal leaves. Inflorescences 2–4-flowered; bracts sessile, 3-foliolate, 3-sect, or simple. Flowers 6–7.5 cm in diam., glabrous. Pedicel 1–3.5 cm. Sepals white, obovate-elliptic, 4–5 mm. Petal limbs funnelform, 1.8–2.5 mm; claw longer than limb. Stamens 10; anthers broadly ellipsoid, ca. 0.3 mm. Follicles linear, 1.2–1.5 cm, apex acute; persistent styles inconspicuous. Seeds ellipsoid-fusiform, 1.5–1.8 mm, longitudinally costate. Fl. May–Jun, fr. Jun.

• Shady and wet places in valleys; 1300–1600 m. W Anhui, SE Gansu, Guizhou, S and W Henan, W Hubei, NW Hunan, S Shaanxi, E Sichuan.

23. COPTIS Salisbury, Trans. Linn. Soc. London 8: 305. 1807.

黄连属 *huang lian shu*

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial, rhizomatous or sometimes stoloniferous. Rhizomes branched. Leaves several, basal, long petiolate, 3- or 5-sect. Scapes 1 to several, erect. Inflorescences terminal, monochasial, 1- to few flowered. Flowers small, actinomorphic, bisexual. Sepals 5(–8), white or greenish yellow, often petaloid. Petals 5–10 or more, clawed, adaxially often nectariferous. Stamens numerous, glabrous; filaments filiform; anthers broadly elliptic. Pistils 8–14, stipitate; ovules several per ovary. Styles recurved. Follicles stipitate, oblong, transverse veins inconspicuous; persistent styles short. Seeds brown, ellipsoid, shiny, nearly smooth.

Fifteen species: E Asia, North America; six species (five endemic) in China.

1a. Leaves 5-sect.

2a. Rhizome robust; leaf blade 5.5–14 cm wide, central segment pinnately divided, apex attenuate 5. *C. quinquesecta*

2b. Rhizome slender; leaf blade 2–6 cm wide, central segment 3-lobed, apex acute 6. *C. quinquefolia*

1b. Leaves 3-sect.

3a. Leaf blade lanceolate to narrowly ovate; lateral segments 3–3.5 × shorter than central segment; sepals linear-lanceolate 4. *C. omeiensis*

3b. Leaf blade ovate to ovate-triangular; lateral segments slightly shorter than central segment; sepals lanceolate, elliptic, or narrowly ovate.

4a. Petals spatulate 3. *C. teeta*

4b. Petals lanceolate to linear-lanceolate.

5a. Leaf segment lobes remote; outer stamens slightly shorter than petals 1. *C. chinensis*

5b. Leaf segment lobes ± contiguous to each other; stamens ca. 1/2 as long as petals 2. *C. deltoidea*

1. *Coptis chinensis* Franchet, J. Bot. (Morot) 11: 231. 1897.

黄连 *huang lian*

Petiole 5–12 cm, glabrous; leaf blade ovate-triangular, 4–10 × 4–10 cm, 3-sect, papery to subleathery, abaxially glabrous, adaxially sparsely puberulous on veins, base cordate; lateral segments slightly shorter than central one, obliquely ovate, unequally 2-parted; central segment petiolulate, ovate-rhombic, 3–8 cm,

deeply 3–5 lobed, ultimate lobes margin acute serrate, apex acute. Scapes 1 or 2, 12–25 cm tall, glabrous. Inflorescences 3–8-flowered; bracts lanceolate, palmately divided. Sepals 5, greenish yellow, lanceolate, 6.5–12.5 × 2–3 mm, glabrous. Petals linear-lanceolate, 5–6.5 mm, glabrous, apex attenuate. Stamens 3–6 mm, outer ones slightly shorter than petals. Pistils 8–12. Follicles 6–8 mm, stipe as long as follicle. Seeds ca. 2 mm. Fl. Feb–Mar, fr. Apr–Jun. 2n = 18*.

• Forests, shaded places in valleys; 500–2000 m. S Anhui, Fujian, N Guangdong, N Guangxi, Guizhou, Hubei, Hunan, S Shaanxi, Sichuan, Zhejiang.

This species is used medicinally.

- 1a. Sepals 9–13 mm, ca. 2 × as long as petals 1a. var. *chinensis*
1b. Sepals ca. 6.5 mm, slightly longer than petals 1b. var. *brevisepala*

1a. *Coptis chinensis* var. *chinensis*

黄连(原变种) huang lian (yuan bian zhong)

Coptis teeta var. *chinensis* (Franchet) Finet & Gagnepain.

Sepals 0.9–1.3 cm, ca. 2 × as long as petals.

• Forests, shaded places in valleys; 500–2000 m. Guizhou, Hubei, Hunan, S Shaanxi, Sichuan.

1b. *Coptis chinensis* var. *brevisepala* W. T. Wang & P. K. Hsiao, Acta Pharm. Sin. 12: 195. 1965.

短萼黄连 duan e huang lian

Sepals ca. 6.5 mm, slightly longer than petals.

• Forests, shaded places in valley; 600–1600 m. S Anhui, Fujian, N Guangdong, N Guangxi, Zhejiang.

2. *Coptis deltoidea* C. Y. Cheng & P. K. Hsiao, Acta Pharm. Sin. 12: 195. 1965.

三角叶黄连 san jiao ye huang lian

Petiole 6–18 cm, glabrous; leaf blade ovate, 4–16 × 5–15 cm, 3-sect, papery to subleathery, abaxially glabrous, adaxially sparsely puberulous to nearly glabrous on veins, base cordate; lateral segments slightly shorter than central one, obliquely ovate, unequally 2-parted; central segment petiolulate, deltoid-ovate, 3–12 cm, pinnately divided; segments 4–6 pairs, ± contiguous to each other, margin acute serrate, apex acute. Scapes 1 or 2, slightly longer than leaves, glabrous.

Inflorescences 4–8-flowered; bracts linear-lanceolate, 3-parted or pinnately divided. Sepals 5, greenish yellow, narrowly ovate, 8–12.5 × 2–2.5 mm, glabrous. Petals lanceolate, 3–6 mm, glabrous, apex ± attenuate. Stamens ca. 1/2 as long as petals. Pistils 9–12. Follicles 6–7 mm, stipe 7–8 mm. Fl. Mar–Apr, fr. Apr–Jun.

• Forests; 1600–2000 m. W Sichuan (Emei Xian, Hongya Xian).

3. *Coptis teeta* Wallich, Trans. Med. Soc. Calcutta 8: 347. 1842.

云南黄连 yun nan huang lian

Coptis teetoides C. Y. Cheng.

Petiole 8–19 cm, glabrous; leaf blade ovate-triangular, 6–12 × 5–9 cm, 3-sect, papery, abaxially glabrous, adaxially sparsely puberulous on veins, base cordate; lateral segments subsessile to petiolulate, shorter than central one, obliquely ovate, unequally parted; central

segment petiolulate, ovate-rhombic, pinnately divided; segments 3–6 pairs, remote, margin acute serrate, apex attenuate. Scapes 15–25 cm tall, glabrous. Inflorescences 3–5-flowered; bracts elliptic, 3-parted or pinnately divided. Sepals 5, greenish yellow, elliptic, 7.5–8 × 2.5–3 mm., glabrous. Petals spatulate, 5.4–5.9 mm, glabrous, apex rounded to obtuse. Stamens 3–3.3 mm. Pistils 11–14. Follicles 7–9 mm, glabrous. *2n* = 18*.

• Evergreen broad-leaved forests; 1500–2300 m. NW Yunnan (Gongshan Drung-Nu Zu Zizhixian), SE Xizang.

This species is used medicinally.

4. *Coptis omeiensis* (Chen) C. Y. Cheng, Acta Pharm. Sin. 12: 196. 1965.

峨眉黄连 e mei huang lian

Coptis chinensis Franchet var. *omeiensis* Chen, Bull. Fan Mem. Inst. Biol., n.s., 1: 93. 1943.

Petiole 5–14 cm, glabrous; leaf blade lanceolate to narrowly ovate, 6–16 × 3.5–6.3 cm, 3-sect, subleathery, abaxially glabrous, adaxially sparsely puberulous on veins, base cordate; lateral segments 3–3.5 × shorter than central one, obliquely ovate, unequally 2-parted to 2-foliolate; central segment petiolulate, rhombic-lanceolate, 5.5–15 cm, pinnately divided; segments 7–14 pairs, remote, margin acute serrate, apex attenuate. Scapes usually 1, 15–27 cm tall, glabrous.

Inflorescences ca. 4-flowered; bracts lanceolate, margin finely serrate. Sepals 5, greenish yellow, linear-lanceolate, 7.5–10 × 0.7–1.2 mm, glabrous. Petals linear-lanceolate, ca. 2 × as long as sepals, glabrous, apex attenuate. Stamens ca. 5 mm. Pistils 9–14.

Follicles 5–6 mm, stipe nearly as long as follicle. Seeds ca. 1.8 mm. Fl. Feb–Mar, fr. Apr–Jul.

• Cliffs, fissures of rocks; 1000–1700 m. Henan, W Sichuan (Emei Xian and adjacent regions).

5. *Coptis quinquesecta* W. T. Wang, Acta Phytotax. Sin. 6: 219. 1957.

五裂黄连 wu lie huang lian

Petiole 13–25 cm, glabrous; leaf blade ovate, 7–15.5 × 5.5–14 cm, 5-sect, subleathery, abaxially glabrous, adaxially sparsely puberulous on veins, base cordate; lateral segments similar to central one but smaller, unequally 2-lobed or parted; central segment petiolulate, rhombic-lanceolate, 5.5–14 cm, pinnately divided; segments 4 pairs, margin acute serrate, apex attenuate. Scapes 23–28 cm tall, glabrous. Inflorescences ca. 6-flowered; bracts oblong to lanceolate, 3-lobed or acutely serrate. Flowers unknown. Follicles 3–6 mm, stipe nearly as long as follicle. Fr. May.

• Dense forests; 1700–2500 m. SE Yunnan (Jinping Xian).

6. *Coptis quinquefolia* Miquel, Ann. Mus. Bot. Lugduno-Batavi 3: 7. 1867.

五叶黄连 wu ye huang lian

Petiole 2–13 cm, glabrous; leaf blade 5-sided, 2–5 × 2–6 cm, 5-sect, subleathery, abaxially glabrous, adaxially sparsely puberulous on veins, base cordate; lateral segments similar to central one or obliquely ovate, unequally 2-lobed; central segment sessile or subsessile, cuneate-rhombic, 1.8–3.5 cm, 3-lobed, margin acute serrate, apex acute. Scapes 1–3, 5–28 cm tall, glabrous.

Inflorescences ca. 4-flowered; bracts lanceolate, margin acute serrate. Sepals 5, elliptic to obovate-elliptic, 4.5–8 × 2.8–5 mm, glabrous. Petals spatulate, 1.6–3 mm, glabrous. Stamens ca. 4 mm. Pistils 10–12. Follicles 4–5 mm, stipe nearly as long as follicle. Seeds ca 1.5 mm. Fl. Mar–Apr, Fr. Apr–May.

Forests. Taiwan [Japan].

24. ANEMONE Linnaeus, Sp. Pl. 1: 538. 1753.

银莲花属 yin lian hua shu

Wang Wencai (王文采 Wang Wen-tsai); Svetlana N. Ziman, Bryan E. Dutton

Anemonastrum Holub; *Anemonidium* (Spach) Holub; *Anemonoides* Miller; *Arsenjevia* Starodubtzev; *Eriocapitella* Nakai.

Herbs perennial, rhizomatous. Leaves all basal, simple, palmate, ternate, or pinnate, sometimes reduced and scalelike, rarely absent. Scape erect or ascending; inflorescences cymose, sometimes umbellate. Bracts (2 or)3 or more, forming an involucre. Flowers actinomorphic. Sepals (4 or)5 or more, petaloid, white, yellow, blue, or purple. Petals absent. Stamens usually numerous, filiform or linear. Pistils several to numerous; ovary with 1 pendent ovule; style present or absent; stigma present or absent. Achenes ovoid or subglobose, rarely strongly bilaterally compressed.

About 150 species: widespread on all continents except Antarctica, mainly in N temperate regions; 53 species (22 endemic) in China.

Anemone nutantiflora W. T. Wang & L. Q. Li (Acta Bot. Yunnan. 8: 265. 1986) was described from W Yunnan (Lushui Xian: Pianma), where it grows in bamboo thickets at ca. 3200 m. The flowers are unknown, but the fruiting pedicels are pendent. The exact placement of this taxon is problematic because of the lack of floral data. There is no reason to include it into *A. narcissiflora* because that species always has glabrous achenes (sometimes with solitary hairs), whereas *A. nutantiflora* is reported to have villous achenes. Further collections are needed.

The identities of the taxa to which the following names apply could not be ascertained. All were described from China, but none of the types has been seen by the present authors: *Anemone robustostylosa* R. H. Miao (Acta Sci. Nat. Univ. Sunyatseni 32(4): 56. 1993), described from Guangxi, and *A. wilsonii* Ulbrich (Bot. Jahrb. Syst. 36(Beibl. 80): 2. 1905, not Hemsley, 1906), described from W Hubei as a hybrid between *A. altaica* and *A. baicalensis*.

- 1a. Scape dichotomously branched; involucre bracts paired; pistils and achenes glabrous 1. *A. dichotoma*
- 1b. Scape usually unbranched; involucre bracts 3 or more; pistils and achenes glabrous or pubescent.
 - 2a. Pistils and achenes covered with very short hairs (usually 0.1–0.2 mm).
 - 3a. Rhizome long or short; leaf blade ternate or 3-sect, petiole narrow or basally sheathing; involucre bracts sessile; pistils and achenes with distinct or obscure style and small or capitate stigma.
 - 4a. Scalelike leaves present; leaves developing after anthesis, petiole narrow, leaf blade distinct.
 - 5a. Leaves 2–4; scapes 1–3, cyme few flowered; sepals 5–10 mm, with 7–9 vein anastomoses .. 2. *A. flaccida*
 - 5b. Leaf solitary; scape solitary, cyme 1-flowered; sepals 7–15 mm, without vein anastomoses 3. *A. delavayi*
 - 4b. Scalelike leaves absent; leaves developing before anthesis, petiole basally sheathing, leaf blade distinct.
 - 6a. Leaf blade 3-lobed 4. *A. erythrophylla*
 - 6b. Leaf blade 3-sect.
 - 7a. Rhizome 8–10 mm in diam., with long, underground stolons; sepals 10–15 mm, with few vein anastomoses 5. *A. baicalensis*
 - 7b. Rhizome 5–7 mm in diam., with long, above-ground stolons; sepals 8–10 mm, without vein anastomoses 6. *A. prattii*
- 3b. Rhizome long and thin or shortly nodulose; leaf blade ternate, petiole narrow; involucre bracts petiolate; pistils and achenes with distinct style and small, usually linear stigma.
 - 8a. Leaves several, developing before anthesis, petiole gradually dilated at base.
 - 9a. Scapes 2 or 3, few flowered; involucre bract petiole 1–3 cm; bracteoles present, small; sepals puberulent.

- 10a. Sepals 5–10 mm, without vein anastomoses; staminodes present between sepals and stamens; stigma linear 7. *A. stolonifera*
- 10b. Sepals 15–20 mm, with 5–15 vein anastomoses; staminodes present between stamens and carpels; stigma subcapitate 8. *A. davidii*
- 9b. Scape solitary, 1-flowered; involucre bract petiole 0.5–1.5 cm; bracteoles absent; sepals subglabrous.
- 11a. Involucre bract petiole 3–5 mm wide, basally sheathing and connate; ovary and achenes sparsely puberulent 9. *A. exigua*
- 11b. Involucre bract petiole 1–2 mm wide, free; ovary and achenes glabrous.
- 12a. Involucre bract blade 3-sect; style nearly absent; stigma subglobose 10. *A. griffithii*
- 12b. Involucre bract blade 3-parted to 3-lobed; style distinct; stigma linear 11. *A. scabriuscula*
- 8b. Leaf solitary, developing after anthesis, petiole narrow.
- 13a. Rhizome monomorphic, branched, usually prostrate, long, 1–3 mm in diam.; sepals 5–8(–10).
- 14a. Involucre bract petiole 3–5 mm wide; leaf blade central leaflet 3-sect or 3-parted; sepals 5–8, glabrous, without vein anastomoses 12. *A. amurensis*
- 14b. Involucre bract petiole 1–2 mm wide; leaf blade central leaflet 3-lobed; sepals ca. 5, pilose or subglabrous, with or without vein anastomoses.
- 15a. Basal and involucre bract blade with petiolules 2–5 mm; sepals 10–18 mm, pilose, with 5–9 vein anastomoses 13. *A. udensis*
- 15b. Basal and involucre bract blade with petiolules 1–2 mm; sepals 7–14 mm, subglabrous, without vein anastomoses 14. *A. umbrosa*
- 13b. Rhizome dimorphic: short and thick (nodulose), and long and thin; sepals 5–12.
- 16a. Sepals 5–7, bent, 5–7 mm, puberulent; cyme few flowered; involucre bract petiole 1–2 mm wide 15. *A. reflexa*
- 16b. Sepals 8–12, spreading, 12–25 mm, glabrous; cyme 1-flowered; involucre bract petiole 1–5 mm wide.
- 17a. Basal and involucre bractlets 3-lobed or toothed; involucre bract petiole 5–12 × 1–2 mm, basally slightly dilated; sepals 12–20 mm, with 1–3 vein anastomoses 16. *A. raddeana*
- 17b. Basal and involucre bractlets deeply 3-lobed; involucre bract petiole 10–20 × 3–5 mm, base distinctly dilated; sepals 20–25 mm, with 3–5 vein anastomoses 17. *A. altaica*
- 2b. Pistils and achenes glabrous or covered with longer hairs.
- 18a. Pistils and achenes glabrous; involucre bracts petiolate.
- 19a. Sepals 5–10, 6–14 × 3–8 mm 18. *A. rivularis*
- 19b. Sepals 4, 5–7 × 3–4 mm 19. *A. filisecta*
- 18b. Pistils and achenes pubescent or glabrous; involucre bracts sessile or petiolate.
- 20a. Involucre bracts petiolate; pistils and achenes lanate.
- 21a. Leaf blade ternate.
- 22a. Leaf blade abaxially strigose 20. *A. hupehensis*
- 22b. Leaf blade abaxially tomentose 21. *A. tomentosa*
- 21b. Leaf blade 3-lobed or 3-sect.
- 23a. Leaf blade 3–5-lobed, 10–20 × 10–20 cm, abaxially velutinous; involucre bract blade 3–5-lobed 22. *A. vitifolia*
- 23b. Leaf blade 3-sect, 2–5 × 3–8 cm, abaxially puberulent; involucre bract blade 3-sect ... 23. *A. sylvestris*
- 20b. Involucre bracts sessile; pistils and achenes pubescent.
- 24a. Filaments filiform; scape terminal; rhizome branched, ascending or prostrate, short or long.
- 25a. Pistils and achenes lanate.
- 26a. Rhizome simple, tuberous; involucre bracts palmately parted 24. *A. gortschakowii*
- 26b. Rhizome branched, not tuberous, short; involucre bracts 3-parted or 3-lobed.
- 27a. Leaf petiole narrow, leaf blade abaxially subglabrous 25. *A. rupicola*
- 27b. Leaf petiole basally sheathing, leaf blade abaxially puberulent or villous.
- 28a. Leaf blade 3-sect; involucre bract blade 3-parted 26. *A. laceratoincisa*
- 28b. Leaf blade 3-parted; involucre bract blade 3-lobed 27. *A. tibetica*

- 25b. Pistils and achenes pubescent or glabrous.
- 29a. Pistils and achenes densely puberulent, not ribbed; style shortly subulate-terete; rhizome prostrate, long 28. *A. brevistyla*
- 29b. Pistils and achenes glabrous, 1-ribbed; style not subulate; rhizome oblique or ascending, short.
- 30a. Leaf blade 3–5-lobed; involucre bract blade 3-lobed or entire.
- 31a. Leaf blade 3–8 × 2–8 cm; scape 15–40 cm; sepals white, 5–10 × 2–6 mm, with 3–5 vein anastomoses 29. *A. begoniifolia*
- 31b. Leaf blade 10–15 × 10–15 cm; scape 40–60 cm; sepals purple, 15–20 × 8–14 mm, with more than 10 vein anastomoses 30. *A. hokouensis*
- 30b. Leaf blade 3-parted or 3-cleft; involucre bract blade entire.
- 32a. Leaf petiole 1–2 mm wide; sepals pinkish, ca. 10 × 7 mm 31. *A. orthocarpa*
- 32b. Leaf petiole basally sheathing; sepals white, 4–5 × 2–3 mm 32. *A. howellii*
- 24b. Filaments linear or dilated; scape axillary; rhizome simple, erect, short.
- 33a. Achene body obovoid, compressed, winged, glabrous; leaf blade basally cordate or rarely subtruncate; involucre bract blade similar to that of leaves; sepal vein anastomoses usually 3–5 or rarely absent.
- 34a. Inflorescence compoundly branched; leaf blade 3-parted or 3-lobed.
- 35a. Leaf blade 3-lobed, leathery; sepals 4, 12–20 × 6–12 mm, glabrous, with vein anastomoses; achene body 8–12 mm 33. *A. tetrasepala*
- 35b. Leaf blade 3-parted, herbaceous; sepals 5, varying in size, puberulent or glabrous, without vein anastomoses; achene body smaller.
- 36a. Sepals 12–20 × 6–12 mm, base cuneate, apex rounded; achene body 6–9 mm, wing 1.2–1.3 mm wide, style 1–1.5 mm 34. *A. elongata*
- 36b. Sepals 7–10 × 4–6 mm, base rounded, apex acute; achene body 5–6 mm, wing 0.5–0.6 mm wide, style 0.6–1 mm 35. *A. shikokiana*
- 34b. Inflorescence usually simply umbellate or flower solitary; leaf blade usually 3-sect.
- 37a. Sepals 15–25 mm, glabrous; stem 70–120 cm; leaf blade orbicular-ovate 36. *A. robusta*
- 37b. Sepals smaller, ± pubescent; stem less than 70 cm; leaf blade varying in shape.
- 38a. Leaf blade orbicular, with subsessile segments; involucre bracts larger than leaves 37. *A. cathayensis*
- 38b. Leaf blade differently shaped; involucre bracts smaller than leaves.
- 39a. Sepals 5–10, blue or white.
- 40a. Stem usually solitary, erect; leaf blade usually orbicular-reniform, wider than long, with central segment similar to lateral ones; sepals white or yellowish, pubescent or glabrous 38. *A. narcissiflora*
- 40b. Stems 3–5, ascending; leaf blade usually ovate, longer than wide, with central segment distinctly larger than lateral ones; sepals usually blue or pink, densely pubescent 39. *A. demissa*
- 39b. Sepals 5, white or red (rarely pink).
- 41a. Sepals white, 7–10 × 5–6 mm; leaf blade ovate, longer than wide 40. *A. taipaiensis*
- 41b. Sepals red (rarely pink), 15–25 × 10–15 mm; leaf blade orbicular-rhombic, wider than long 41. *A. smithiana*
- 33b. Achene body ovoid, sometimes slightly compressed, densely pubescent (rarely subglabrous); leaf blade basally attenuate or cordate; involucre bract blade distinctly smaller than that of leaves; sepal vein anastomoses usually absent.
- 42a. Pistils and achenes ellipsoid, compressed, with distinct, lateral ribs, usually glabrous.
- 43a. Leaf blade pinnatifid, longer than wide; pistil and achene style bent basally 42. *A. imbricata*
- 43b. Leaf blade twice 3-sect, wider than long; pistil and achene style straight or curved apically.
- 44a. Leaves subglabrous; sepals 5–10 × 3–6 mm, glabrous or sparsely puberulent; filaments lanceolate; pistil and achene style straight or slightly curved 43. *A. rupestris*
- 44b. Leaves sparsely puberulent or subglabrous; sepals 9–14 × 5–9 mm, usually puberulent; filaments linear; pistil and achene style apically thickened and uncinat 44. *A. polycarpa*

- 42b. Pistils and achenes ovoid, not compressed (rarely sometimes slightly compressed), without lateral ribs, ± densely pubescent.
- 45a. Leaf blade usually longer than wide, base attenuate or cuneate.
- 46a. Leaf blade basally attenuate; cyme 1–3-flowered; sepal vein anastomoses sometimes present.
- 47a. Leaf blade 3-parted, 3-cleft, or 3-lobed, broadly lanceolate or ovate; involucre bract blade 3-lobed or 3-dentate; cyme 1–3-flowered; filaments ovate-lanceolate 45. *A. trullifolia*
- 47b. Leaf blade usually undivided, oblong-linear to oblanceolate; involucre bract blade undivided; cyme 1-flowered; filaments linear 46. *A. coelestina*
- 46b. Leaf blade basally truncate; cyme 1-flowered; sepal vein anastomoses absent.
- 48a. Leaf blade 3-parted or 3-lobed; involucre bract blade 3-lobed; sepals 8–16 × 8–10 mm 47. *A. yulongshanica*
- 48b. Leaf blade undivided or obscurely 3-lobed; involucre bract blade entire or 3-dentate; sepals 5–10 × 5–8 mm 48. *A. subindivisa*
- 45b. Leaf blade usually wider than long, base cordate or rounded.
- 49a. Leaf petiole 1–2 mm wide; involucre bract blade 3-lobed to 3-parted; cyme usually few flowered; sepals pilose; staminodes absent 49. *A. obtusiloba*
- 49b. Leaf petiole more than 2 mm wide; involucre bract blade undivided or sometimes 3-lobed; cyme 1-flowered; sepals glabrous or sparsely puberulent; staminodes sometimes present.
- 50a. Leaf blade central segment 3-sect or 3-parted, with distinct segments (leaf blade appearing pinnatifid), petiole 2–5 cm 50. *A. subpinnata*
- 50b. Leaf blade central segment 3-lobed or undivided, petiole 5–20 cm.
- 51a. Leaf blade orbicular-ovate, all segments subsessile; filaments ovate 51. *A. patula*
- 51b. Leaf blade ovate, central segment distinctly petiolulate; filaments linear-lanceolate.
- 52a. Leaf blade central segment petiolule 1–2 mm; sepals 10–20 × 6–12 mm; filaments linear, 0.3–0.5 mm wide 52. *A. rockii*
- 52b. Leaf blade central segment petiolule 5–10 mm; sepals 5–12 × 4–9 mm; filaments lanceolate, 0.5–1.0 mm wide 53. *A. geum*

1. *Anemone dichotoma* Linnaeus, Sp. Pl. 1: 540. 1753.

二歧银莲花 er qi yin lian hua

Anemonidium dichotomum (Linnaeus) Holub.

Rhizome shortly erect, 3–4 mm in diam., with long, prostrate, stolonlike runners 1–2 mm in diam. Leaves 2–4 (or 5), all scalelike, 3–10(–20) × 8–10 mm. Scape 35–60 cm, sparsely appressed puberulent; cyme compound, 2 or 3 × dichotomously branched, many flowered; primary branches 9–14 cm, secondary ones 1–10 cm. Bracts in several pairs, sessile; bract blade 3-parted, flabellate, 3–6 × 4.5–10 cm, abaxially puberulent, adaxially subglabrous; segments narrowly cuneate or linear-oblanceolate, 0.7–2.3 cm wide, distally indistinctly 3-lobed or undivided and few toothed. Bracteoles opposite, similar to bracts but shorter. Pedicel 3–10 cm, puberulent. Sepals 4 (or 5), white or tinged with pink, obovate or elliptic, 7–15 × 7–8 mm, puberulent, veins 3–7, vein anastomoses more than 10. Stamens to 4 mm; filament filiform; anther cylindrical, ca. 1.2 mm, apex rounded. Pistils ca. 30, ca. 2.2 mm, glabrous; ovary cylindrical; style short, recurved. Achene body ovoid or ellipsoid, compressed, 4–7 × 3–5 mm, marginate, glabrous; style slightly curved, 1–2 mm. Fl. Jun.

Forests, wet grassy places. Heilongjiang, Jilin [Mongolia, Russia; Europe].

2. *Anemone flaccida* F. Schmidt, Mém. Acad. Imp. Sci. Saint Pétersbourg, Sér. 7, 2: 103. 1868.

鹅掌草 e zhang cao

Rhizome branched, oblique, short, 5–10(–15) mm in diam., sometimes also prostrate, stolonlike, long, 1–1.5 mm in diam. Scalelike leaves 3 or 4, 5–8 × 5–8 mm, several with distinct leaf blade developing after anthesis. Leaves solitary on rhizome (petiole basally sheathing) and 2 or 3 at base of reproductive shoots (petiole basally slightly dilated); petiole 10–25 (–30) cm, hirsute or sparsely puberulent to glabrous; leaf blade 3-sect, reniform-pentagonal, 3.5–8 × 6–10(–14) cm, adaxially sparsely puberulent, base cordate, margin denticulate, apex obtuse or acute; segments with petiolule 1–2 mm or absent; central segment 3-lobed, rhombic, ultimate lobules triangular or broadly lanceolate; lateral segments 2-parted, obliquely flabellate. Scapes 1–3, 15–25(–40) cm, hirsute or sparsely puberulent to glabrous; cyme 2- or 3(–5)-flowered. Involucre bracts 3(–5), subsessile; bract blade unequally 3-lobed to deeply so, 3–6 × 5–8 cm, sparsely puberulent; lobes usually rhombic, base cuneate, margin shallowly incised, apex obtuse. Bracteoles 1 or 2, 6–15 × 3–7 mm,

lanceolate, entire or 3-lobed. Pedicel 4–7 cm, sparsely puberulent. Sepals (4 or)5(–8), persistent, white, yellowish, pink, or reddish purple, obovate to elliptic, 5–10(–20) × 3–5(–10) mm, glabrescent or sparsely appressed puberulent, basal veins 5–9, vein anastomoses 7–9, base and apex rounded. Stamens 3–5 mm; filament filiform; anther ellipsoid or cylindrical, apex mucronate or apiculate, connective narrow. Ovary ovoid, ca. 2 mm, densely puberulent, base narrowed or rounded; style obscure; stigma turbinate, broadly ovoid, or globose. Achene body ovoid, 3–4 × 1.5–2.5 mm, puberulent (hairs ca. 0.1 mm) or glabrate; style very short and thick. Fl. Apr–Aug.

Forests and streamsides in valleys, shady grassy places; 400–3000 m. S Anhui, Guizhou, W Hubei, Hunan, S Jiangsu, Jiangxi, Sichuan, NW Yunnan, NW Zhejiang [Japan, Russia (Far East, Sakhalin)].

- 1a. Rhizome both long and short; sepals white to pink; ovary base narrowed; stigma globose.
- 2a. Leaf petiole and scape glabrous to subglabrous; cyme 2- or 3-flowered; involucre bract blade usually 4–6 cm; sepals 7–10 mm 2a. var. *flaccida*
- 2b. Leaf petiole and scape hirsute; cyme 4- or 5-flowered; involucre bract blade ca. 3 cm; sepals 5–6 mm 2b. var. *hirtella*
- 1b. Rhizome short only; sepals white to reddish purple; ovary base rounded; stigma turbinate or broadly ovoid.
- 3a. Sepals 5, white, 10–15 mm; anthers mucronate at apex; stigma usually turbinate 2c. var. *hofengensis*
- 3b. Sepals 4–8, reddish purple, 6–10 mm; anthers apiculate at apex; stigma broadly ovoid 2d. var. *anhuiensis*

2a. *Anemone flaccida* var. *flaccida*

鹅掌草(原变种) e zhang cao (yuan bian zhong)

Anemone baicalensis Turczaninow subsp. *flaccida* (F. Schmidt) Ulbrich; *A. baicalensis* var. *laevigata* A. Gray; *A. laevigata* (A. Gray) Koidzumi; *Anemonoides flaccida* (F. Schmidt) Holub; *Arsenjevia flaccida* (F. Schmidt) Starodubtzev.

Rhizome both long and short. Leaf petiole and scape glabrous to subglabrous. Involucre bract blade usually 4–6 cm. Cyme 2- or 3-flowered. Sepals white to pink, 7–10 mm. Ovary base narrowed. Stigma globose.

Forests in valleys, shady grassy places; 1100–3000 m. S Anhui, Guizhou, W Hubei, Hunan, S Jiangsu, Jiangxi, Sichuan, NW Yunnan, NW Zhejiang [Japan, Russia (Far East, Sakhalin)].

2b. *Anemone flaccida* var. *hirtella* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 349. 1980.

展毛鹅掌草 zhan mao e zhang cao

Rhizome both long and short. Leaf petiole and scape hirsute. Involucre bract blade ca. 3 cm. Cyme 4- or 5-flowered. Sepals white to pink, 5–6 mm. Ovary base narrowed. Stigma globose.

• Streamsides in valleys; ca. 1000 m. SW Hubei (Lichuan Xian).

2c. *Anemone flaccida* var. *hofengensis* (W. T. Wang) Ziman & B. E. Dutton, **comb. et stat. nov.**

鹤峰银莲花 he feng yin lian hua

Basionym: *Anemone hofengensis* W. T. Wang, Acta Phytotax. Sin. 29: 463. 1991.

Rhizome short only. Sepals 5, white to reddish purple, 10–15 mm. Anther apex mucronate. Ovary base rounded. Stigma turbinate or broadly ovoid. Fl. May–Aug.

• Streamsides in mountain valleys; 1200–1800 m. SW Hubei (Enshi Xian, Hefeng Tujia Zu Zizhixian), NW Hunan (Sangzhi Xian), NE Sichuan (Fengjie Xian).

2d. *Anemone flaccida* var. *anhuiensis* (Y. K. Yang et al.) Ziman & B. E. Dutton, **comb. et stat. nov.**

安徽银莲花 an hui yin lian hua

Basionym: *Anemone anhuiensis* Y. K. Yang et al., J. Wuhan Bot. Res. 7: 327. 1989.

Rhizome short only. Sepals 4–8, white to reddish purple, 6–10 mm. Anther apex apiculate. Ovary base rounded. Stigma turbinate or broadly ovoid. Fl. Apr.

• *Pinus* forests in mountain valleys; ca. 1000 m. S Anhui (Qingyang Xian: Jiuhua Shan).

3. *Anemone delavayi* Franchet, Bull. Soc. Bot. France 33: 366. 1886.

滇川银莲花 dian chuan yin lian hua

Rhizome branched, short, stout, 4–7 mm in diam., also prostrate, stolonlike, long, ca. 1 mm in diam. Scalelike leaves 2 or 3, 3–4 mm. Leaf solitary, with distinct blade developing after anthesis; petiole 3–10 cm, puberulent distally; leaf blade 3-sect, cordate-pentagonal, 2–4 × 2–5 cm, sparsely puberulent, base cordate, margin dentate, apex acute or acuminate; petiolules 1–2 mm; central segment rhombic-ovate or rhombic; lateral segments smaller, unequally 2-lobed. Scape 5–10(–20) cm, puberulent distally; cyme 1(or 2)-flowered. Involucre bracts 3, subsessile; bract blade 3-parted or 3-lobed, rhombic-ovate or elliptic, 1–3 × 2–5 cm, sparsely puberulent, base cuneate, margin denticulate or entire, apex obtuse. Pedicel 2–6 cm, puberulent. Sepals 5, white and reddish tinged or blue, elliptic or obovate, 5–15 × 3–7 mm, sparsely puberulent, basal veins 3–5, vein anastomoses absent, rarely solitary, base narrowed, apex rounded to acuminate. Stamens 4–7 mm; filament filiform; anther narrowly ellipsoid, apex rounded, connective narrow. Ovary ovoid, 1.5–2 mm, densely puberulent; style very short; stigma subsessile or sessile, globose or turbinate. Achene body ovoid, 3–4 × ca. 2 mm, densely puberulent, hairs ca. 0.1 mm; style 0.5 mm; stigma thickened. Fl. May–Jul.

• Forests, moist places near forest margins; 2400–3000 m. SW Sichuan, NW Yunnan.

1a. Sepals 7–15 × 5–7 mm; stigma subsessile, globose 3a. var. *delavayi*

1b. Sepals 5–6 × ca. 3 mm; stigma sessile, turbinate 3b. var. *oligocarpa*

3a. *Anemone delavayi* var. *delavayi*

滇川银莲花(原变种) dian chuan yin lian hua (yuan bian zhong)

Anemonoides delavayi (Franchet) Holub.

Sepals 7–15 × 5–7 mm. Stigma subsessile, globose.

• Forests, moist places near forest margins; 2400–3000 m. NW Yunnan.

3b. *Anemone delavayi* var. *oligocarpa* (C. Pei) Ziman & B. E. Dutton, **comb. et stat. nov.**

少果银莲花 shao guo yin lian hua

Basionym: *Anemone oligocarpa* C. Pei, Contr. Biol.

Lab. Chin. Assoc. Advancem. Sci., Sect. Bot. 9: 3. 1933.

Sepals 5–6 × ca. 3 mm. Stigma sessile, turbinate.

• Forest margins; 2800–3000 m. SW Sichuan (Jiulong Xian, Muli Zang Zu Zizhixian).

4. *Anemone erythrophylla* Finet & Gagnepain, Bull. Soc. Bot. France 53: 125. 1906.

红叶银莲花 hong ye yin lian hua

Rhizomes thin, with scales, producing slender stolons.

Basal leaves 2; petiole 1.8–11 cm, spreading yellowish

villous; leaf blade abaxially red-purple, 3-lobed,

pentagonal or orbicular-reniform, 1.6–3 × 2.2–5.3 cm,

sparsely yellowish puberulent, base cordate; central

lobe broadly rhombic-obovate, distal margin rounded

dentate; lateral lobes obliquely flabellate, larger than

central one. Scape 7–15 cm, villous; cyme 1-flowered.

Involucral bracts 3, 3-lobed or undivided, rhombic or

broadly so, subequal, 4–11 mm. Flowers ca. 2 cm in

diam.; pedicel 3–5 cm, puberulent. Sepals 6–8, white,

obovate, 7–9 × 4–5 mm, abaxially puberulent, apex

rounded or obtuse. Stamens 2–4.5 mm; anthers broadly

oblong, ca. 1 mm, apex rounded. Pistils ca. 10; ovary

ovoid, puberulent. Stigma subsessile, subglobose. Fl.

May.

• Shady places in valleys; 1800–2200 m. W Sichuan (Tianquan Xian).

Two of us (Ziman and Dutton) believe that this species would be better treated as a synonym of *A. baicalensis* var. *baicalensis*.

5. *Anemone baicalensis* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 15: 40. 1842.

毛果银莲花 mao guo yin lian hua

Rhizome branched, ascending, short, 4–6 mm in diam.,

but sometimes prostrate, stolonlike, long, ca. 1 mm in

diam. Scalelike leaves absent. Leaves 2 or 3, with

distinct blade developing before anthesis; petiole 10–

15(–20) cm, pubescent, sparsely puberulent, or

glabrous, base sheathing, remnants sometimes

resembling scalelike leaves; leaf blade 3-sect,

reniform-pentagonal, 3–5 × 4–7(–10) cm, puberulent,

base cordate, margin lobulate-dentate, apex obtuse;

segments subsessile; central segment 3-lobed or toothed

distally, broadly rhombic; lateral segments 2-parted,

obliquely flabellate. Scape solitary, (5–)10–25(–30) cm,

pubescent, sparsely puberulent, or glabrous; cyme 1(or

2)-flowered. Involucral bracts 3, sessile; bract blade

unequally 2- or 3-parted or 3-lobed distally, rhombic or

lanceolate, 1–3 × 2–4 cm. Pedicel 3–8(–10) cm,

pubescent. Sepals 5(–7), white, obovate, 7–20 × 6–7

mm, sparsely pubescent or subglabrous, basal veins 3–5,

vein anastomoses 3–5, base and apex rounded. Stamens

4–7 mm; filament filiform; anther ellipsoid or cylindrical,

connective narrow. Ovary ovoid, puberulent or

subglabrous, base rounded; style obscure; stigma

turbinate, ellipsoid-turbinate, or globose. Achene body

cylindric-ovoid, 4–5 × 2–2.5 mm, puberulent (hairs ca.

0.1 mm), base narrowed; style hooked, ca. 0.5 mm,

base puberulent. Fl. May–Jun.

Forests, scrub, grassy places and slopes; 500–3100 m. S Gansu, E

Heilongjiang, Jilin, Liaoning, S Shanxi, C and NW Sichuan, Yunnan

[N Korea, Mongolia, Russia (Siberia)].

1a. Leaf petiole and scape glabrous 5d. var. *rossii*

1b. Leaf petiole and scape pubescent.

2a. Leaf petiole and scape spreading

pubescent 5a. var. *baicalensis*

2b. Leaf petiole and scape sparsely

appressed puberulent.

3a. Sepals 7–8 mm; stigma

ellipsoid-turbinate 5b. var. *kansuensis*

3b. Sepals 10–20 mm; stigma

globose 5c. var. *saniculiformis*

5a. *Anemone baicalensis* var. *baicalensis*

毛果银莲花(原变种) mao guo yin lian hua (yuan bian

zhong)

Anemone baicalensis subsp. *glabrata* (Maximowicz)

Kitagawa; *A. baicalensis* var. *glabrata* Maximowicz; *A.*

glabrata (Maximowicz) Juzepczuk; *A. ulbrichiana*

Diels ex Ulbrich; *A. wilsonii* Hemsley (1906), not

Ulbrich (1905); *Anemonoides baicalensis* (Turczaninow)

Holub; *A. glabrata* (Maximowicz) Holub; *A.*

ulbrichiana (Diels ex Ulbrich) Holub; *Arsenjevia*

baicalensis (Turczaninow) Starodubtzev; *A. glabrata*

(Maximowicz) Starodubtzev.

Leaf petiole and scape spreading pubescent.

Forests, scrub, grassy slopes; 500–3100 m. S Gansu, E Heilongjiang,

Jilin, Liaoning, S Shanxi, NW Sichuan, Yunnan [N Korea, Mongolia,

Russia (Siberia)].

5b. *Anemone baicalensis* var. *kansuensis* (W. T. Wang) W.

T. Wang, Fl. Reipubl. Popularis Sin. 28: 20. 1980.

甘肃银莲花 gan su yin lian hua

Anemone kansuensis W. T. Wang, Acta Phytotax. Sin.

12: 163. 1974.

Leaf petiole and scape appressed puberulent. Sepals 7–

8 mm. Stigma ellipsoid-turbinate. Fl. Jun.

• Grassy places and slopes; ca. 2500 m. S Gansu (Wudu Xian).

5c. *Anemone baicalensis* var. *saniculiformis* (C. Y. Wu ex

W. T. Wang) Ziman & B. E. Dutton, **comb. et stat. nov.**

芹叶银莲花 qin ye yin lian hua

Basionym: *Anemone saniculiformis* C. Y. Wu ex W. T.

Wang, Acta Phytotax. Sin. 12: 164. 1974.

Leaf petiole and scape sparsely appressed puberulent. Sepals 10–20 mm. Stigma globose. Fl. May–Jun.

• Forests; 2300–2900 m. C Sichuan (Baoping Xian).

5d. *Anemone baicalensis* var. *rossii* (S. Moore) Kitagawa, Lin. Fl. Manshur. 213. 1939.

细茎银莲花 xi jing yin lian hua

Anemone rossii S. Moore, J. Linn. Soc., Bot. 17: 376. 1879; *Anemonoides rossii* (S. Moore) Holub; *Arsenjevia rossii* (S. Moore) Starodubtzev.

Leaf petiole and scape glabrous. Stigma turbinate. Fl. May–Jun.

Forests in mountainous regions. E Jilin, SE Liaoning (Fengcheng Xian) [N Korea].

6. *Anemone prattii* Huth ex Ulbrich, Bot. Jahrb. Syst. 36(Beibl. 80): 4. 1905.

川西银莲花 chuan xi yin lian hua

Anemonoides prattii (Huth ex Ulbrich) Holub; *Arsenjevia prattii* (Huth ex Ulbrich) Starodubtzev.

Rhizome oblique, short, 5–7 mm in diam., with above-ground, long, slender stolons, ca. 1 mm in diam. Leaves 2 or 3; petiole 5–15 cm, glabrous; leaf blade 3-sect, cordate-pentagonal, 3–3.5 × 5–5.5 cm, abaxially subglabrous, adaxially sparsely puberulent, base cordate; segments subsessile; central segment 3-lobed, rhombic, base cuneate, secondary lobes subpinnately divided, ultimate lobules broadly lanceolate, narrowly ovate, or ovate; lateral segments 2-parted, obliquely flabellate. Scape 10–30 cm, sparsely puberulent distally; cyme 1 (or 2)-flowered. Involucral bracts 3, sessile; bract blade 3-lobed, unequally rhombic, puberulent. Pedicel 3.5–8 cm, puberulent. Sepals 5, white, elliptic-obovate or elliptic, 8–10 × 4–7 mm, sparsely puberulent, veins 3–5, vein anastomoses absent, apex rounded. Stamens 4–5 mm; filament filiform; anther ellipsoid, apex rounded. Ovary densely puberulent; style very short; stigma sessile, subglobose. Achenes not seen. Fl. Apr–May.

• Shady places in forests, valleys; 1700–2400 m. W Sichuan, N Yunnan.

7. *Anemone stolonifera* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg, Sér. 3, 22: 225. 1876.

匍枝银莲花 fu zhi yin lian hua

Anemone siuzevii Komarov; *Anemonoides stolonifera* (Maximowicz) Holub.

Rhizome prostrate, stolonlike, long, 1–2 mm in diam., also ascending, short, 3–5 mm in diam. Leaves 2–5(–8), developing before anthesis; petiole 8–20(–25) cm, puberulent distally, base sheathing, 6–9 mm wide, surrounded by fibrous remnants; leaf blade ternate, reniform-pentagonal, 2–5 × 4–8 cm, sparsely to densely puberulent; petiolules 2–6 mm; central leaflet 3-parted to 3-lobed, rhombic to broadly ovate, 2–6 × 1–4 cm,

base cuneate, margin lobulate to dentate, ciliate, apex obtuse or acute, lobes and lobules ovate; lateral leaflets unequally 2-parted. Scapes 1–3, 15–20(–25) cm, scarcely pubescent distally; cyme 1–3-flowered.

Involucral bracts more than 3; petiole 0.5–2 cm × 1–2 mm; bract blade 3-sect or 3-parted, rhombic-ovate, similar to that of leaves, 2–5 × 3–6 cm, puberulent; segments sessile, rhombic. Bracteoles 1–2 cm, entire, lanceolate. Pedicel 3–7 (–10) cm, puberulent. Sepals 5 (or 6), white or pinkish, elliptic or elliptic-obovate, 5–10 × 3–7 mm, sparsely or densely puberulent, basal veins 3–5, vein anastomoses absent, base narrowed, apex rounded. Stamens 2–5 mm; filament filiform, sometimes apically dilated; anther narrowly ellipsoid. Staminodes present between sepals and stamens, 1.8–3 × ca. 2 mm. Ovary obovoid, 1.5–2 mm, puberulent or subglabrous; style conic, very short, apically curved; stigma linear. Achene body ovoid, 3–4 × 1.5–2 mm, sparsely puberulent (hairs ca. 0.1 mm) or glabrous; style shortly curved or hooked, ca. 0.5 mm. Fl. Jun.

Broad-leaved and coniferous forests, mountainous regions; 1200–2600 m. E Heilongjiang, Taiwan [Japan, Korea].

8. *Anemone davidii* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 185. 1886.

西南银莲花 xi nan yin lian hua

Anemone petiolulata C. Pei; *A. stolonifera* Maximowicz var. *davidii* (Franchet) Finet & Gagnepain;

Anemonoides davidii (Franchet) Starodubtzev.

Rhizome prostrate, stolonlike, long, 1–2 mm in diam., also branched, erect, short, 6–15 mm in diam. Scalelike leaves 2 or 3, 8–10 × 10–15 mm. Leaves 2–5(–9); petiole 10–20(–35) cm, subglabrous or puberulent, base sheathing and surrounded by fibrous remnants; leaf blade ternate, cordate-pentagonal, 5–10 (–12) × 5–15 cm, sparsely puberulent; petiolules 3–7 mm; central leaflet 3-lobed, rhombic, base cuneate, margin lobulate or coarsely dentate, apex acuminate; lateral leaflets unequally 2-parted, smaller than central one, ultimate lobules obtuse. Scapes 1–3, 20–40(–60) cm, subglabrous; cyme 1–3-flowered. Involucral bracts 3–5; petiole 1.5–3 cm × 1–2 mm, puberulent; bract blade ternate, similar to that of leaves, 5–8 × 6–9 cm, sparsely puberulent; petiolules 2–5 mm; central segment 3-lobed; lateral segments 2-parted. Bracteoles 1 or 2, 2–3 cm, broadly lanceolate, 3-lobed or 3-dentate. Pedicel 5–15 cm, puberulent. Sepals 5 (or 6), white, elliptic or obovate, 15–20(–30) × 10–20 mm, sparsely puberulent along central vein or subglabrous, basal veins 5–7, vein anastomoses 5–15, base and apex rounded. Stamens 4–8 mm; filament filiform; anther narrowly ellipsoid. Staminodes present between stamens and carpels, 2–3 × ca. 2 mm. Ovary ovoid, slightly compressed, 3–4 mm, laterally ribbed, pubescent; style straight, short; stigma subcapitate. Achene body ovoid, slightly compressed, 3–5 × 2–3 mm, narrowly ribbed, glabrous or puberulent; style curved, conic, ca. 1 mm; stigma subcapitate. Fl. May–Jun.

• Mixed forests, bamboo thickets, shady places by streams, rocks in valleys; 1000–3500 m. Guizhou, W Hubei, W Hunan, Sichuan, SE Xizang (Mêdog Xian), NW Yunnan.

9. *Anemone exigua* Maximowicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg, Sér. 3, 23: 306. 1877.

小银莲花 xiao yin lian hua

Rhizome prostrate, stolonlike, long, 1–2 mm in diam., also oblique, short, 8–10 mm in diam. Leaves 2–5; petiole 5–10 (–20) cm, puberulent, base sheathing, surrounded by fibrous remnants; leaf blade ternate, cordate-pentagonal, 2–3 × 2.5–4 cm, sparsely puberulent; petiolules 1–3 mm; central leaflet 3-lobed, broadly rhombic, base cuneate, margin incised serrate, apex obtuse; lateral leaflets unequally 2-lobed, smaller than central one. Scape 5–15(–25) cm, sparsely puberulent distally; cyme 1-flowered. Involucral bracts 3; petiole 1–1.5 cm × 3–5 mm, base sheathing and connate; bract blade 3-parted or 3-lobed, similar to that of leaves but smaller, triangular-ovate to ovate, puberulent; petiolules 1–2 mm. Pedicel 1–3 cm, puberulent. Sepals 5(or 6), white or yellow, elliptic to obovate, 5–8 × 3–5 mm, subglabrous or sparsely puberulent, basal veins 3–5, vein anastomoses absent. Stamens 3–4 mm; filament filiform, slightly compressed; anther ellipsoid, connective narrow. Pistils 5–20; ovary obovoid, 1.2–1.8 mm, sparsely puberulent or glabrous; style short, apically curved. Achene body ellipsoid, narrowly ribbed, 2.5–3 × ca. 1.5 mm, sparsely puberulent, hairs ca. 0.1 mm; style curved, conic, ca. 1 mm, glabrous. Fl. Jun–Aug.

• *Picea* forests, mixed *Betula* forests, scrub, shady places in valleys; 2000–3500 m. S Gansu, E Qinghai, S Shanxi, W Sichuan, Taiwan, NW Yunnan.

1a. Sepals white; pistils 5–10 9a. var. *exigua*

1b. Sepals yellow; pistils 10–20 ... 9b. var. *shanxiensis*

9a. *Anemone exigua* var. *exigua*

小银莲花(原变种) xiao yin lian hua (yuan bian zhong)

Anemone takasagomontana Masamune; *A. vitifolia*

Buchanan-Hamilton ex de Candolle var.

takasagomontana (Masamune) S. S. Ying;

Anemonoides exigua (Maximowicz) Starodubtzev.

Sepals white. Pistils 5–10.

• *Picea* forests, scrub; 2000–3500 m. S Gansu, E Qinghai, S Shanxi, W Sichuan, Taiwan, NW Yunnan.

9b. *Anemone exigua* var. *shanxiensis* B. L. Li & X. Y. Yu, Acta Phytotax. Sin. 27: 152. 1989.

山西银莲花 shan xi yin lian hua

Sepals yellow. Pistils 10–20.

• Mixed *Betula* forests, shady places in valleys; ca. 2100 m. S Shanxi (Lingshi Xian).

10. *Anemone griffithii* J. D. Hooker & Thomson, Fl. Ind. 21. 1855.

三出银莲花 san chu yin lian hua

Anemone caerulea de Candolle var. *griffithii* (J. D.

Hooker & Thomson) Ulbrich; *A. nanchuanensis* W. T.

Wang; *Anemonoides griffithii* (J. D. Hooker &

Thomson) Holub.

Rhizome prostrate, stolonlike, long, 1–2 mm in diam., also ascending, short, 4–7 mm in diam. Leaves 3–6; petiole 5–8 (–15) cm, subglabrous, base sheathing, surrounded by fibrous remnants; leaf blade ternate, rhombic, 2–4 × 3–4 cm, sparsely appressed puberulent; petiolules 2–5(–7) mm; central leaflet 3-lobed, rhombic or rhombic-ovate, base broadly cuneate, margin subacutely serrate or incised, apex acute; lateral leaflets unequally 2-parted or 2-lobed, obliquely flabellate. Scape solitary, 5–15(–20) cm, sparsely puberulent distally; cyme 1- or 2-flowered. Involucral bracts 3; petiole 5–10(–25) × 1–2 mm; bract blade ternate, similar to that of leaves but larger, 2–5 × 3–6 cm, sparsely puberulent; petiolules 1–3 mm; central segment 3-lobed; lateral segments 2-lobed, smaller than central one. Pedicel 2–5(–7) cm, densely puberulent. Sepals 5(or 6), white, pinkish, or mauve, obovate-oblong, 6–8(–10) × 4–6 mm, subglabrous or sparsely puberulent, basal veins 3–5, vein anastomoses absent, rarely solitary. Stamens 3–6 mm; filament filiform; anther ellipsoid. Ovary ovoid, compressed, ribbed, subglabrous; style nearly absent; stigma subglobose. Achene body ovoid, compressed, 3–4 × 2–3 mm, glabrous, ribs 1–2 mm wide; style minute; stigma small. Fl. May–Jun.

Forests, streamsides; 1600–3000 m. C and SE Sichuan (Guan Xian, Nanchuan Xian), S Xizang [Bhutan, N India, ?Nepal, ?Sikkim].

11. *Anemone scabriuscula* W. T. Wang, Acta Phytotax. Sin. 12: 160. 1974.

糙叶银莲花 cao ye yin lian hua

Rhizome branched, erect or slightly oblique, short, 2–4 cm × 6–10 mm. Leaves 2–5; petiole 6–10 cm, sparsely puberulent or subglabrous, base sheathing, surrounded by fibrous remnants; leaf blade ternate, pentagonal or pentagonal-ovate, 3–7 × 3–8 cm, foveolate and roughish, strigose, base cordate; petiolules 1–2 mm; central leaflet 3-lobed, rhombic, base cordate, margin incised serrate, apex long acuminate; lateral leaflets unequally 2-parted, obliquely flabellate. Scape 4–6 cm, puberulent distally; cyme 1-flowered. Involucral bract petiole 0.5–1 cm × 1–2 mm; bract blade ternate, similar to that of leaves but smaller, 1.5–3.5 × 2–4 cm, sparsely puberulent; petiolules 1–2 mm; central segment 3-parted to 3-lobed; lateral segments 2-parted. Pedicel ca. 2 cm, densely substrigose. Sepals 5, white, obovate, 5–7 × 3–4 mm, densely puberulent, basal veins 3–5, vein anastomoses absent, base narrowed, apex rounded. Stamens 2–3 mm; filament filiform; anther ellipsoid, apex minutely mucronate. Ovary ovoid, ca. 2.5 mm, glabrous; style curved, short. Achenes not seen. Fl. Sep.

• Forests, semishaded slopes; ca. 3000 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

12. *Anemone amurensis* (Korshinsky) Komarov, Trudy Imp. S.-Peterburgsk. Bot. Sada 22: 262. 1903.

黑水银莲花 *hei shui yin lian hua*

Anemone nemorosa Linnaeus subsp. *amurensis* Korshinsky, Trudy Imp. S.-Peterburgsk. Bot. Sada 12: 292. 1892; *A. nemorosa* var. *fissa* Ulbrich; *Anemonoides amurensis* (Korshinsky) Holub.

Rhizome branched, prostrate or ascending, 3–10 cm × 1–3 mm. Scalelike leaves 2 or 3. Leaf solitary; petiole 7–15(–20) cm, pilose or subglabrous, base slightly dilated; leaf blade 1- or 2-ternate, pentagonal, 3–3.5 × 5–6 cm, abaxially glabrous, adaxially sparsely puberulent; petiolules 5–15 mm; central leaflet 3-sect or 3-parted, rhombic to broadly ovate, base subcordate to cuneate, margin crenate or dentate, apex obtuse to acuminate; lateral leaflets similar to central one, rhombic to obovate, central segment 3-lobed, rhombic, lateral segments unequally 2-cleft, oblique. Scape (5–)10–25 cm, glabrous; cyme 1-flowered. Involucral bract petiole 10–15 × 3–5 mm, dilated and narrowly winged, pilose; bract blade ternate, similar to that of leaves, ovate to pentagonal, 2.5–4 × 2.5–4 cm, subglabrous or adaxially sparsely puberulent; petiolules 1–2 mm; central segment subpinnately parted, ovate-rhombic, base cuneate, margin serrate, apex acuminate; lateral segments 2-parted, ovate to lanceolate. Pedicel 1.5–5 cm, puberulent. Sepals 5–8, white, obovate to oblong, 10–15(–18) × 5–7(–10) mm, glabrous, basal veins 3–5, vein anastomoses absent, rarely solitary, base long narrowed, apex rounded. Stamens 4–7 mm; filament filiform, base and apex sometimes slightly dilated; anther ellipsoid, connective narrow. Ovary cylindrical, 2.2–2.6 mm, densely puberulent, hairs ca. 0.2 mm; style straight, conic, very short; stigma subcapitate. Achene body cylindrical to narrowly ovoid, 4–5 × 1.5–2 mm, pilose, hairs 0.1–0.2 mm; style slightly curved, 0.5–1 mm. Fl. Jun.

Forests, scrub, mainly in mountainous regions. E Heilongjiang, E Jilin, SE Liaoning (Fengcheng Xian) [N Korea, Russia (Far East)].

13. *Anemone udensis* Trautvetter & C. A. Meyer, Fl. Ochot. 6. 1856.

乌德银莲花 *wu de yin lian hua*

Anemonoides udensis (Trautvetter & C. A. Meyer) Holub.

Rhizome prostrate or ascending, long, 2–6 mm in diam., sometimes with thickened nodes. Scalelike leaves several, 4–6 mm. Leaf solitary; petiole 5–15(–20) cm, villous; leaf blade ternate, rhombic, 3–4 × 3.5–4.5 cm, abaxially sparsely villous, adaxially glabrous; petiolules 3–5 mm; central leaflet distally 3-lobed, obovate, base cuneate, margin crenate to incised dentate, apex obtuse to acute; lateral leaflets similar to central one, ovate to obovate, oblique. Scape 15–25(–40) cm, 1-flowered, spreading pubescent. Involucral bract petiole 2–3 cm × 1–2 mm; bract blade ternate, similar to that of leaves but larger, pentagonal, 4–7 × 5–7 cm, abaxially sparsely puberulent; petiolules 3–5(–10) mm; central segment 3-lobed or undivided, rhombic-obovate, base cuneate,

margin crenate to serrate, apex obtuse to broadly acute; lateral segments obliquely elliptic, smaller than central one. Pedicel 5–10 cm, puberulent. Sepals 5, white, obovate to ovate, 10–18 × 5–13 mm, appressed pilose or subglabrous, basal veins 5–7, vein anastomoses 5–9. Stamens 4–6 mm; filament filiform; anther ellipsoid. Ovary cylindrical, 2.5–3 mm, densely puberulent; style straight, short. Achene body fusiform, slightly compressed, 2–3 × ca. 1.5 mm, pilose (hairs 0.1–0.2 mm), base and apex narrowed; style straight or slightly curved, conic, 2–2.5 mm. Fl. May–Jun.

Grassy places in forests or on shady slopes; 200–500 m. E Jilin, Liaoning [N Korea, Russia (Far East)].

14. *Anemone umbrosa* C. A. Meyer in Ledebour, Fl. Altaic. 2: 361. 1830.

阴地银莲花 *yin di yin lian hua*

Anemone extremiorientalis (Starodubtzev) Starodubtzev; *A. umbrosa* subsp. *extremiorientalis* Starodubtzev; *Anemonoides extremiorientalis* (Starodubtzev) Starodubtzev; *A. umbrosa* (C. A. Meyer) Holub.

Rhizome branched, prostrate or ascending, long, 1–1.5 mm in diam. Scalelike leaves 2 or 3. Leaf solitary; petiole 5–15 cm, puberulent or subglabrous; leaf blade ternate, pentagonal, 2–4 × 2–4 cm, appressed puberulent or glabrous; petiolules 1–2 mm; central leaflet 3-lobed, long ovate, base cordate to cuneate, margin serrulate, apex obtuse to acuminate; lateral leaflets unequally 2-lobed, ovate to orbicular, base narrowly cuneate, margin crenate to dentate. Scape 8–20(–30) cm, subglabrous or pilose; cyme 1-flowered. Involucral bract petiole 1–2(–3) cm × 1–2 mm, glabrous or pilose; bract blade ternate, similar to that of leaves, pentagonal to triangular, 2–4 × 3–5 cm, puberulent; segments sessile, central one 3-lobed, rhombic, lateral ones unequally 2-lobed, obovate to elliptic. Pedicel 3.5–6 cm, puberulent or villous. Sepals 5, white, ovate to elliptic, 7–14 × 4–10 mm, sparsely puberulent, basal veins 5 or 6, vein anastomoses absent, rarely solitary, base narrowed, apex rounded or obtuse. Stamens 4–6 mm; filament filiform; anther cylindrical to ellipsoid, connective narrow. Staminodes sometimes present, 2.5–4 mm. Ovary shortly stipitate, elongate, 1.7–2 mm, densely puberulent; style straight or slightly curved, conic; stigma thickened. Achene body ovoid, 2–4 × 1.5–2 mm, pilose, hairs ca. 0.2 mm; style straight or slightly curved, ca. 1 mm. Fl. May–Jun.

Grassy places in forests or on shady slopes; 200–500 m. Heilongjiang, Jilin, Liaoning [N Korea, Russia (Far East)].

15. *Anemone reflexa* Stephan ex Willdenow, Sp. Pl. 2: 1282. 1799.

反萼银莲花 *fan e yin lian hua*

Anemonoides reflexa (Stephan ex Willdenow) Holub. Rhizome prostrate or ascending, long, 1–2 mm in diam., also nodulose, short, 4–5 mm in diam. Scalelike leaves 2 or 3. Leaf solitary; petiole 10–25 cm; leaf blade ternate, 2–5 × 3–6 cm, glabrous or sparsely pilose;

petiolules 5–15 mm; central leaflet subentire, elliptic to ovate, base cuneate, margin serrate, apex acute to acuminate; lateral leaflets similar to central one, ovate, but often deeply 2-lobed so leaf blade appears 5-parted. Scape 15–25(–30) cm, glabrous; cyme 1–3-flowered. Involucral bract petiole 10–20 × 1–2 mm; bract blade ternate, similar to that of leaves but larger, 4–8 × 4–7 cm, sparsely puberulent; segments subsessile, central one undivided, lateral ones unequally 2-cleft. Bracteoles often 1 or 2, 3-parted, 1.5–2.5 cm. Pedicel 1.5–4 cm, densely puberulent. Sepals 5 or 6(or 7), bent or reflexed, white, linear-lanceolate, 5–7 × 1–3 mm, abaxially puberulent, basal veins 3, vein anastomoses absent. Stamens 2–5 mm; filament usually ovate-lanceolate or macelike, flat, dilated apically; anther ellipsoid or broadly ovoid. Ovary narrowly ovoid, ca. 2 mm, densely or sparsely puberulent, base narrowed; style straight, conic; stigma dilated. Achene body ellipsoid to ovoid, 3–4 × 1.5–2 mm, narrowly ribbed, villous, hairs ca. 0.2 mm; style curved, conic, 1–1.5 mm. Fl. Apr–May.

Open forests, scrub, valleys. W Henan, S Jilin (Changbai Shan), S Shaanxi (Lantian Xian, Taibai Shan) [N Korea, Mongolia, Russia (Siberia)].

16. *Anemone raddeana* Regel, Bull. Soc. Imp. Naturalistes Moscou 34: 16. 1861.

多被银莲花 duo bei yin lian hua

Rhizome prostrate or ascending, long, 2–3 mm in diam., also nodulose, short, 4–8 mm in diam. Scalelike leaves 2 or 3, 1–2 cm. Leaf solitary, developing close to scape; petiole 5–20 cm, glabrous or sparsely puberulent; leaf blade ternate, pentagonal or orbicular-ovate, 2–5 × 2–4 cm, subglabrous or sparsely pubescent; petiolules 10–30 mm; central leaflet 3-lobed or deeply toothed, obovate to elliptic, base cuneate to truncate, margin coarsely crenate to serrate, apex obtuse; lateral leaflets obliquely oblong or ovate, similar to central one. Scape 10–30 cm, subglabrous; cyme 1-flowered. Involucral bract petiole 5–12 × 1–2 mm, glabrous; bract blade ternate, similar to that of leaves, rhombic-pentagonal, 2–4 × 2–5 cm, sericeous; leaflets subsessile, narrowly ovate, apically deeply obtusely toothed. Pedicel 1–3 cm, sparsely puberulent or subglabrous. Sepals 9–15, white or white tinged purple, linear-oblong, 12–20 × 4–5 mm, glabrous, basal veins 3–5, vein anastomoses 1–3, base and apex rounded. Stamens 4–8 mm; filament filiform, base and apex slightly dilated; anther cylindrical. Ovary ovoid, ca. 2 mm, pilose; style straight, short; stigma linear. Achene body narrowly ovoid, slightly compressed, ca. 3 × 1.5 mm, narrowly ribbed, villous, hairs ca. 0.2 mm; style curved, 1–1.5 mm. Fl. Apr–May.

Forests, shady places in valleys, shady grassy places; 500–1000 m. Heilongjiang, E Jilin, Liaoning, E Shandong, N Zhejiang [Japan, Korea, Russia (Far East)].

- 1a. Leaf petiole glabrous or subglabrous; leaf and bract blade central segment obovate, apex 3-lobulate or 3-dentate 16a. var. *raddeana*
- 1b. Leaf petiole villous; leaf and bract blade central segment broadly rhombic, apex many lobulate or many dentate .. 16b. var. *lacerata*

16a. *Anemone raddeana* var. *raddeana*

多被银莲花(原变种) duo bei yin lian hua (yuan bian zhong)

Anemone raddeana subsp. *glabra* Ulbrich; *A. raddeana* var. *integra* Huth; *A. raddeana* subsp. *villosa* Ulbrich; *Anemonoides raddeana* (Regel) Holub.

Leaf petiole glabrous or subglabrous. Leaf and bract blade central segment obovate, apex 3-lobulate or 3-dentate; lateral segments unequally 2-lobed or 2-lobulate, or entire.

Forests, shady grassy places; ca. 800 m. Heilongjiang, E Jilin, Liaoning, E Shandong [Japan, Korea, Russia (Far East)].

16b. *Anemone raddeana* var. *lacerata* Y. L. Xu, Bull. Bot. Res., Harbin 13: 121. 1993.

龙王山银莲花 long wang shan yin lian hua

Leaf petiole villous. Leaf and bract blade central segment broadly rhombic, apex many lobulate or many dentate; lateral segments unequally 2-parted.

• Shady places in valleys; 500–1000 m. N Zhejiang (Anji Xian).

17. *Anemone altaica* Fischer ex C. A. Meyer in Ledebour, Fl. Altaic. 2: 362. 1830.

阿尔泰银莲花 a er tai yin lian hua

Anemone nemorosa Linnaeus subsp. *altaica* (Fischer ex C. A. Meyer) Korshinsky; *Anemonoides altaica* (Fischer ex C. A. Meyer) Holub.

Rhizome prostrate, stolonlike, ca. 2 mm in diam., also oblique, nodulose, short, 5–8 mm in diam. Scalelike leaves 2 or 3, 4–6 mm. Leaf solitary; petiole 4–8 cm, subglabrous; leaf blade ternate, 2.5–4 × 3–6 cm, glabrous; petiolules 5–10(–20) mm; central leaflet 3-lobed, subcordate-pentagonal, base cuneate, margin crenate to denticulate, apex acuminate or obtuse, segments sessile, 3-lobed; lateral leaflets similar to central one but 2-lobed or 2-cleft, slightly oblique, ultimate lobules obtuse. Scape 10–20(–30) cm, subglabrous; cyme 1-flowered. Involucral bract petiole flat, 10–20(–30) × 3–5 mm, winged, sparsely puberulent or subglabrous; bract blade ternate, larger than that of leaves, 3–6 × 4–8 cm, puberulent; petiolules 5–10(–20) mm; central segment 3-lobed, narrowly rhombic to elliptic, base cuneate, margin irregularly dentate or serrate, apex acuminate; lateral segments oblique, smaller than central one, ultimate lobules obtuse. Pedicel 3–5 cm, puberulent. Sepals 8–12, in 2 whorls, white, bluish, or reddish violet, oblong to narrowly elliptic, glabrous, base and apex rounded; outer whorl 20–25 × 5–8 (–12) mm, basal veins 5–9, vein anastomoses 3–5; inner whorl 10–12 × 3–4 mm, without vein anastomoses. Stamens 4–8 mm; filament

filiform, apex slightly dilated; anther ellipsoid, connective narrow. Ovary narrowly ovoid, ca. 1.5 mm, densely puberulent, base narrowed; style straight, conic, short, thickened; stigma subcapitate. Achene body ovoid to ellipsoid, 3.5–5 × 1.5–2 mm, narrowly ribbed, puberulent (hairs ca. 0.2 mm), base narrowed; style curved to recurved, conic, 1–2 mm, base puberulent. Fl. Mar–May.

Forests, scrub, streamsides; 1200–1800 m. W Henan, NW Hubei, S Shanxi, N Xinjiang [Russia; SE Europe (Romania)].

18. *Anemone rivularis* Buchanan-Hamilton ex de Candolle, Syst. Nat. 1: 211. 1817.

草玉梅 cao yu mei

Caudex branched, erect or oblique, short or long, 8–15 mm in diam. Leaves 3–5; petiole 5–15(–25) cm, puberulent, base long sheathing; leaf blade 3-sect, reniform-pentagonal, 3–10 × 5–15(–25) cm, strigose, pubescent, base cordate or cuneate; segments shortly petiolulate or sessile; central segment 3-parted, broadly rhombic or rhombic-ovate, apex acute; lateral segments unequally 2-parted, obliquely flabellate, ultimate lobules linear-oblong. Scapes 1–3, 20–60(–120) cm; cyme compound, 2- or 3-branched, 10–30 cm, many flowered. Involucral bracts 3 or 4; petiole flat, 1–1.5 cm, winged; bract blade similar to that of leaves, 3-parted, broadly rhombic, 3–9 cm, puberulent, margin serrate. Bracteoles small. Pedicel 2–12 cm, pubescent. Sepals 5–10, white, blue, purple, or mauve, elliptic or elliptic-obovate, 6–15 × 3–10 mm, abaxially puberulent, basal veins 5–7, vein anastomoses 5–10, apex densely barbate. Stamens 3–5 mm; filament filiform; anther ellipsoid or ovoid, ca. 1 mm. Pistils 30–60, glabrous; ovary narrowly ovoid; style often uncinatate, long. Achene body ovoid or fusiform, slightly compressed, 5–8 × 2–5 mm, glabrous; style hooked, conic, 1.5–2 mm. Fl. May–Aug.

Forest margins, grassy slopes, streamsides, lakesides; 800–4900 m. C and S Gansu, W Guangxi, Guizhou, N and W Hebei, NW Henan, SW Hubei, S Nei Mongol, Ningxia, E Qinghai, Shaanxi, Sichuan, W Xinjiang, E and S Xizang, Yunnan [Bhutan, India, Indonesia (Sumatra), Nepal, Sikkim, Sri Lanka].

- 1a. Sepals 6–10, 10–15 × 5–10 mm; scape 20–60 cm 18a. var. *rivularis*
 1b. Sepals 5 or 6, 6–10 × 3–5 mm; scape 40–120 cm 18b. var. *flore-minore*

18a. *Anemone rivularis* var. *rivularis*

草玉梅(原变种) cao yu mei (yuan bian zhong)
Anemone esquirolii H. Léveillé & Vaniot (1910), not H. Léveillé (1911); *A. leveillei* Ulbrich; *A. longipes* Tamura; *A. saniculifolia* H. Léveillé; *Anemonidium rivulare* (Buchanan-Hamilton ex de Candolle) Starodubtzev.

Scape 20–60 cm. Sepals 6–10, 10–15 × 5–10 mm.

Grassy slopes, streamsides, lakesides; 800–4900 m. SW Gansu, W Guangxi, Guizhou, SW Hubei, SE Qinghai, Sichuan, E and S Xizang,

Yunnan [Bhutan, India, Indonesia (Sumatra), Nepal, Sikkim, Sri Lanka].

18b. *Anemone rivularis* var. *flore-minore* Maximowicz, Fl. Tangut. 6. 1889.

小花草玉梅 xiao hua cao yu mei

Anemone barbulata Turczaninow; *A. rivularis* subsp. *barbulata* (Turczaninow) Ulbrich; *A. rivularis* var. *barbulata* (Turczaninow) Turczaninow ex B.

Fedtschenko; *Ranunculus moellendorffii* Hance. Scape 40–120 cm. Sepals 5 or 6, 6–10 × 3–5 mm.

• Forest margins, grassy slopes; 900–3000 m. C and S Gansu, N and W Hebei, NW Henan, S Nei Mongol, Ningxia, E Qinghai, Shaanxi, N Sichuan, W Xinjiang (Tekes Xian).

19. *Anemone filisecta* C. Y. Wu & W. T. Wang, Acta Phytotax. Sin. 12: 165. 1974.

细萼银莲花 xi e yin lian hua

Anemonidium filisectum (C. Y. Wu & W. T. Wang) Starodubtzev.

Rhizome branched, oblique, short, 4–5 mm in diam. Leaves 2–4; petiole 5–15(–20) cm, sparsely puberulent or subglabrous, base shortly sheathing; leaf blade 3-sect, reniform, 2–4 × 3–6 cm, subglabrous, base cordate; segments shortly petiolulate or sessile; central segment 2- or 3-sect, subtriangular, margin linear-lanceolate lobulate; lateral segments unequally 2-parted, obliquely flabellate, margin dissected. Scapes 2 or 3, 25–40 cm, sparsely puberulent; cyme compound, 1- or 2-branched, 2–5-flowered. Involucral bracts 3; petiole flat, 6–7 mm, base sheathing; bract blade similar to that of leaves, palmately dissected, rhombic, 3–5 cm, margin linear lobulate. Pedicel 2–5 cm, glabrous. Sepals 4, white, oblong or narrowly elliptic, 5–7 × 3–4 mm, barbate, abaxially sparsely puberulent, apex rounded. Stamens 2–2.5 mm; filament filiform; anther ellipsoid. Pistils 3–10, ca. 2.5 mm; ovary narrowly ovoid, glabrous; style slightly uncinatate. Achene body narrowly ovoid, compressed, 5–6 × 2–3 mm, glabrous; style uncinatate, ca. 2 mm. Fl. Nov.

• Grassy places by rivers. S Yunnan (Jinghong Xian, Mengla Xian).

20. *Anemone hupehensis* (Lemoine) Lemoine, Lemoine's Cat. 176: 40. 1910.

打破碗花花 da po wan hua hua

Anemone japonica (Thunberg) Siebold & Zuccarini var. *hupehensis* Lemoine, Lemoine's Cat. 170: 42. 1908.

Caudex branched, erect, short, 8–12 × 0.5–0.7 cm, woody. Leaves 3–5; petiole 5–35 cm, densely pubescent, base sheathing; leaf blade ternate, sparsely strigose; petiolules 2–5 cm; central leaflet undivided, ovate or broadly so, 4–10 × 3–10 cm; lateral leaflets similar to central one but smaller. Scape 30–100 (–120) cm, sparsely pubescent; cyme 2- or 3-branched, many flowered. Involucral bracts 3; petiole 2–3 cm, base sheathing; bract blade similar to that of leaves, ternate, 3–7 cm. Pedicel 3–10 cm, pubescent, lateral ones with small, paired bracteoles. Sepals 5 (flowers single) or ca. 20 (flowers double, in cultivated plants), purple, purple-

red, pink or white, obovate, 20–30 × 13–20 mm, abaxially velutinous, basal veins 5–9, vein anastomoses more than 10. Stamens 4–6 mm; filament filiform; anther ellipsoid. Pistils more than 180, long stipitate, ca. 1.5 mm; ovary velutinous; stigma rectangular. Achene body ovoid, ca. 2 × 1 mm, lanate, hairs 3–4 mm; style straight, short. Fl. Jul–Oct.

• Scrub, grassy slopes, streamsides in hilly regions, sometimes cultivated or becoming naturalized; 400–2600 m. Native in N Guangdong, N Guangxi, Guizhou, W Hubei, Jiangxi, S Shaanxi, Sichuan, Taiwan, Yunnan, and E Zhejiang (Tiantai Shan); cultivated or naturalized (var. *japonica*) in Anhui, Fujian, Guangdong, Jiangsu, Jiangxi, Yunnan, and Zhejiang.

Cultivated plants with double flowers (with ca. 20 sepals) have been called *Anemone hupehensis* var. *japonica* (Thunberg) Bowles & Stearn (J. Roy. Hort. Soc. 72: 265. 1947; *Atragene japonica* Thunberg; *Anemone hupehensis* f. *alba* W. T. Wang; *A. hupehensis* var. *simplicifolia* W. T. Wang; *A. japonica* (Thunberg) Siebold & Zuccarini (1835), not Houttuyn (1778); *A. scabiosa* H. Léveillé & Vaniot). They are believed to have been derived from *A. hupehensis* stock.

21. *Anemone tomentosa* (Maximowicz) C. Pei, Contr. Biol. Lab. Chin. Assoc. Advancem. Sci., Sect. Bot. 9: 2. 1933.

大火草 da huo cao

Anemone japonica (Thunberg) Siebold & Zuccarini var. *tomentosa* Maximowicz, Fl. Tangut. 7. 1889; *A. elegans* Decaisne var. *tomentosa* (Maximowicz) Handel-Mazzetti; *A. vitifolia* Buchanan-Hamilton ex de Candolle var. *tomentosa* (Maximowicz) Finet & Gagnepain; *Eriocapitella vitifolia* (Buchanan-Hamilton ex de Candolle) Nakai var. *tomentosa* (Maximowicz) Nakai.

Caudex branched, erect, ca. 10 cm × 4–7 mm, woody. Leaves 3–5; petiole 10–50 cm, pubescent; leaf blade ternate, adaxially strigose, base cordate, subcordate, or rounded, margin lobulate-serrate, apex acute; petiolules 2–5 cm; leaflets slightly oblique, abaxially white tomentose. Scape 40–150 cm, tomentose; cyme 2- or 3-branched, many flowered. Involucral bracts 3; petiole 2–3 cm; bract blade similar to that of leaves, unequally 3-parted or 3-lobed, 3–7 cm. Pedicel 4–7 cm, velutinous. Sepals 5, white or pinkish, obovate or broadly elliptic, 15–20 × 10–20 mm, abaxially velutinous, basal veins 5–9, vein anastomoses more than 10. Stamens 4–6 mm; filament filiform; anther cylindrical, ca. 1 mm, apex rounded. Ovary tomentose; stigma oblique, glabrous. Achene body fusiform, 2–3 × ca. 1 mm, lanate, hairs 6–7 mm; style straight, ca. 2 mm, pubescent. Fl. Jul–Oct.

• Open grassy slopes; 700–3400 m. W Hebei, W Henan, W Hubei, E Qinghai, Shaanxi, Shanxi, W Sichuan.

22. *Anemone vitifolia* Buchanan-Hamilton ex de Candolle, Syst. Nat. 1: 211. 1817.

野棉花 ye mian hua

Anemone elegans Decaisne; *A. matsudae* (Yamamoto) Tamura; *A. vitifolia* var. *matsudae* Yamamoto;

Eriocapitella elegans (Decaisne) Nakai; *E. vitifolia* (Buchanan-Hamilton ex de Candolle) Nakai.

Caudex branched, erect, 5–10 cm × 8–15 mm. Leaves 2–5 or more; petiole 15–30(–60) cm, pubescent, base

sheathing; leaf blade 3–5-lobed, cordate-ovate or orbicular-cordate, 10–20 (–30) × 10–20 cm, abaxially velutinous, adaxially sparsely shortly strigose, base cordate, margin denticulate, apex acute. Scapes 1–3, 50–80(–100) cm, densely or sparsely pubescent; cyme compound, 2- or 3-branched, 3–9-flowered. Involucral bracts 3; petiole 4–7 cm; bract blade similar to that of leaves, 3–5 lobed, 3–7(–12) × 4–8(–15) cm, pubescent. Bracteoles paired, small. Pedicel 4–5(–10) cm, velutinous. Sepals 5(–8), white or purplish, ovate or obovate, 15–20 × 8–15 mm, abaxially velutinous, basal veins 5–9, vein anastomoses more than 10. Stamens 3–4 mm; filament filiform; anther cylindrical, ca. 1 mm, apex obtuse. Pistils ca. 400, pubescent. Achene body narrowly ellipsoid or fusiform, 1.5–2.0 × ca. 1 mm, lanate, hairs 5–6 mm; style straight, ca. 1 mm, pubescent. Fl. Jul–Oct.

Sparse woods, grassy slopes, streamsides; 1200–2700 m. SW Sichuan, S Xizang, Yunnan [Bhutan, N India, Kashmir, N Myanmar, Nepal, Sikkim].

23. *Anemone sylvestris* Linnaeus, Sp. Pl. 1: 540. 1753.

大花银莲花 da hua yin lian hua

Rhizome branched, oblique, short, 10–15 mm in diam. Leaves 3–9; petiole 5–20 cm, pubescent, base sheathing; leaf blade 3-sect, cordate-pentagonal, 2–5 × 3–8 cm, abaxially sparsely puberulent along veins, adaxially subglabrous, base cordate; segments sessile; central segment 3-lobed, rhombic or obovate-rhombic, margin lobulate and sparsely dentate; lateral segments unequally 2-parted, obliquely flabellate. Scape 10–20 cm, puberulent or subglabrous; cyme 1(or 2)-flowered. Involucral bracts 2 or 3; petiole 3–25 mm; bract blade similar to that of leaves but smaller, 2–3 cm, 3-sect, base cordate, apex truncate or rounded; segments sessile, narrowly obovate, puberulent. Pedicel 5–15(–25) cm, puberulent. Sepals 5(or 6), white, obovate or elliptic, 15–20 × 10–15 mm, abaxially densely sericeous, basal veins 5–9, vein anastomoses more than 10. Stamens ca. 4 mm; filament filiform; anther cylindrical, ca. 1 mm, apex rounded. Pistils 180 or more; ovary densely puberulent; stigma sessile, globose. Achene shortly stipitate; body fusiform, flat, 2–3 × ca. 2 mm, lanate, hairs 7–9 mm; style straight, ca. 1 mm, pubescent. Fl. May–Jun.

Forest margins, grassy or sandy slopes; 1300–3400 m. N Hebei, W Heilongjiang, W Jilin, W Liaoning, Nei Mongol, N Xizang [Mongolia, Russia; Europe].

24. *Anemone gortschakowii* Karelin & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 15: 131. 1842.

块茎银莲花 kuai jing yin lian hua

Rhizome erect, tuberous, triangular-ovoid or irregular, short, 5–10 mm in diam. Leaves 2–4; petiole 5–10 cm, glabrous; leaf blade 3-sect, orbicular-pentagonal or reniform, 1–2 × 1–3 cm, base deeply cordate; segments subsessile; central segment 3-parted, flabellate-obovate, margin lobulate or rounded dentate; lateral segments unequally 2-lobed, obliquely flabellate. Scape 3–8 cm, glabrous; cyme 1-flowered. Involucral bracts 3, sessile; bract blade palmately parted, broadly rhombic, 1–2 cm,

abaxially sparsely puberulent, margin dissected lobed. Pedicel 3–7 cm, puberulent. Sepals 5, yellow, elliptic, 10–12 × 4–7 mm, abaxially sparsely puberulent, basal veins 3–5, vein anastomoses 1–3. Stamens 3–4 mm; filament linear, base dilated; anther ellipsoid, ca. 1 mm, apex rounded. Pistils ca. 35; ovary densely pubescent; style filiform. Achene shortly stipitate; body ovoid, slightly compressed, 2.5–3 × 1.2–1.4 mm, lanate, hairs 3–4 mm; style almost straight, 2–2.5 mm. Fl. Apr–May.

Grassy slopes; 1400–3100 m. W Xinjiang [Kazakhstan].

25. *Anemone rupicola* Cambessèdes in Jacquemont, Voy. Inde 4(Bot.): 5. 1835–1844.

岩生银莲花 *yan sheng yin lian hua*

Anemone batangensis Finet.

Caudex branched, ascending or oblique, 4–10 cm × ca. 5 mm, covered with remnants of leaves, with root runners; taproot present. Leaves 3–5(–9); petiole 5–10(–15) cm, sparsely puberulent, base sheathing; leaf blade 3-sect, cordate-pentagonal, 2–6 × 2–10 cm, sparsely puberulent, base cordate, margin incised serrate; segments sessile or shortly petiolulate; central segment 3-lobed, rhombic, margin lobulate and acutely denticulate; lateral segments unequally 2-parted, obliquely rhombic. Scape 5–25(–40) cm, spreading puberulent; cyme 1(or 2)-flowered.

Involucral bracts 3, sessile or petiole 5–8 mm and broad; bract blade similar to that of leaves, 3-parted, ovate, 2.5–5 cm, sparsely puberulent, margin serrate. Bracteoles sometimes present, paired. Pedicel 3–7(–15) cm, pubescent. Sepals 5(–9), white, yellowish, or purplish, obovate or broadly elliptic, 15–20(–40) × 15–25 mm, abaxially densely puberulent, basal veins 5–7(–9), vein anastomoses more than 10. Stamens 3–5 mm; filament filiform; anther ellipsoid, ca. 1 mm, apex obtuse. Pistils ca. 100; ovary lanate; style short; stigma globose. Achene body ovoid, compressed, ca. 3 × 1.5 mm, winged, lanate, hairs 4–5 mm; style hooked, ca. 1 mm. Fl. Jun–Aug.

Woods, streamsides, stone cliffs, gravelly slopes; 2400–4200 m. W Sichuan, S Xizang, NW Yunnan [?Afghanistan, Bhutan, N India, Kashmir, Nepal, Pakistan, Sikkim].

26. *Anemone laceratoincisa* W. T. Wang, Fl. Reipubl. Sin. Popularis 28: 349. 1980.

锐裂银莲花 *rui lie yin lian hua*

Anemone rupicola Cambessèdes subsp. *laceratoincisa* (W. T. Wang) R. P. Chaudhary.

Rhizome branched, ascending, short, 2–3 mm in diam. Leaves 3–5; petiole 5–10(–12) cm, sparsely puberulent, base sheathing; leaf blade 3-sect, cordate-pentagonal, 3–5 × 4–8 cm, abaxially sericeous-villous along veins, adaxially subglabrous, base subcordate, apex pungent; segments shortly petiolulate; central segment 3-parted, rhombic, secondary lobes 2-lobed, ultimate lobules acuminate; lateral segments unequally 2-parted, obliquely rhombic. Scape 5–10(–20) cm, densely sericeous-villous; cyme 1-flowered. Involucral bracts

3, sessile; bract blade similar to that of leaves, 3-parted, 3–4 cm, margin with many long, acute teeth. Pedicel ca. 6 mm, spreading villous. Sepals 5, white, elliptic, 20–25 × 10–15 mm, abaxially appressed sericeous, basal veins 5–9, vein anastomoses more than 10, apex obtuse. Stamens 3–6 mm; filament filiform; anther ellipsoid, ca. 1 mm, apex rounded. Ovary densely pubescent; style ca. 2 mm.

• S Gansu (Wen Xian).

27. *Anemone tibetica* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 349. 1980.

西藏银莲花 *xi zang yin lian hua*

Rhizome branched, ascending, short, ca. 10 mm in diam.

Leaves 5–12; petiole 4–15 cm, sparsely spreading pubescent, base sheathing; leaf blade 3-parted, cordate-pentagonal, 2.5–6 × 3–8 cm, densely puberulent, base subcordate, margin denticulate, apex acute; central segment 3-lobed, rhombic-elliptic; lateral segments unequally 2-lobed, obliquely obovate, slightly smaller than central one. Scapes 4 or 5, ca. 40 cm, spreading puberulent; cyme 2- or 3-flowered. Involucral bracts 3, sessile; bract blade 3-lobed, ovate, 2–3.5 cm, densely puberulent. Sepals 5, white, ovate, 18–20 × 10–20 mm, abaxially densely sericeous, basal veins 5–7, vein anastomoses 1 or 2. Stamens 4–5 mm; filament filiform; anther ellipsoid, ca. 1.5 mm. Pistils ca. 50; ovary densely pubescent; style subulate, ca. 1 mm. Fl. Aug.

• Streamsides in valleys; ca. 3100 m. SE Xizang (Lang Xian).

28. *Anemone brevistyla* C. C. Chang ex W. T. Wang, Acta Phytotax. Sin. 12: 163. 1974.

短柱银莲花 *duan zhu yin lian hua*

Rhizome branched, prostrate, long, ca. 2 mm in diam.

Leaves 1 or 2; petiole 4–7 cm, strigose distally, base sheathing; leaf blade 3-sect, reniform or reniform-pentagonal, 4–5 × 7–9 cm, strigose, base deeply cordate, margin sparsely and irregularly obtusely dentate; segments sessile; central segment 3-lobed, rhombic-obovate, ca. 4 mm wide; lateral segments unequally 2-parted, obliquely flabellate. Scape 8–15(–20) cm, sparsely strigose distally; cyme 1-flowered. Involucral bracts 3, sessile; bract blade unequally 2- or 3-lobed, flabellate-obovate or obovate, 2–4 cm; lobes lobulate. Pedicel 3–5(–10) cm, sparsely strigose. Sepals 5, white, obovate, 12–15 × 7–9 mm, abaxially sparsely puberulent, basal veins 3–5, vein anastomoses 1–3. Stamens 3.5–5 mm; filament subfiliform; anther ellipsoid, ca. 1 mm, apex rounded. Pistils ca. 8; ovary densely puberulent; style subulate-terete, short. Fl. Apr.

• Scrub by rivers; ca. 1800 m. C Sichuan (Dujiang Yan Shi, Tianquan Xian).

29. *Anemone begoniifolia* H. Lévillé & Vaniot, Bull. Acad. Int. Géogr. Bot. 11: 46. 1902.

卵叶银莲花 *luan ye yin lian hua*

Anemone bodinieri H. Léveillé; *A. esquirolii* H. Léveillé (1911), not H. Léveillé & Vaniot (1910). Rhizome ascending, short, 5–6 mm in diam. Leaves 3–9; petiole 5–15(–20) cm, sparsely puberulent or glabrous, base sheathing; leaf blade undivided or 3–5-lobed, broadly ovate or cordate-ovate, 3–8 × 2–8(–10) cm, sparsely villous, base deeply cordate, margin irregularly dentate, apex acute or acuminate. Scapes 1 or 2, 15–40 cm, sparsely villous or subglabrous; cyme 3–7(–10)-flowered. Involucral bracts 3–9, sessile; bract blade 3-lobed or undivided, oblong, 0.6–1.4 cm, densely pubescent, apex acute. Pedicel 2–4 cm, densely puberulent. Sepals 5, white, obovate, 5–10 × 2–6 mm, abaxially sparsely puberulent, basal veins 3–5, vein anastomoses 3–5. Stamens 2–3 mm; filament filiform; anther ellipsoid or cylindrical, ca. 1 mm, apex rounded. Pistils ovoid, subglabrous. Achene body curved, rhombic-obovoid, ca. 2 × 1 mm, longitudinally 1-ribbed on both surfaces; style curved, ca. 1 mm. Fl. Feb–Apr.

• Dense forests, shady places, rocks by streams in valleys; 700–1000 m. W Guangxi, Guizhou, SE Sichuan (Nanchuan Xian), SE Yunnan.

30. *Anemone hokouensis* C. Y. Wu ex W. T. Wang, Acta Phytotax. Sin. 12: 168. 1974.

河口银莲花 he kou yin lian hua

Rhizome branched, oblique, short, ca. 10 mm in diam. Leaves 2 or 3; petiole 15–30 cm, curved puberulent; leaf blade 3-lobed, cordate-ovate, 10–15 × 8–15 cm, abaxially shortly strigose along veins, adaxially sparsely strigose, base subcordate, margin denticulate, apex acuminate. Scape 40–60 cm, densely curved puberulent distally; cyme 4- or 5-flowered. Involucral bracts 5 or more (rarely to 10), subsessile; bract blade 3-lobed or undivided, rhombic to obovate, 1–1.5 cm, apex acute. Pedicel 1.5–2 cm, densely appressed puberulent. Sepals 5, purple, obovate or narrowly so, 15–20 × 8–14 mm, abaxially basally puberulent, basal veins 7–9, vein anastomoses more than 10. Stamens 2–5.5 mm; filament subfiliform; anther narrowly ellipsoid, ca. 1 mm, apex apiculate. Staminodes present. Pistils glabrous or pubescent; style curved, short. Fl. May–Jun. • Mountainous regions; ca. 1200 m. SE Yunnan (Hekou Yao Zu Zizhixian).

31. *Anemone orthocarpa* Handel-Mazzetti, Acta Horti Gothob. 13: 176. 1939.

直果银莲花 zhi guo yin lian hua

Rhizome branched, erect, short, 15–20 × 10–12 mm. Leaves 3–7, some scalelike and 5–7 × 10–12 mm; petiole 5–15 cm, sparsely puberulent; leaf blade 3-parted, pentagonal, 3–5 × 3–7 cm, base cordate-truncate, margin sparsely denticulate, apex acuminate or long acuminate; central segment 3-lobed, rhombic; lateral segments unequally 2-lobed. Scape 20–30(–40) cm, sparsely puberulent; cyme 3–6-flowered. Involucral bracts 3–9, in 2 whorls, sessile; bract blade 3-lobed or

undivided, narrowly rhombic, 6–20 mm, sparsely puberulent, base cuneate, margin dentate. Pedicel 3–8 cm, densely puberulent. Sepals 5, white, obovate, 4–5 × 2–3 mm, sparsely puberulent along central line, basal veins 3–5, vein anastomoses 3–5. Stamens 2–2.5 mm; filament filiform; anther cylindrical, ca. 1 mm, apex obtuse. Pistils glabrous. Achene body ovoid, 3–4 × ca. 2 mm, longitudinally 1-veined, glabrous; style hooked, ca. 1 mm, persistent. Fl. Feb.

• SW Guizhou (Xingyi Xian).

32. *Anemone howellii* Jeffrey & W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 9: 78. 1916.

拟卵叶银莲花 ni luan ye yin lian hua

Anemone begoniifolioides W. T. Wang.

Rhizome ascending, short, 3–4 × 5–7 mm. Leaves 3–5(–10); petiole 8–15 cm, sparsely puberulent, base sheathing; leaf blade 3-cleft, cordate-ovate or cordate, 4–8 × 4–7 cm, sparsely strigose, base cordate, margin denticulate, apex acuminate or caudate-acuminate. Scape 20–30 cm, sparsely puberulent; cyme 3–5(–7)-flowered. Involucral bracts 3–5, subsessile; bract blade undivided or 3-dentate, rhombic or spatulate, 5–15 mm, sparsely puberulent. Pedicel 5–12 cm, densely pubescent. Sepals 5, pinkish, obovate, 8–10 × 6–7 mm, abaxially puberulent or subglabrous, basal veins 3–5, vein anastomoses absent. Stamens 3–5 mm; filament filiform; anther narrowly ellipsoid, ca. 1 mm, apex rounded. Achene body ovoid, slightly compressed, 4–5 × 2–3 mm, with lateral ribs 1 mm wide, glabrous; style curved, short. Fl. Mar–Aug.

Sparse forests, shady places, streamsides; 700–2300 m. NW Guangxi, SE and W Yunnan [NE India, N Myanmar].

33. *Anemone tetrasepala* Royle, Ill. Bot. Himal. Mts. 1: 53. 1834.

复伞银莲花 fu san yin lian hua

Anemonastrum tetrasepalum (Royle) Holub.

Leaves 3–7; petiole 15–30(–40) cm, puberulent or glabrescent; leaf blade deeply 5-lobed, reniform or cordate-reniform, 8–15 × 10–20 cm, leathery, abaxially appressed pubescent usually along veins, adaxially sparsely pubescent, base cordate; central segment 3-cleft, broadly rhombic, lobes with a few acute lobules or teeth; lateral segments unequally 2-parted, obliquely flabellate. Scapes 1 or 2, 25–50(–60) cm, sparsely puberulent; cyme compound, 2- or 3-branched, 7–15-flowered. Involucral bracts 2–4(or 5), 3-parted or 3-lobed, 4–8 cm, leathery, densely pubescent. Bracteoles 3-lobed or undivided, lanceolate, 1.5–2 cm. Pedicel 4–10 cm, pubescent. Sepals 4(or 5), white, obovate-oblong, 12–20 × 6–12 mm, glabrous, basal veins 5–7(–9), vein anastomoses 3–5(–7), base narrowed. Stamens 4–6 mm; filament slightly dilated; anther narrowly ellipsoid. Ovary ovoid, 3–4 mm; style curved, glabrous. Achene body ovoid, obovoid, or cylindrical, 7–10 × 4–5 mm, glabrous, base narrowed; wings 1–1.3 mm wide; style hooked, 1.5–2 mm.

Abies forests; 2400–3100 m. S and W Xizang [Afghanistan, Kashmir, NW India, Pakistan].

34. *Anemone elongata* D. Don, Prodr. Fl. Nepal. 194. 1825.

加长银莲花 jia chang yin lian hua

Anemonastrum elongatum (D. Don) Holub.

Leaves 5–15; petiole 15–30 cm, ± densely pubescent; leaf blade 3-parted, rhombic-orbicular, 8–15 × 6–12 cm, scarcely puberulent or subglabrous; segments 2- or 3-lobed, rhombic, margin acutely dentate. Scape 40–80 cm, glabrous or sparsely puberulent; cyme compound, elongate, 7–15-flowered. Involucral bracts 3–7(–9), 3-parted, rhombic, 5–14 cm, sparsely puberulent.

Bracteoles 3-cleft or entire, 2–4 cm. Pedicel 3–15 cm, base villous. Sepals 5, white, ovate, 12–20 × 6–12 mm, sparsely puberulent or glabrous, basal veins 3–5, vein anastomoses absent or solitary, base long narrowed, apex rounded. Stamens 3–5 mm; filament linear, anther cylindrical. Ovary ovoid, base narrowed; style almost straight, short. Achene body ovoid-ellipsoid, 6–9 × 4–7 mm, glabrous; wings 1.2–1.3 mm wide; style straight or sometimes slightly curved, 1–1.5 mm.

Sparse forests, meadows; 1800–3700 m. Xizang [N India, N Myanmar, Nepal, Sikkim].

35. *Anemone shikokiana* (Makino) Makino, Bot. Mag. (Tokyo) 27: 116. 1913.

山东银莲花 shan dong yin lian hua

Anemone narcissiflora Linnaeus var. *shikokiana*

Makino, Bot. Mag. (Tokyo) 16: 58. 1902;

Anemonastrum chosenicola (Ohwi) Holub; *A. schantungense* (Handel-Mazzetti) Holub; *A. sikokianum* (Makino) Holub; *Anemone chosenicola* Ohwi; *A. chosenicola* var. *schantungensis* (Handel-Mazzetti) Tamura; *A. schantungensis* Handel-Mazzetti.

Leaves 4–8; petiole 15–25(–32) cm, hirsute; leaf blade 3-parted, broadly rhombic to orbicular-reniform, 3–6(–10) × 2–5(–12) cm, ciliate and sericeous along veins or subglabrous, base cordate; segments 3-cleft for more than 1/2 their length or 3-cuspidate, flabellate-obovate, ultimate lobules obovate to narrowly ovate, sometimes falcate. Scapes 1–3, 25–40(–65) cm, sparsely pubescent or subglabrous; cyme simple or compound, 4–12 cm, 3–10-flowered. Involucral bracts 3–7; 3-parted or 3-cleft, flabellate or rhombic-obovate, 3–6 cm, ciliate or subglabrous. Bracteoles sometimes present, 3-lobed, 1.5–2 cm. Pedicel 4–6(–15) cm, hirsute. Sepals 4 or 5(or 6), white, elliptic to narrowly obovate, 7–10 × 4–6 mm, glabrous, basal veins 3–5, vein anastomoses absent, apex acuminate. Stamens 2–4 mm; filament linear, slightly dilated; anther narrowly ellipsoid. Ovary ovoid, glabrous. Achene body broadly ellipsoid, 5–6 × 3–4 mm, glabrous, base narrowed; wings 0.5–0.6 mm wide; style basally hooked, 0.6–1 mm. Fl. Jun–Jul.

Grassy meadows or rocky slopes in mountainous regions; 600–1100 m. E Shandong [Japan].

36. *Anemone robusta* W. T. Wang, Acta Phytotax. Sin. 12: 174. 1974.

粗壮银莲花 cu zhuang yin lian hua

Leaves 4–7; petiole 15–30 cm, subglabrous; leaf blade 3-sect, orbicular-ovate, 4–7 × 4–9 cm, abaxially glabrous, adaxially appressed puberulent; central

segment shortly petiolulate, 3-parted, rhombic, lobes lobulate and dentate; lateral segments subsessile, unequally 2-parted, obliquely flabellate. Scape 70–120 cm, subglabrous; cyme 5–10-flowered. Involucral bracts 3; bract blade 3-parted, obovate or obovate-rhombic, 2.5–5 cm; lobes 3-lobulate, sparsely pubescent. Pedicel 5–12 cm, sparsely puberulent. Sepals 6–7, white, obovate, 15–25 × 7–10 mm, glabrous or subglabrous, basal veins 3–5, vein anastomoses 1–3. Stamens 3–6 mm; filament slightly dilated; anther ellipsoid. Ovary glabrous. Achene body broadly obovoid, ca. 6 × 4 mm, glabrous; style hooked, ca. 1 mm. Fl. Jun–Aug.

• Mountain valleys; 2500–3000 m. NW Yunnan (Weixi Lisu Zu Zizhixian).

37. *Anemone cathayensis* Kitagawa, Lin. Fl. Manshur. 213. 1939.

银莲花 yin lian hua

Leaves 4–8; petiole 6–25 cm, sparsely villous or glabrous; leaf blade 3-parted, orbicular-reniform, 3–6 × 4–9 cm, sparsely pubescent or glabrescent, base cordate; segments sessile; central segment 3-lobed, broadly rhombic or rhombic-obovate, lobes lobulate, ultimate lobules ovate or narrowly so; lateral segments unequally 3-parted, obliquely flabellate. Scapes 2–6, 15–40 cm, sparsely pubescent or glabrous; cyme 2–5-flowered. Involucral bracts 3–5; bract blade unequally 3-parted or 3-lobed, rhombic or obovate, 4–7 cm, margin dentate or entire. Pedicel 2–5 cm, sparsely pubescent or glabrous. Sepals 5 or 6(–10), white or pinkish, obovate or narrowly so, 10–18 × 5–10 mm, glabrous, basal veins 3–5, vein anastomoses 1–3. Stamens 4–5 mm; filament slightly dilated; anther narrowly ellipsoid. Ovary glabrous or pubescent. Achene body broadly ovoid or subglobose, 5–6 × 4–5 mm, winged, glabrous or pubescent; style curved, ca. 1 mm. Fl. Apr–Jul.

Grassy or gravelly slopes, streamsides; 1000–2800 m. Hebei, N Henan, Shanxi [Korea].

1a. Ovary and achene body glabrous 37a. var. *cathayensis*

1b. Ovary and achene body pubescent 37b. var. *hispida*

37a. *Anemone cathayensis* var. *cathayensis*

银莲花(原变种) yin lian hua (yuan bian zhong)

Anemonastrum chinense (Kitagawa) Holub; *Anemone demissa* J. D. Hooker & Thomson var. *glabrescens* Ulbrich; *A. narcissiflora* Linnaeus subsp. *chinensis* (Kitagawa) Kitagawa; *A. narcissiflora* var. *chinensis* Kitagawa; *A. narcissiflora* var. *pekinensis* Schipczinski. Ovary and achene body glabrous.

Grassy or gravelly slopes, streamsides; 1000–2600 m. Hebei, Shanxi [Korea].

37b. *Anemone cathayensis* var. *hispida* Tamura, Acta Phytotax. Geobot. 17: 114. 1958.

毛蕊银莲花 mao rui yin lian hua

Anemone cathayensis f. *hispida* (Tamura) Kitagawa.

Ovary and achene body pubescent.

Grassy slopes; 1000–2800 m. N Henan (Lin Xian) [Korea].

38. *Anemone narcissiflora* Linnaeus, Sp. Pl. 1: 542. 1753, nom. et orth. cons.

水仙银莲花 shui xian yin lian hua

Leaves 4–9; petiole 5–30 cm, villous or pubescent; leaf blade 3-sect, pentagonal, suborbicular, or orbicular-ovate, 3–7 × 4–12 cm, sparsely pubescent, villous, or subglabrous, margin ciliate; segments petiolulate or subsessile; central segment 3-parted to 3-cleft, rhombic-ovate or broadly rhombic, ultimate lobules ovate to linear; lateral segments unequally 2- or 3-parted, obliquely flabellate. Scapes 1 or 2, 10–50 cm, villous or sparsely puberulent; cyme 1–5(–7)-flowered. Involucral bracts 3 or more; bract blade 3-parted to 3-cleft, broadly rhombic to narrowly obovate, 2–6 cm, usually pubescent. Pedicel 2–5(–8) cm, pubescent. Sepals 5 or 6(or 7), white or yellowish, rarely pinkish, obovate, 12–18 × 6–10 mm, pilose, sparsely puberulent, subglabrous, or glabrous, basal veins 3–9, vein anastomoses 1–3(–5) or absent, base attenuate, apex rounded. Stamens 2–5 mm; filament usually linear, rarely slightly dilated; anther cylindric. Ovary subglobose, compressed, distinctly laterally winged, usually glabrous; style bent, short. Achene body obovoid, 5–8 × 4–6 mm, glabrous, rarely with solitary hairs; wings 0.8–1.4 mm wide; style hooked, 0.8–1.4 mm. Fl. May–Jul.

Picea forests, bamboo thickets on slopes, scrub, alpine meadows, grassy slopes; 1800–4000 m. N Hebei, W Nei Mongol, NW Ningxia, Xinjiang, W Yunnan [Afghanistan, Kazakhstan, N Korea, Mongolia, Pakistan, Russia (Siberia), Tajikistan; SW Asia, Europe, North America].

Two subspecies occur in China, while *Anemone narcissiflora* subsp. *narcissiflora* is distributed in Europe, subsp. *fasciculata* (Linnaeus) Ziman & Fedoronczuk in SW Asia (Caucasus), and both subsp. *alaskana* Hultén and subsp. *zephyra* (A. Nelson) A. Löve et al. in North America.

- 1a. Sepals pilose or sparsely puberulent, vein anastomoses 2 or 3(–5) . 38a. subsp. *protracta*
- 1b. Sepals glabrous, rarely subglabrous, vein anastomoses absent, rarely solitary 38b. subsp. *crinita*

38a. *Anemone narcissiflora* subsp. *protracta* (Ulbrich) Ziman & Fedoronczuk, Taxon. Evol. *Anemone narcissiflora* Complex, 34. 1997.

伏毛银莲花 fu mao yin lian hua

Anemone narcissiflora var. *protracta* Ulbrich, Bot. Jahrb. Syst. 37: 266. 1906; *Anemonastrum protractum* (Ulbrich) Holub; *A. schrenkianum* (Juzepczuk) Holub; *Anemone multilobulata* W. T. Wang & L. Q. Li; *A. narcissiflora* f. *contracta* Ulbrich; *A. narcissiflora* var. *contracta* (Ulbrich) Schipczinski; *A. narcissiflora* var. *turkestanica* Schipczinsky; *A. narcissiflora* var. *yuldussica* Schipczinski; *A. protracta* (Ulbrich) Juzepczuk; *A. schrenkiana* Juzepczuk.

Sepals pilose or sparsely puberulent, vein anastomoses 2 or 3(–5). Fl. Jun–Jul.

Picea forests, alpine meadows, grassy slopes; 1800–3800 m. W Xinjiang, NW Yunnan (Bijiang Xian) [Afghanistan, Kazakhstan, Pakistan, Tajikistan].

38b. *Anemone narcissiflora* subsp. *crinita* (Juzepczuk) Kitagawa, Lin. Fl. Manshur. 213. 1939.

长毛银莲花 chang mao yin lian hua

Anemone crinita Juzepczuk in Komarov, Fl. URSS 7: 739. 1937; *Anemonastrum crinitum* (Juzepczuk) Holub; *A. narcissiflorum* (Linnaeus) Holub subsp. *sibiricum* (Linnaeus) A. Löve & D. Löve; *A. sibiricum* (Linnaeus) Holub; *Anemone narcissiflora* var. *crinita* (Juzepczuk) Tamura; *A. narcissiflora* subsp. *sibirica* (Linnaeus) Hultén; *A. narcissiflora* var. *sibirica* (Linnaeus) Tamura; *A. sibirica* Linnaeus; *A. tengchongensis* W. T. Wang.

Sepals glabrous, rarely subglabrous, vein anastomoses absent, rarely solitary. Fl. May–Jul.

Bamboo thickets on slopes, scrub, grassy slopes; 2300–4000 m. W Nei Mongol, NW Ningxia, E Xinjiang, W Yunnan (Tengchong Xian) [N Korea, Mongolia, Russia (Siberia)].

39. *Anemone demissa* J. D. Hooker & Thomson, Fl. Ind. 23. 1855.

展毛银莲花 zhan mao yin lian hua

Leaves 5–10(–15); petiole 5–30 cm, sparsely or densely villous or lanate; leaf blade 3-sect, ovate, broadly so, rhombic-pentagonal, or reniform-pentagonal, 5–8 × 4–6(–12) cm, villous or subglabrous, base cordate or subtruncate, margin ciliate; central segment petiolulate (petiolule 5–15 mm), 3-parted, broadly rhombic or rhombic-ovate, margin incised lobulate, ultimate lobules ovate or triangular; lateral segments subsessile, unequally 2- or 3-parted, smaller than central one, sometimes much more so. Scapes 2 or 3(–5), 5–45(–80) cm, spreading villous; cyme umbellate, 1–5(–8)-flowered. Involucral bracts 3 or 4; bract blade 3-parted or 3-lobed, broadly rhombic or narrowly obovate-oblong, 2–4 cm, pubescent. Pedicel 2–6(–8) cm, pubescent. Sepals 5–7, blue, purple, red, or white, obovate or elliptic, 8–18 × 4–12 mm, sometimes dimorphic (inner ones smaller and of different shape), sparsely puberulent, basal veins 3–7, vein anastomoses 1–3. Stamens 3–5 mm; filament slightly dilated; anther cylindric, 1–2 mm, apex rounded. Staminodes sometimes present. Ovary glabrous or scarcely pubescent, sometimes sterile. Achene body broadly ellipsoid or obovoid, 6–7 × 4–6 mm, glabrous or scarcely pubescent; wings 0.8–1.2 mm wide; style curved, 1.8–2 mm. Fl. May–Jul.

Forests, sparse forests, scrub, grassy slopes, streamsides; 3000–4600 m. S Gansu, S Qinghai, W Sichuan, E and S Xizang, NW Yunnan [Bhutan, N India, Nepal, Sikkim].

- 1a. Leaf petiole densely villous or lanate 39c. var. *villosissima*
- 1b. Leaf petiole sparsely or densely villous.
 - 2a. Scape 5–10 cm, cyme 1-flowered 39b. var. *yunnanensis*

- 2b. Scape 10–45 cm, cyme few flowered.
3a. Scape 10–20 cm; leaf blade ovate, to 5 cm wide, lateral segments much smaller than central one 39a. var. *demissa*
3b. Scape 20–45 cm; leaf blade usually rhombic-pentagonal, to 12 cm wide, lateral segments smaller than central one 39d. var. *major*

39a. *Anemone demissa* var. *demissa*

展毛银莲花(原变种) zhan mao yin lian hua (yuan bian zhong)

Anemonastrum demissum (J. D. Hooker & Thomson) Holub; *A. polyanthes* (D. Don) Holub; *Anemone bicolor* H. Léveillé; *A. demissa* var. *connectens* Brühl; *A. demissa* var. *grandiflora* C. Marquand & Airy Shaw; *A. demissa* var. *monantha* Brühl; *A. demissa* var. *umbellata* Brühl; *A. narcissiflora* Linnaeus var. *demissa* (J. D. Hooker & Thomson) Janczewski; *A. polyanthes* D. Don.

Petiole sparsely or densely villous; leaf blade ovate, to 5 cm wide; lateral segments much smaller than central one. Scape 10–20 cm; cyme few flowered. Fl. Jun–Jul.

Sparse forests, grassy slopes; 3200–4600 m. SW Gansu, S Qinghai, W Sichuan, E and S Xizang [Bhutan, Nepal, Sikkim, Pakistan].

39b. *Anemone demissa* var. *yunnanensis* Franchet, Bull. Soc. Bot. France 33: 367. 1886.

云南银莲花 yun nan yin lian hua

Leaf petiole sparsely or densely villous. Scape 5–10 cm; cyme 1-flowered. Fl. Jun–Jul.

• Forests, grassy slopes; 3200–4000 m. SW Sichuan, NW Yunnan.

39c. *Anemone demissa* var. *villosissima* Brühl, Ann. Roy. Bot. Gard. (Calcutta) 5: 81. 1896.

密毛银莲花 mi mao yin lian hua

Anemone demissa var. *villosa* Ulbrich; *A. demissa* subsp. *villosissima* (Brühl) R. P. Chaudhary.

Leaf petiole densely villous or lanate. Fl. May–Jul.

Forests, scrub, grassy slopes, streamsides; 3000–4000 m. S Gansu, W Sichuan, S Xizang, NW Yunnan [Bhutan, N India, E Nepal, Sikkim].

39d. *Anemone demissa* var. *major* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 351. 1980.

宽叶展毛银莲花 kuan ye zhan mao yin lian hua

Anemone demissa var. *macrantha* Brühl.

Petiole sparsely or densely villous; leaf blade usually rhombic-pentagonal, to 12 cm wide; lateral segments smaller than central one. Scape 20–45 cm; cyme few flowered. Fl. Jun–Jul.

Sparse forests, scrub, grassy slopes; 3200–4100 m. W Sichuan, S Xizang, NW Yunnan [Bhutan].

40. *Anemone taipaiensis* W. T. Wang, Fl. Tsingling. 1(2): 605. 1974.

太白银莲花 tai bai yin lian hua

Leaves 5–12; petiole 5–15 cm, densely spreading puberulent; leaf blade 3-sect, broadly ovate, 3–7 × 4–8 cm, abaxially puberulent, adaxially glabrous, base subtruncate or subcordate; segments sessile; central segment 3-parted, broadly rhombic, lobes subcontiguous or obovate, ultimate lobules ovate; lateral segments 3-lobed, similar to central one but smaller. Scapes 2–4, 15–40 cm, scarcely puberulent; cyme 1–5-flowered. Involucral bracts 3, 3-parted, broadly rhombic; lobes 3-dentate or entire, lanceolate, 2–4 cm, puberulent. Pedicel 3–6 cm, pubescent. Sepals 5, white, obovate, 7–10 × 5–6 mm, sparsely puberulent or subglabrous, basal veins 3–7, vein anastomoses 3–5, apex rounded. Stamens 3–5 mm; filament slightly dilated; anther ellipsoid. Ovary glabrous. Achene body broadly ovoid or ovoid-globose, flattened, 6–7 × 2.5–3 mm, winged, glabrous; style curved, 1–1.5 mm. Fl. Jul.

• Grassy or gravelly slopes; 2900–3700 m. S Shaanxi (Qin Ling, Taibai Shan).

41. *Anemone smithiana* Lauener & Panigrahi, Notes Roy. Bot. Gard. Edinburgh 33: 491. 1975.

红萼银莲花 hong e yin lian hua

Anemonastrum smithianum (Lauener & Panigrahi) Holub.

Leaves 4–9(–20); petiole 10–20(–25) cm, spreading villous; leaf blade 3-parted, orbicular-pentagonal, 4–8 × 6–12 cm, appressed villous or pilose, base cordate; segments slightly imbricate, subsessile; central segment 3-parted, broadly rhombic, margin pinnatisect, ultimate lobules ovate obtuse; lateral segments unequally 2-parted, obliquely flabellate. Scapes 1 or 2, 20–45 cm, spreading villous; cyme 3–7(–10)-flowered. Involucral bracts 3–5(–7); 3-parted or 3-lobed, broadly rhombic or flabellate-rhombic, 2–5 cm. Pedicel 3–4(–10) cm, pubescent. Sepals 5(or 6), purple-red or pink, broadly elliptic or ovate, 15–20 × 10–15 mm, pubescent, sometimes so along central vein only, basal veins 5–7, vein anastomoses 1–3, apex rounded, sometimes 3–5-dentate. Stamens 3–6 mm; filament slightly dilated; anther ellipsoid. Ovary ovoid, glabrous. Achene body obovoid or subglobose, compressed, 4–8 × 4–5 mm, narrowly winged, glabrous; style straight or slightly curved, ca. 2 mm. Fl. Jun.

Scrub, streamsides; 3800–4300 m. S Xizang [Bhutan, Nepal, Sikkim].

42. *Anemone imbricata* Maximowicz, Fl. Tangut. 8. 1889.

叠裂银莲花 die lie yin lian hua

Anemonastrum imbricatum (Maximowicz) Holub; *Anemone obtusiloba* D. Don subsp. *imbricata* (Maximowicz) Brühl; *A. obtusiloba* subsp. *geum* (H. Léveillé) Ulbrich var. *violacea* Ulbrich.

Leaves 4–7; petiole 3–5 cm × 1–2 mm, villous, base sheathing; leaf blade 3-sect, elliptic-ovate, 2–3 × 1.2–2 cm, villous, base cordate; central segment petiolulate (petiolule 5–10 mm), 3-sect or 3-parted; lateral segments shortly petiolulate or sessile, unequally 3-parted; segments and lobes imbricate. Scapes 3–5(–10), 5–12 cm, villous; cyme 1- or 2-flowered. Involucral bract blade 3-parted or 3-lobed, 1–2 cm, villous. Pedicel 1–3.5 cm, villous. Sepals 5–7(–9), purple or blackish purple, rarely whitish, obovate-oblong or obovate, sometimes dimorphic, 8–13 × 4–8 cm, glabrous or sparsely puberulent only along central vein, basal veins 3, vein anastomoses absent, apex acute. Stamens 3–5 mm; filament linear, slightly dilated; anther ellipsoid. Pistils broadly ovoid, 2.5–3 mm, glabrous. Achene body broadly ellipsoid, compressed, 4.5–6 × 3–4 mm, glabrous; wings 0.5–0.7 mm wide; style basally bent, ca. 1 mm. Fl. May–Jul.

• Scrub, grassy slopes; 3200–5300 m. SW Gansu, Qinghai, W Sichuan, E Xizang.

43. *Anemone rupestris* Wallich ex J. D. Hooker & Thomson, Fl. Ind. 21. 1855.

湿地银莲花 shi di yin lian hua

Leaves 4–7; petiole 3–10 cm × 1–2 mm, sparsely puberulent or subglabrous; leaf blade twice 3-sect, ovate, 1–5 × 1–6 cm, sparsely puberulent or glabrous, base subcordate; central segment petiolulate (petiolule 5–10 mm), 3-sect or 3-parted, broadly rhombic, secondary segments shortly petiolulate, ultimate lobules narrowly ovate or linear-lanceolate; lateral segments petiolulate (petiolule 2–5 mm) or sessile, 3-parted or 3-lobed, subreniform. Scapes 2–6, 3–20 cm, sparsely puberulent or subglabrous; cyme 1–3-flowered. Involucral bract blade undivided or 2- or 3-lobed, ovate-oblong, cuneate-obovate, or rhombic, 1–3 cm. Pedicel 1–6 cm, puberulent or glabrous. Sepals 5 or 6(–8), white, blue, or purplish, oblong-elliptic or obovate, dimorphic, 5–10(–14) × 3–6(–8) mm, sparsely puberulent or glabrous, basal veins 3–5, vein anastomoses absent. Stamens brown, 3.5–4.3 mm; filament lanceolate, 0.3–0.4 mm wide; anther light, cylindrical, connective dark, narrow. Pistils dark, 2.8–3.3 mm, sparsely puberulent or glabrous; style downcurved. Achene body broadly ellipsoid, compressed, 2.5–4 × 1.6–2 mm, sparsely puberulent or glabrous; ribs 0.2–0.3 mm wide; style slightly curved, sometimes basally bent, conic, 1.2–1.8 mm. Fl. May–Sep.

Rhododendron scrub, slopes, alpine meadows, streamsides, rocky outcrops; 2500–5000 m. NW Sichuan, S Xizang, NW Yunnan, [Bhutan, ?NE India (Assam), Nepal, Sikkim].

- 1a. Leaf blade 2–5 × 1–6 cm; scape 10–20 cm; cyme 1–3-flowered; sepals 5 or 6, 8–10(–14) × 4–6(–8) mm; sepals, pistils, and achenes sparsely puberulent 43a. subsp. *rupestris*
- 1b. Leaf blade 1–1.5 × 1–2 cm; scape 3–12 cm; cyme 1-flowered; sepals

5–8, 5–7 × 3–4 mm; sepals, pistils, and achenes glabrous 43b. subsp. *gelida*

43a. *Anemone rupestris* subsp. *rupestris*

湿地银莲花(原亚种) shi di yin lian hua (yuan ya zhong)

Anemone bhutanica Tamura; *A. obtusiloba* D. Don var. *coerulea* Ulbrich; *A. obtusiloba* var. *pusilla* Brühl; *A. obtusiloba* var. *wallichii* Brühl.

Leaf blade 2–5 × 1–6 cm. Scape 10–20 cm; cyme 1–3-flowered. Sepals 5 or 6, 8–10(–14) × 4–6(–8) mm. Sepals, pistils, and achenes sparsely puberulent. Fl. May–Aug.

Slopes, streamsides; 2500–3000 m. SE Xizang, NW Yunnan [Bhutan, Nepal, Sikkim].

43b. *Anemone rupestris* subsp. *gelida* (Maximowicz) Laeuner, Notes Roy. Bot. Gard. Edinburgh 23: 199. 1960.

冻地银莲花 dong di yin lian hua

Anemone gelida Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 21. 1890.

Leaf blade 1–1.5 × 1–2 cm. Scape 3–12 cm; cyme 1-flowered. Sepals 5–8, 5–7 × 3–4 mm. Sepals, pistils, and achenes glabrous. Fl. Jun–Sep.

Alpine meadows; 4800–5000 m. NW Sichuan, S Xizang, NW Yunnan (Zhongdian Xian) [Bhutan, Nepal, Sikkim].

Plants from Xizang, Bhutan, Nepal, and Sikkim with undivided involucral bracts, 5 or 6 sepals, and several pistils have been called *Anemone rupestris* var. *wallichii* Brühl (Ann. Roy. Bot. Gard. (Calcutta) 5: 80. 1896).

44. *Anemone polycarpa* W. E. Evans, Notes Roy. Bot. Gard. Edinburgh 13: 154. 1921.

多果银莲花 duo guo yin lian hua

Anemone obtusiloba D. Don subsp. *omalocarpella* Brühl; *A. obtusiloba* subsp. *saxicola* Brühl; *A. rupestris* Wallich ex J. D. Hooker & Thomson subsp. *polycarpa* (W. E. Evans) W. T. Wang; *A. saxicola* (Brühl) Tamura & Kitamura.

Leaves 5–12; petiole 5–12 cm × ca. 1 mm, sparsely puberulent; leaf blade twice 3-sect, ovate, 3–5 × 2–4 cm, sparsely puberulent, base rounded; central segment petiolulate (petiolule 10–15 mm), 3-parted, broadly ovate; lateral segments petiolulate (petiolule 3–5 mm), 3-lobed, ovate. Scapes 2–5, 5–20 cm, pubescent; cyme 1–3-flowered. Involucral bract blade 3-parted, obovate-rhombic, 1–3 cm, puberulent. Sepals 5 or 6(or 7), reddish white, ovate-elliptic, monomorphic, 7–14 × 4–9 mm, usually sparsely puberulent, basal veins 3–5, vein anastomoses absent. Stamens dark, 3–4 mm; filament linear; anther cylindrical. Stamines absent. Pistils up to 80, long ellipsoid, 3–3.5 mm, villous; style hooked. Achene body fusiform, compressed, 3–4 × ca. 2.5 mm, sparsely puberulent only along central vein, hairs

dimorphic: ca. 1 mm and ca. 0.3 mm; ribs ca. 0.1 mm wide; style apically thickened and uncinata, 1–4 × ca. 1.6 mm. Fl. Jun–Sep.

Grassy slopes, among rocks; 3600–4800 m. Sichuan, SE Xizang, NW Yunnan [Bhutan, Nepal, Sikkim].

45. *Anemone trullifolia* J. D. Hooker & Thomson, Fl. Ind. 22. 1855.

匙叶银莲花 *chi ye yin lian hua*

Leaves 4–10; petiole flat, 1–3(–5) cm × 3–5 mm, villous or densely pubescent, rarely puberulent; leaf blade 3-lobed, 3-parted, or 3-cleft, spatulate, rhombic, ovate-rhombic, or obovate, 2–7 × 1–5 cm, villous or densely pubescent, base attenuate, sometimes cuneate, margin distally dentate, apex rounded. Scapes 2–7, 3–15(–20) cm, villous or densely pubescent; cyme 1- or 2(or 3)-flowered. Involucral bract blade 3-lobed, 3-dentate, or entire, narrowly obovate or lanceolate, 1–2.5 cm, hirsute, margin entire or remotely 3-dentate. Bracteoles sometimes present, paired, small. Pedicel 1–5(–8) cm, pubescent or puberulent. Sepals 5 or 6(–15), white, yellow, pinkish, purplish, or blue, elliptic-obovate or narrowly so, 5–12(–15) × 4–8(–10) mm, densely or sparsely pubescent, hirsute, or villous, basal veins 3–5, vein anastomoses 1 or 2(or 3) or absent. Stamens light brown, 1.8–3.4 mm; filament narrowly ovoid, 0.5–0.7 mm wide; anther globose, small. Pistils light brown, cylindric-ovoid, 2–4 mm; ovary villous or pubescent. Achene body ellipsoid-ovoid or fusiform, slightly compressed, 3.2–4.4 × 1.6–2.2 mm, without ribs, villous, hairs ca.1 mm; style usually straight, 2–2.6 mm. Fl. May–Aug.

Streamsides in forests, alpine meadows; 2500–4500 m. SW Gansu, S Qinghai, S Sichuan, S Xizang, NW Yunnan [Bhutan, Nepal, Sikkim].

- 1a. Leaf blade 3-lobed; involucral bract blade 3-lobed or entire; sepal vein anastomoses usually 1 or 2(or 3) 45a. var. *trullifolia*
- 1b. Leaf blade 3-parted or 3-cleft; involucral bract blade 3-lobed or 3-dentate; sepal vein anastomoses absent.
 - 2a. Leaf blade 3-parted, spatulate; involucral bract blade 3-lobed; sepals 7–9 × 5–6 mm, villous 45b. var. *liangshanica*
 - 2b. Leaf blade 3-cleft, rhombic; involucral bract blade 3-dentate or entire; sepals 9–13 × 4–8 mm, sparsely pubescent 45c. var. *lutiensis*

45a. *Anemone trullifolia* var. *trullifolia*

匙叶银莲花(原变种) *chi ye yin lian hua* (*yuan bian zhong*)

Anemone chumulangmaensis W. T. Wang; *A. obtusiloba* D. Don var. *spatulata* Brühl; *A. obtusiloba* subsp. *trullifolia* (J. D. Hooker & Thomson) Brühl.

Leaf blade 3-lobed. Involucral bract blade 3-lobed or entire. Sepal vein anastomoses usually 1 or 2(or 3).

Streamsides in forests and alpine meadows; 2500–4500 m. SW Sichuan, S Xizang, NW Yunnan [Bhutan, Nepal, Sikkim].

45b. *Anemone trullifolia* var. *liangshanica* (W. T. Wang) Ziman & B. E. Dutton, **comb. et stat. nov.**

凉山银莲花 *liang shan yin lian hua*

Basionym: *Anemone liangshanica* W. T. Wang, Acta Phytotax. Sin. 12: 171. 1974.

Leaf blade 3-parted, spatulate. Involucral bract blade 3-lobed. Sepals 7–9 × 5–6 mm, villous, vein anastomoses absent. Fl. Jun–Aug.

• Alpine meadows; 2800–3600 m. S Sichuan (Leibo Xian).

45c. *Anemone trullifolia* var. *lutiensis* (W. T. Wang) Ziman & B. E. Dutton, **comb. et stat. nov.**

鲁甸银莲花 *lu dian yin lian hua*

Basionym: *Anemone lutiensis* W. T. Wang, Acta Phytotax. Sin. 12: 172. 1974.

Leaf blade 3-cleft, rhombic. Involucral bract blade 3-dentate or entire. Sepals 9–13 × 4–8 mm, sparsely pubescent, vein anastomoses absent. Fl. May–Jun.

• Alpine meadows; ca. 4000 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

46. *Anemone coelestina* Franchet, Bull. Soc. Bot. France 32: 4. 1885.

蓝匙叶银莲花 *lan chi ye yin lian hua*

Leaves 5–10; petiole 1–4 × ca. 1 cm, villous or densely pubescent; leaf blade undivided to nearly 3-lobed, linear to oblanceolate or ovate-oblong, 2–8 × 1–3 cm, villous, base cuneate-attenuate, margin obtusely or acutely dentate. Scapes 2–8, 3–10 cm, densely pubescent; cyme 1-flowered. Involucral bract blade undivided, linear-lanceolate, 1–3 cm, villous, apex obtuse or acute. Pedicel 1–3 cm, villous. Sepals 5 or 6, bluish white, yellow, reddish orange, reddish violet, or bluish violet, broadly elliptic, 8–14 × 7–12 mm, densely pubescent, basal veins 3–5, vein anastomoses usually absent, sometimes solitary. Stamens yellow, 2.5–3 mm; filament usually linear; anther light, globose, connective broad. Staminodes absent or occasionally present. Pistils light, ovoid, 3–4 mm, villous; style straight. Achene body ovoid, 3–4.5 × ca. 2 mm, without ribs, villous, hairs ca.1 mm; style almost straight, ca. 2.5 mm.

Rhododendron forests, scrub, alpine meadows, grassy slopes, streamsides; 2500–5000 m. SW Gansu, S Qinghai, Sichuan, E and S Xizang, Yunnan [Bhutan, NE India, Nepal, Sikkim].

- 1a. Leaf blade nearly 3-lobed, ovate-oblong; sepals usually bluish white, vein anastomose solitary; staminodes absent 46a. var. *coelestina*

- 1b. Leaf blade usually undivided, rarely obscurely 3-lobed, linear to oblanceolate; sepals usually bluish violet, vein anastomoses absent; staminodes absent or occasionally present.

- 2a. Leaf blade linear, margin acutely dentate; staminodes absent .. 46b. var. *linearis*
- 2b. Leaf blade oblanceolate, margin obtusely dentate; staminodes occasionally present 46c. var. *holophylla*

46a. *Anemone coelestina* var. *coelestina*

蓝匙叶银莲花(原变种) lan chi ye yin lian hua (yuan bian zhong)

Anemone bonatiana H. Léveillé; *A. coelestina* var. *polygyna* H. F. Comber; *A. obtusiloba* D. Don subsp. *coelestina* (Franchet) Brühl; *A. trullifolia* J. D. Hooker & Thomson var. *coelestina* (Franchet) Finet & Gagnepain.

Leaf blade nearly 3-lobed, ovate-oblong. Sepals usually bluish white, vein anastomose solitary. Staminodes absent.

Scrub, alpine meadows; 3500–4800 m. Sichuan, Yunnan [Sikkim].

46b. *Anemone coelestina* var. *linearis* (Brühl) Ziman & B. E. Dutton, **comb. nov.**

条叶银莲花 tiao ye yin lian hua

Basionym: *Anemone obtusiloba* subsp. *trullifolia* (J. D. Hooker & Thomson) Brühl var. *linearis* Brühl, Ann. Roy. Bot. Gard. (Calcutta) 5: 77. 1896; *A. trullifolia* var. *linearis* (Brühl) Handel-Mazzetti; *A. trullifolia* var. *souliei* Finet & Gagnepain.

Leaf blade usually undivided, rarely obscurely 3-lobed, linear, margin acutely dentate. Sepals usually bluish violet, vein anastomoses absent. Staminodes absent.

Scrub, alpine meadows; 3500–5000 m. SW Gansu, S Qinghai, W Sichuan, E and S Xizang, NW Yunnan [Bhutan].

46c. *Anemone coelestina* var. *holophylla* (Diels) Ziman & B. E. Dutton, **comb. nov.**

拟条叶银莲花 ni tiao ye yin lian hua

Basionym: *Anemone trullifolia* var. *holophylla* Diels, Notes Roy. Bot. Gard. Edinburgh 5: 263. 1912; *A. coelestina* f. *holophylla* (Diels) H. F. Comber.

Leaf blade usually undivided, rarely obscurely 3-lobed, oblanceolate, margin obtusely dentate. Sepals usually bluish violet, vein anastomoses absent. Staminodes occasionally present.

Rhododendron forests, grassy slopes, streamsides; 2500–3500 m. SW Sichuan, NW Yunnan [Bhutan, NE India, Nepal, Sikkim].

47. *Anemone yulongshanica* W. T. Wang, Bull. Bot. Res., Harbin 16: 159. 1996.

玉龙山银莲花 yu long shan yin lian hua

Leaves 5–9; petiole 4–13 cm × 2–3 mm, pubescent or densely villous; leaf blade 3-parted or 3-lobed, pentagonal or broadly ovate, 1–5.5 × 1–6 cm, herbaceous or papery, pubescent or villous, base truncate, sometimes subcordate; central segment 3-lobed, obscurely so, or undivided, rhombic-ovate or broadly rhombic, sparsely obtusely dentate; lateral lobes unequally 2-lobed, obliquely broadly cuneate or flabellate. Scapes 2–9, 3–15(–35) cm, villous or pubescent; cyme 1-flowered. Involucral bract blade unequally slightly 3-lobed or undivided, narrowly

rhombic or oblong-lanceolate, 0.7–3 cm, pubescent. Pedicel 1–7 cm, puberulent. Sepals 5 or 6, white, yellow, or blue, narrowly obovate or elliptic, 8–16 × 8–10 mm, sparsely appressed pubescent, basal veins 3, vein anastomoses absent. Stamens 2–3 mm; filament lanceolate. Pistils 2.5–3.5 mm; ovary linear-lanceolate or narrowly ovoid, equaling or slightly longer than style, sericeous or pubescent. Achene body ovoid, 2.8–3.7 × 1.8–2.2 mm, without ribs, villous, hairs ca. 1 mm; style 1.4–1.6 mm, straight or slightly curved. Fl. Apr.–Jul.

• *Abies* forests, grassy slopes, rocks by streams; 2600–3900 m. NW Yunnan, SW Sichuan.

1a. Leaf petiole 6–13 cm, pubescent; leaf blade 3–5.5 × 4–6 cm; central segment 3-lobed; involucral bract blade 1.5–3 cm; sepals 6, white; ovary linear-lanceolate, equaling style, sericeous .. 47a. var. *yulongshanica*

1b. Leaf petiole 4–5 cm, densely villous; leaf blade 1–3.5 × 1–4 cm; central segment obscurely 3-lobed or undivided; involucral bract blade 0.7–2 cm; sepals 5(or 6), white, yellow, or blue; ovary narrowly ovoid, slightly longer than style, pubescent 47b. var. *truncata*

47a. *Anemone yulongshanica* var. *yulongshanica*

玉龙山银莲花(原变种) yu long shan yin lian hua (yuan bian zhong)

Petiole 6–13 cm, pubescent; leaf blade 3–5.5 × 4–6 cm; central segment 3-lobed. Involucral bract blade 1.5–3 cm. Sepals 6, white. Ovary linear-lanceolate, equaling style, sericeous. Fl. Jul.

• Rocks by streams; ca. 2800 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

47b. *Anemone yulongshanica* var. *truncata* (H. F. Comber) W. T. Wang, Bull. Bot. Res. Harbin 16: 30. 1996.

截基银莲花 jie ji yin lian hua

Anemone coelestina Franchet var. *truncata* H. F. Comber, Notes Roy. Bot. Gard. Edinburgh 18: 226. 1934; *A. obtusiloba* D. Don subsp. *ovalifolia* Brühl var. *truncata* (H. F. Comber) W. T. Wang.

Petiole 4–5 cm, densely villous; leaf blade 1–3.5 × 1–4 cm; central segment obscurely 3-lobed or undivided. Involucral bract blade 0.7–2 cm. Sepals 5(or 6), white, yellow, or blue. Ovary narrowly ovoid, slightly longer than style, pubescent. Fl. Apr.–Jul.

• *Abies* forests, grassy slopes; 2600–3900 m. SW Sichuan (Muli Zang Zu Zizhixian), NW Yunnan (Lijiang Naxi Zu Zizhixian).

48. *Anemone subdivisa* W. T. Wang, Acta Phytotax. Sin. 12: 173. 1974.

微裂银莲花 wei lie yin lian hua

Leaves 3–7; petiole flat, 2.5–4 × 0.5–1.0 cm, villous; leaf blade undivided or obscurely 3-lobed, broadly ovate or orbicular-ovate, 3–4 × 2–3 cm, villous, base

usually truncate, margin obtusely dentate, apex rounded. Scapes 2–5, 3–15 cm, villous; cyme 1-flowered.

Involucral bract blade entire or subequally 3-dentate, lanceolate, 1–2 cm, villous, apex obtuse. Pedicel 0.5–1 cm, villous. Sepals 5 or 6, white, broadly elliptic, 8–12 × 5–8 mm, sparsely puberulent, basal veins 3–5, vein anastomoses absent. Stamens 3–5 mm; filament lanceolate. Staminodes absent. Pistils 3–3.5 mm; ovary densely pubescent. Achenes not seen. Fl. May–Jul.

• *Abies* or *Pinus* forests, grassy slopes; 2500–4000 m. SW Sichuan (Muli Zang Zu Zizhixian), NW Yunnan (Eryuan Xian).

49. *Anemone obtusiloba* D. Don, Prodr. Fl. Nepal. 194. 1825. 钝裂银莲花 *dun lie yin lian hua*

Leaves 5–10(–20); petiole 3–15(–20) cm × 1–2 mm, villous or pubescent; leaf blade usually 3-sect, sometimes 3-parted, reniform-pentagonal to broadly ovate, (1–)2–6(–10) × 2–8(–10) cm, densely spreading villous, sparsely pubescent, or sometimes abaxially subglabrous, base cordate, rarely subtruncate; segments overlapping or remote; central segment shortly petiolulate, 3-parted, 3-cleft, or 2- or 3-lobed, rarely undivided, rhombic-ovate to broadly rhombic, subequaling or larger than lateral segments, margin obtusely lobulate-dentate; lateral segments subsessile, unequally 2- or 3-parted or 2- or 3-lobed, obliquely flabellate to ovate. Scapes 2–5, 5–25(–40) cm, spreading villous; cyme 1- or 2(or 3)-flowered. Involucral bract blade 3-parted, 3-cleft, 3-lobed, 3-dentate, or undivided, broadly rhombic, rhombic-obovate, oblong-ovate, lanceolate, or cuneate, 1–3 cm, appressed pilose. Pedicel 1–3(–5) cm, appressed pilose. Sepals 5 or 6(–8), white, yellowish, or bluish, obovate or elliptic, 5–15(–20) × 3–8(–10) mm, abaxially pilose, basal veins 3–5(–7), vein anastomoses absent, sometimes solitary. Stamens brownish yellow, 2.2–3(–5) mm; filament linear, slightly narrowed apically, 0.5–0.8 mm wide; anther dark, ellipsoid, connective dark, narrow. Pistils brown, 2–3(–4) mm; ovary ovoid, usually villous or sometimes subglabrous; style straight or curved. Achene body broadly ovoid, rarely slightly compressed, 3–6 × 2–3.5 mm, without ribs; densely strigose, softly pubescent (hairs 0.6–1.6 mm), or subglabrous; style usually apically hooked or sometimes straight, 1–2.5 mm. Fl. May–Jul.

Forests, forest margins, alpine meadows, grassy slopes; 2900–4000 m. SW Sichuan, E and S Xizang, W Yunnan [Afghanistan, Bhutan, N India, Kashmir, Mongolia, Myanmar, Nepal, Pakistan, Sikkim].

- 1a. Leaf blade broadly ovate, densely spreading villous 49a. subsp. *obtusiloba*
 1b. Leaf blade reniform-pentagonal, sparsely pubescent.
 2a. Leaf blade 3-parted, segments overlapping 49b. subsp. *megaphylla*
 2b. Leaf blade 3-sect, segments remote 49c. subsp. *leiophylla*

49a. *Anemone obtusiloba* subsp. *obtusiloba*
 钝裂银莲花(原亚种) *dun lie yin lian hua* (yuan ya zhong)

Anemone discolor Royle; *A. micrantha* Klotzsch; *A. obtusiloba* subsp. *micrantha* (Klotzsch) Ulbrich; *A. obtusiloba* var. *chrysantha* Ulbrich.

Petiole 3–12 cm; leaf blade 3-sect or 3-parted, broadly ovate, 2–4 × 2–6 cm, densely spreading villous; central segment 3-lobed, rhombic-ovate. Scape 5–20 cm. Involucral bract blade 3-parted, broadly rhombic or cuneate, 1–2 cm. Sepals 5, white, yellow, or blue, 8–12 × 5–8 mm. Fl. May–Jul.

Forests, alpine meadows; 2900–4000 m. SW Sichuan, E and S Xizang [Afghanistan, Bhutan, N India, Kashmir, Mongolia, Myanmar, Nepal, Pakistan, Sikkim].

49b. *Anemone obtusiloba* subsp. *megaphylla* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 350. 1980. 镇康银莲花 *zhen kang yin lian hua*

Petiole 15–20 cm; leaf blade 3-parted, reniform-pentagonal, 3–6 × 4–10 cm, sparsely pubescent; segments overlapping, central one 3-cleft, broadly rhombic. Scape 25–35 cm. Involucral bract blade 3-lobed, rhombic or rhombic-obovate, 2–3 cm. Sepals 5, blue, 10–15 × 5–10 mm. Fl. Jul.

• Grassy slopes; ca. 3400 m. W Yunnan (Zhenkang Xian).

49c. *Anemone obtusiloba* subsp. *leiophylla* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 350. 1980. 光叶银莲花 *guang ye yin lian hua*

Petiole 5–15 cm; leaf blade 3-sect, reniform-pentagonal, 1–4 × 2–6 cm, sparsely pubescent; segments remote, central one 3-cleft, broadly rhombic. Scape 8–35 cm. Involucral bract blade 3-dentate or undivided, 1–2 cm. Sepals 5–7, white, 7–12 × 3–7 mm. Fl. May–Jul.

• Forest margins, grassy slopes; 2900–3000 m. NW Yunnan (Gongshan Drung-Nu Zu Zizhixian).

50. *Anemone subpinnata* W. T. Wang, Acta Phytotax. Sin. 12: 170. 1974. 近羽裂银莲花 *jin yu lie yin lian hua*

Leaves 4–7; petiole 2–6 cm × 1–2 mm, villous; leaf blade 3-sect, elliptic-ovate, ca. 2 × 1 cm, densely pubescent, base subcordate or broadly cuneate; central segment petiolulate (petiolule 3–5 mm), 3-sect or 3-parted, rhombic-obovate, margin incised dentate, apex rounded or obtuse, central secondary segment also distinctly petiolulate, 3-parted; lateral segments subsessile, unequally 3-lobed, obliquely cuneate. Scapes 2–5, 3–10 cm, villous; cyme 1-flowered. Involucral bract blade subequally 3-lobed, elliptic-ovate to oblong-ovate, ca. 1 cm; lobes entire or central one 3-dentate, puberulent, apex obtuse. Pedicel 1–4 cm, puberulent. Sepals 5, white, blue, purplish, or violet, elliptic-obovate, 5–8 × 4–6 mm, villous, basal veins 3–5, vein anastomoses absent. Stamens 2–4 mm; filament linear, anther ca. 1 mm, apex rounded. Pistils cylindrical, 2.7–3.2 mm; ovary villous; style curved, glabrous.

• Alpine meadows; ca. 3700 m. SW Sichuan (Muli Zang Zu Zizhixian).

51. *Anemone patula* C. C. Chang ex W. T. Wang, Acta Phytotax. Sin. 12: 169. 1974.

天全银莲花 *tian quan yin lian hua*

Leaves 6–9; petiole 3–10 cm × ca. 1 mm, subglabrous; leaf blade 3-sect, orbicular-ovate, 0.5–3.5 × 1–4 cm, sparsely puberulent or glabrescent, base deeply cordate; segments subsessile; central segment 3-lobed, flabellate-rhombic, lobes flabellate-obovate, margin lobulate, lobules narrowly ovate, sometimes denticulate; lateral segments 3-lobed, obliquely flabellate. Scapes 3–6, 5–25 cm, 1-flowered, subglabrous. Involucral bract blade 3-lobed or 3-dentate, rarely undivided, obovate, 1–2 cm, puberulent or subglabrous. Pedicel 2–5 cm, puberulent or subglabrous. Sepals 5(or 6), white or blue-purple, ovate or broadly obovate, 4–12 × 2–9 mm, puberulent (hairs short or long), basal veins 3–7, vein anastomoses absent. Stamens 3–5 mm; filament lanceolate. Pistils 2–4 mm, villous. Fl. Jun–Jul.

• *Abies* forests, thickets, alpine meadows; 3500–4000 m. C and W Sichuan.

- 1a. Scape 10–25 cm; leaf blade 1–3.5 × 1.5–4 cm; sepals white or blue-purple, 8–12 × 5–9 mm, hairs short 51a. var. *patula*
- 1b. Scape 5–10 cm; leaf blade 0.5–1 × 1–2 cm; sepals white, 4–6 × 2–3 mm, hairs long 51b. var. *minor*

51a. *Anemone patula* var. *patula*

天全银莲花(原变种) *tian quan yin lian hua* (*yuan bian zhong*)

Leaf blade 1–3.5 × 1.5–4 cm. Scape 10–25 cm. Sepals white or blue-purple, 8–12 × 5–9 mm, hairs short.

• *Abies* forests, alpine meadows; 3500–3800 m. C Sichuan (Li Xian, Tianquan Xian).

51b. *Anemone patula* var. *minor* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 350. 1980.

鸡足叶银莲花 *ji zu ye yin lian hua*

Leaf blade 0.5–1 × 1–2 cm. Scape 5–10 cm. Sepals white, 4–6 × 2–3 mm, hairs long.

• Thickets; 3500–4000 m. C and W Sichuan (Baoping Xian, Jinchuan Xian).

52. *Anemone rockii* Ulbrich, Notizbl. Bot. Gart. Berlin-Dahlem 10: 876. 1929.

岷山银莲花 *min shan yin lian hua*

Leaves 5–15; petiole 5–20 cm × ca. 3 mm, sparsely puberulent or glabrescent; leaf blade 3-sect, broadly ovate, 2.5–5 × 2.5–5 cm, glabrous or abaxially sparsely puberulent, base cordate; central segment petiolulate (petiolule 1–2 mm), 3-lobed, broadly ovate or rhombic, lobes incised lobulate; lateral segments subsessile, unequally 2- or 3-lobed, obliquely flabellate; lobes and lobules contiguous, overlapping, or remote. Scapes 2–10, 10–30 cm, glabrous or sparsely puberulent; cyme 1-flowered. Involucral bract blade undivided or 3-lobed, obovate, 1–3 cm, margin dentate or rarely entire. Pedicel 2–6(–10) cm, puberulent. Sepals (5 or)6–9, white, blue, or rarely purplish, oblong to oblong-obovate, 10–20 × 6–12 mm, sparsely puberulent or sometimes glabrous, basal veins 3–5, vein anastomoses

solitary or absent. Staminodes sometimes present. Stamens light brown, 4–5 mm; filament linear, 0.3–0.5 mm wide; anther light, narrow, connective dark, narrow. Pistils brown, 2.8–3.5 mm; ovary cylindrical, sparsely puberulent; style straight, light. Achene body ovoid, slightly compressed, 3–4 × 1–1.5 mm, densely pubescent (hairs ca. 1 mm), subglabrous, or glabrous; ribs ca. 0.1 mm; style almost straight, 1.3–1.4 mm. Fl. Jun–Aug.

Grassy slopes; 2100–4000 m. Gansu, Sichuan, Xizang, Yunnan [Bhutan, Kashmir, Nepal, Sikkim].

- 1a. Leaf blade lobes and lobules contiguous or overlapping; achene body glabrous or subglabrous 52a. var. *rockii*
- 1b. Leaf blade lobes and lobules remote; achene body densely pubescent.
 - 2a. Sepals 8 or 9, white 52b. var. *pilocarpa*
 - 2b. Sepals ca. 6, white or blue 52c. var. *multicaulis*

52a. *Anemone rockii* var. *rockii*

岷山银莲花(原变种) *min shan yin lian hua* (*yuan bian zhong*)

Lauener.

Leaf blade lobes and lobules contiguous or overlapping. Sepals 7 or 8, white. Achene body glabrous or subglabrous.

Grassy slopes; 2100–4000 m. Gansu, Sichuan, Xizang, Yunnan [Bhutan, Kashmir, Nepal, Sikkim].

52b. *Anemone rockii* var. *pilocarpa* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 350. 1980.

巫溪银莲花 *wu xi yin lian hua*

Leaf blade lobes and lobules remote. Sepals 8 or 9, white. Achene body densely pubescent.

• Grassy slopes; 2100–2300 m. NE Sichuan (Chengkou Xian, Wuxi Xian).

52c. *Anemone rockii* var. *multicaulis* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 350. 1980.

多茎银莲花 *duo jing yin lian hua*

Leaf blade lobes and lobules remote. Sepals ca. 6, white or blue. Achene body densely pubescent.

• Grassy slopes; 2900–3100 m. SW Sichuan (Xichang Shi).

53. *Anemone geum* H. Léveillé, Bull. Acad. Int. Géogr. Bot. 24: 25. 1915.

路边青银莲花 *lu bian qing yin lian hua*

Leaves 5–15, petiole 3–15 cm × 2–3 mm, villous; leaf blade 3-sect or sometimes 3-parted, ovate, 2–5 × 2–3 cm, densely long hairy or sparsely shortly hairy, base subcordate or subtruncate; central segment petiolulate (petiolule 5–10 mm), 3-lobed or undivided, broadly rhombic, longer or much longer than lateral ones (ratio 2 or 3:1); lateral segments petiolulate (petiolule 1–3

mm), 2- or 3-lobed. Scapes 2–5, 5–25 cm, villous or pubescent; cyme 1-flowered. Involucral bract blade undivided or 3-lobed, 1–2 cm, puberulent. Pedicel 1–2(–6) cm, puberulent. Sepals 5(–8), white, yellowish, mauve, or blue, broadly ovate, 5–12 × 4–9 mm, abaxially pubescent, basal veins 3(–5), vein anastomoses absent. Stamens light brown, 2–2.8 mm; filament linear-lanceolate, 0.5–1.0 mm wide; anther yellow, narrowly ellipsoid, connective brown, narrow. Staminodes sometimes present. Pistils narrowly ovoid, 2–3 mm, pubescent or glabrous. Achene body ovoid, sometimes slightly compressed, 3–4.8 × 1.6–2.3 mm, without ribs, villous (hairs 0.8–1.3 mm) or sometimes subglabrous, base narrowed; style usually straight, conic, 1.8–2.6 mm. Fl. May–Sep.

Scrub, alpine meadows; 1900–5000 m. Gansu, W Hebei, N Ningxia, Qinghai, Shaanxi, SW Shanxi, Sichuan, S Xinjiang, Xizang, Yunnan [N India, Nepal, Sikkim].

- 1a. Leaf blade densely long hairy, central segment much longer than lateral ones (ratio 3:1) 53a. subsp. *geum*
- 1b. Leaf blade sparsely shortly hairy, central segment longer than lateral ones (ratio 2:1) 53b. subsp. *ovalifolia*

53a. *Anemone geum* subsp. *geum*
路边青银莲花(原亚种) lu bian qing yin lian hua (yuan ya zhong)

Anemone bonatiana H. Léveillé var. *geum* (H. Léveillé) H. Léveillé; *A. obtusiloba* D. Don subsp. *ovalifolia* var. *geochares* Brühl; *A. obtusiloba* subsp. *geum* (H. Léveillé) Ulbrich; *A. obtusiloba* subsp. *ovalifolia* var. *orthocaulon* Brühl; *A. rupestris* Wallich ex J. D. Hooker & Thomson var. *lobata* Brühl; *A. rupestris* var. *pilosa* C. Marquand & Airy Shaw; *A. wardii* C. Marquand & Airy Shaw.

Leaf blade densely long hairy; central segment much longer than lateral ones (ratio 3:1).

Scrub, alpine meadows; 1900–5000 m. Gansu, W Hebei, N Ningxia, Qinghai, Shaanxi, SW Shanxi, W Sichuan, S Xinjiang, Xizang, NW Yunnan [N India, Nepal, Sikkim].

53b. *Anemone geum* subsp. *ovalifolia* (Brühl) R. P. Chaudhary, Bot. Zhurn. 73: 1190. 1988.

疏齿银莲花 shu chi yin lian hua

Anemone obtusiloba subsp. *ovalifolia* Brühl, Ann. Roy. Bot. Gard. (Calcutta) 5: 78. 1896; *A. obtusiloba* subsp. *ovalifolia* var. *angustilimba* W. T. Wang; *A. obtusiloba* subsp. *ovalifolia* var. *polysepala* W. T. Wang; *A. ovalifolia* (Brühl) Handel-Mazzetti.

Leaf blade sparsely shortly hairy; central segment longer than lateral ones (ratio 2:1).

Alpine meadows; 4000–5000 m. Gansu, Sichuan, Yunnan [N India, Nepal].

25. HEPATICA Miller, Gard. Dict. Abr., ed. 4, [628]. 1754.

獐耳细辛属 zhang er xi xin shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial. Rhizome lateral roots dense. Leaves basal, simple, long petiolate, conspicuously or inconspicuously 3- to 5-lobed to parted to middle, margin entire or toothed. Inflorescences scapose, 1-flowered; involucral bracts 3, whorled. Flowers terminal, bisexual. Sepals petaloid. Petals absent. Stamens numerous; filaments sublinear; anthers ellipsoid. Pistils numerous; ovary 1-ovuled. Styles persistent, short. Achenes ovoid. Seven species: N hemisphere; two species (one endemic) in China.

- 1a. Leaf lobes 1- or 2-toothed; bracts margin entire or 3-toothed 1. *H. henryi*
- 1b. Leaf lobes and bracts margin entire 2. *H. nobilis*

1. *Hepatica henryi* (Oliver) Steward, Rhodora 29: 53. 1927.
川鄂獐耳细辛 chuan e zhang er xi xin
Anemone henryi Oliver, Hooker's Icon. Pl. 16: t. 1570. 1887; *Hepatica yamatutae* Nakai.
Plants 4–6 cm tall at anthesis, to 12 cm tall in fruit. Rhizome ca. 2.5 cm, ca. 3 mm in diam. Leaves ca. 6; petiole 4–12 cm, densely hairy; leaf blade broadly ovate to suborbicular-reniform, 1.5–5.5 × 2–8.5 cm, villous, glabrate, base cordate, inconspicuously 3-lobed to parted to middle; lobes margin 1- or 2-toothed, apex acute. Scapes 1 or 2, suberect, hairy; involucral bracts ovate 5–11 × 3–6 mm, pilose, margin entire or 3-toothed, apex acute. Sepals 6, obovate-oblong to narrowly elliptic, 8–12 × 3–5.5 mm, abaxially pilose. Stamens 2–3.5 mm; anthers ca. 0.5 mm. Pistils ca. 10; ovary pilose. Styles curved to outside. Fl. Apr–May.
• Forests, grassy slopes; 1300–2500 m. W Hubei, N Hunan, Shaanxi, Sichuan.

2. *Hepatica nobilis* Schreb. var. *asiatica* (Nakai) H. Hara, J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 6: 51. 1952.
獐耳细辛 zhang er xi xin
Hepatica asiatica Nakai, J. Jap. Bot. 13: 309. 1937.
Plants 8–18 cm tall. Rhizome short. Leaves 3–6; petiole 6–9 cm, glabrate; leaf blade triangular-ovate, 2.5–6.5 × 4.5–7.5 cm, sparsely hairy, base deeply cordate, 3-parted to middle; lobes broadly ovate, entire, apex subobtuse to obtuse and sometimes mucronate. Scapes 1–6, villous; involucral bracts ovate to elliptic-ovate, 7–12 × 3–6 mm, abaxially villous, margin entire, apex acute to slightly obtuse. Sepals 6–11, pink to purple, narrowly oblong, 8–14 × 3–6 mm, apex obtuse. Stamens 2–6 mm; anthers ca. 0.7 mm. Ovary densely villous. Achenes ca. 4 mm, villous. Fl. Apr–May.
• Forests, grassy slopes; 700–1100 m. Anhui, Henan, Liaoning, SE Shaanxi, Zhejiang.
Hepatica nobilis var. *nobilis* occurs in Europe.

26. ANEMOCLEMA (Franchet) W. T. Wang, Acta Phytotax. Sin. 9: 105. 1964.

罂粟莲花属 ying su lian hua shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Anemone Linnaeus sect. *Anemoclema* Franchet, Bull. Soc. Bot. France 33: 363. 1886.

Plant perennial. Rhizome present. Sheath flat, sometimes narrowly winged. Leaves 4–7, basal, petiolate, pinnatisect to pinnatipartite; veins conspicuous. Involucral bracts 3, verticillate, pinnatilobate. Inflorescences umbelliform; bracteoles opposite. Flowers bisexual. Sepals 5, bluish purple, petaloid. Petals absent. Pistils sessile. Ovary 1-ovuled, densely villous. Styles slender, persistent, 6 × longer than ovary. Achenes densely villous.

• One species.

1. *Anemoclema glaucifolium* (Franchet) W. T. Wang, Acta Phytotax. Sin. 9: 106. 1964.

罂粟莲花 ying su lian hua

Anemone glaucifolia Franchet, Bull. Soc. Bot. France 33: 363. 1886; *Pulsatilla glaucifolia* (Franchet) Huth. Plants 45–80(–150) cm tall. Rhizome straight or bent, 0.6–0.8 cm in diam. Petiole 3.5–8.5 cm, villous; leaf blade spatulate-oblong to oblong, 5.5–17 × 2.8–7 cm, abaxially villous along main vein, adaxially sparsely pubescent, base subtruncate, apex rounded to obtuse; segments 3–8 pairs, subopposite or alternate, incised-dentate to lacerate, apex acute. Involucral bracts 2.4–

4.4(–7) × 0.4–0.8(–1.5) cm, lanceolate-ovate to lanceolate-oblong, finely pinnatipartite. Peduncle erect, terete, 3–6 mm in diam., subglabrous. Inflorescences 2–4-flowered; bracteoles broadly lanceolate, 1.3–1.7 cm. Sepals obovate, 1.6–4.4 × 1.1–3.5 cm, abaxially pubescent. Stamens 6–9 mm; anthers 2–3 mm. Pistils 60–70, ca. 5 mm. Styles basally densely villous, apically pubescent. Achenes ca. 1.2 cm, subellipsoid, slightly flat. Fl. Jul–Sep.

• Forests, grassy slopes; 1700–3000 m. SW Sichuan, NW Yunnan.

27. PULSATILLA Miller, Gard. Dict. Abr., ed. 4, [1136]. 1754.

白头翁属 bai tou weng shu

Wang Wencai (王文采 Wang Wen-tsai); Bruce Bartholomew

Herbs perennial, often covered with long soft hairs. Rhizome erect. Leaves basal, rosulate; petiole long; leaf blade palmately or odd pinnately divided; veins palmate. Scape with 3 bracts forming a bell-shaped involucre; involucral bracts basally connate and apically ± deeply divided into numerous lobes. Flower solitary, bisexual. Sepals 5 or 6. Petals absent. Stamens numerous, outermost whorl staminodial except in *Pulsatilla kostyczewii*; anthers yellow or purple, oblong, narrowly ellipsoid, filiform, or linear, with one longitudinal vein. Pistils numerous; ovule 1 per ovary. Styles long linear, pilose, strongly elongated and plumose when mature. Infructescence globose. Achenes small, spindle-shaped, pilose, with a long plumose beak formed by persistent style.

About 33 species: Asia, Europe, North America; 11 species (one endemic) in China.

Although *Pulsatilla* can easily be distinguished from *Anemone* by the former having a long, plumose beak on the achenes formed by the persistent style, phylogenetic studies have shown that they are probably congeneric.

- 1a. Anthers purple; staminodes not present; all but ultimate leaf blade segments and lobes stipitate; ultimate leaf blade segments ca. 0.5 mm wide 1. *P. kostyczewii*
- 1b. Anthers yellow; staminodes present; not all leaf blade segments and lobes stipitate; ultimate leaf blade segments greater than 0.5 mm wide (may be only 0.5 mm wide in *P. tenuiloba* and *P. sukaczewii* but segments not all stipitate).
- 2a. Leaf blade odd pinnate with (3 or)4–6 pairs of lateral leaflets.
- 3a. Leaf blade consistently 3 × pinnately divided; persistent style of achenes 3–3.5 cm.
- 4a. Leaf blade with (3 or)4 pairs of lateral leaflets; involucral bracts 2.8–3.4 cm, tube 5–6 mm; sepals blue-violet, rarely white, 2.2–4.2 cm 8. *P. turczaninowii*
- 4b. Leaf blade with 6 pairs of lateral leaflets; involucral bracts 0.9–2.2 cm, tube 2–2.5 mm; sepals pale yellowish green, yellow, or reddish purple, 0.9–2 cm 11. *P. millefolium*
- 3b. Leaf blade 2 or 3 × pinnately divided; persistent style of achenes 2–2.8 cm.
- 5a. Leaf blade with 5 or 6 pairs of lateral leaflets; sepals violet 9. *P. tenuiloba*

- 5b. Leaf blade with 4 pairs of lateral leaflets; sepals yellow or sometimes white 10. *P. sukaczewii*
- 2b. Leaf blade 3-foliolate but may appear to be odd pinnate with 2 or 3 pairs of lateral leaflets if terminal leaflet and/or central segment of terminal leaflet stipitate.
- 6a. Leaf blade distinctly 3-foliolate, palmately divided 5. *P. patens*
- 6b. Leaf blade 3-foliolate, but appearing to be odd pinnate with 1–3 pairs of lateral leaflets.
- 7a. Leaf blade 3-foliolate with 1 (or 2) pairs of lateral leaflets; leaflet lobes slightly divided, terminal lobe obovate, not stipitate; flowers erect before anthesis 2. *P. chinensis*
- 7b. Leaf blade 3-foliolate and odd pinnately divided with 2 or 3 pairs of lateral pinnate leaflets; leaflet lobes deeply divided, terminal lobe sometimes stipitate; flowers nodding before anthesis.
- 8a. Leaves not fully expanded at anthesis; sepals purplish red to dark purple 3. *P. cernua*
- 8b. Leaves mostly fully expanded at anthesis; sepals various shades of blue, violet, or lilac.
- 9a. Ultimate leaf blade lobes (1.5–)2–4 mm wide; involucre bracts (3–)4–5 cm; sepals pale lilac to pale bluish violet; persistent style (4–)5–6 cm in fruits, slender and softly plumose 4. *P. dahurica*
- 9b. Ultimate leaf blade lobes to 1 cm wide; involucre bracts 1.5–2.5 cm; persistent style 1.5–3 cm in fruit, stiff, bristly pilose.
- 10a. Rhizome 5–8 mm in diam.; sepals dark violet, 2.2–2.8 cm; persistent style 2.5–3 cm 6. *P. ambigua*
- 10b. Rhizome 2.5–4 mm in diam.; sepals blue-violet to lilac, 1.4–1.9 cm; persistent style 1–2.4 cm 7. *P. campanella*

1. *Pulsatilla kostyczewii* (Korshinsky) Juzepczuk, Fl. URSS 7: 288. 1937.

紫蕊白头翁 *zi rui bai tou weng*

Anemone kostyczewii Korshinsky, Zap. Imp. Akad. Nauk. Fiz.-Mat. Otd. 4(4): 88. 1896.

Plants ca. 14 cm tall. Leaves 4; petioles ca. 3 cm, sparsely white puberulent; leaf blade 1.2–2 × 3–4 cm, 3-foliolate, 2 or 3 × finely divided, sparsely white puberulent; leaflets petiolulate, all but ultimate segments stipitate; ultimate segments filiform, ca. 0.5 mm wide, margin revolute when fully expanded. Scapes sparsely white puberulent; involucre bracts 1.6–2 cm, palmately divided into linear lobes, thickly pilose. Flowers ca. 5 cm in diam. Pedicel ca. 6 cm, puberulent. Sepals 6, purplish red, ± spreading, obovate to oblong, 2–2.5 × 1.2–1.8 cm, outside puberulent, apex rounded to blunt. Stamens 4–10 mm; staminodes absent; filaments purple; anthers purple, narrowly ellipsoid, ca. 1.2 mm, apex rounded. Pistils thickly pilose. Fl. Jun.

Grassy slopes; ca. 2900 m. W Xinjiang (S Tian Shan) [Kyrgyzstan, Tajikistan].

2. *Pulsatilla chinensis* (Bunge) Regel, Tent. Fl.-Ussur. 5: 1861

白头翁 *bai tou weng*

Anemone chinensis Bunge, Enum. Pl. China Bor. 2: 1831.

Plants 15–35 cm tall. Rhizome ca. 0.8–1.5 cm in diam. Leaves 4 or 5, not fully expanded at anthesis; petiole 7–15 cm, densely long pilose; leaf blade broadly ovate, 4.5–14(–24) × 6.5–16(–25) cm, 3-foliolate, abaxially thickly pilose, adaxially glabrous, margin entire or toothed; lateral leaflets unequally 2-lobed, sessile or subsessile; central leaflet petiolulate or sessile, broadly

ovate, 3-lobed, central lobe obovate. Scape 1 (or 2), 2.5–5.5 cm, to 23 cm in fruit, puberulent; involucre bracts puberulent, basally connate into a 3–10 mm tube, apically palmately 3-lobed, each lobe linear, margin entire or slightly 3-lobed. Sepals violet, erect, oblong-ovate, 2.8–4.4 × 0.9–2 cm, abaxially puberulent. Stamens ca. 1/2 as long as sepals; anthers yellow. Inflorescences 9–12 cm in diam. Achenes 3.5–4 mm, flattened, sparsely puberulent. Persistent styles 3.5–6.5 cm. Fl. Mar–May, fr. Jun–Jul.

Forest margins, slopes; 200–3200 m. Anhui, S Gansu, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jilin, Liaoning, Nei Mongol, E Qinghai, Shaanxi, Shandong, Shanxi, W Sichuan [Korea, Russia (Far East)].

Pulsatilla chinensis var. *kissii* (Mandl) S. H. Li & Y. H. Huang (Fl. Pl. Herb. Chinae Bor.-Orient. 3: 162. 1975) has been proposed for plants growing on dry slopes in S Liaoning. The basionym *Pulsatilla ×kissii* Mandl (Oesterr. Bot. Z. 71: 178. 1922) was originally described as a hybrid between *P. chinensis* and *P. cernua* which it seems quite likely to be.

Pulsatilla chinensis is used medicinally.

3. *Pulsatilla cernua* (Thunberg) Berchtold & Presl, Rostl. I. Ranuncul. 22. 1820.

朝鲜白头翁 *chao xian bai tou weng*

Anemone cernua Thunberg in Murray, Syst. Veg., ed. 14, 510. 1784; *A. cernua* var. *koreana* Yabe ex Nakai; *Pulsatilla cernua* var. *koreana* (Yabe ex Nakai) Y. N. Lee; *P. koreana* (Yabe ex Nakai) Nakai ex Mori.

Plants 14–28 cm tall. Rhizome to 10 cm, 5–7 mm in diam. Leaves 4–6, not fully expanded at anthesis; petiole 4.5–14 cm, with thick long pilose hairs; leaf blade ovate, 3–7.8 × 4.4–6.5 cm, 3-foliolate, abaxially thickly pilose, adaxially glabrous, base cordate; lateral

leaflets sessile or subsessile, pinnately divided, lobes sessile; central leaflet long petiolulate, broadly ovate, divided to base into 3 segments, central segment stipitate and deeply 3-lobed, ultimate lobes lanceolate to narrowly ovate, 1.5–2.2 mm wide, and apically toothed. Scape 2.5–6 cm, elongated in fruit, with long hairs; involucre bracts 3–4.5 cm, abaxially puberulent, basally connate into a 0.8–1.2 cm tube, apical palmate lobes linear, margin entire or slightly 3-lobed. Sepals purplish red to dark purple, erect, oblong to ovate-oblong, 1.8–3 × 0.6–1.2 cm, abaxially puberulent, apex rounded to blunt. Stamens ca. 1/2 as long as sepals; anthers yellow. Infructescences 6–8 cm in diam.

Achenes obovate-oblong, ca. 3 mm, sparsely puberulent. Persistent styles ca. 4 cm. Fl. Apr–May, fr. May–Jun.

Grassy slopes. Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Russia (Far East, E Siberia)].

4. *Pulsatilla dahurica* (Fischer ex de Candolle) Sprengel, Syst. Veg. 2: 663. 1825.

兴安白头翁 *xing an bai tou weng*

Anemone dahurica Fischer ex de Candolle, Prodr. 1: 17. 1824.

Plants 25–40 cm tall. Rhizome ca. 16 cm, 5–7 mm in diam. Leaves 7–9; petiole 7–15 cm, with thick long pilose hairs; leaf blade ovate, 4.5–7.5 × 3–6 cm, 3-foliolate, abaxially with hairs only along veins, adaxially glabrous, base cuneate; lateral leaflets sessile or subsessile, unevenly 3-lobed; central leaflet long petiolulate, divided to base into 3 segments, lateral segments deeply 2-lobed, central segment stipitate, ultimate segments spatulate to broadly cuneate, 2–4 mm wide, margin entire or apically 2- or 3-toothed. Scapes 2–4, ca. 7.5 cm, elongated in fruit, with hairs; involucre bracts 4–5 cm, basally connate into a 1.2–1.4 mm tube, apical palmate lobes similar to leaves, abaxially puberulent. Sepals pale lilac to pale bluish violet, nearly erect, elliptical, ca. 2 × 0.5–1 cm, abaxially puberulent, apex slightly blunt. Stamens ca. 1/2 as long as sepals; anthers yellow. Infructescences ca. 10 cm in diam. Achenes narrowly obovate, ca. 3 mm, thickly puberulent. Persistent styles 5–6 cm. Fl. May–Jun.

Grassy slopes. Heilongjiang, Jilin, Nei Mongol [Korea, Russia (Far East, E Siberia)].

5. *Pulsatilla patens* (Linnaeus) Miller, Gard. Dict., ed. 8, *Pulsatilla* no. 4. 1768.

肾叶白头翁 *shen ye bai tou weng*

Plants to 40 cm tall. Rhizome cylindrical, branched distally. Leaves 5, not fully expanded at anthesis; petiole 5.5–15 cm, with thick long pilose hairs; leaf blade nearly kidney-shaped, rounded-ovate, or 5-angled, 2.5–7 × 4.5–11 cm, ± equally 3-foliolate, abaxially with white hairs, adaxially glabrous, base broadly cordate; lateral leaflets subsessile, unevenly 2-lobed; central leaflet subsessile or with a 1–4 mm petiolule, deeply 3-lobed, lobes entire or dissected, ultimate lobes triangular to narrowly linear and 2–3.5 mm wide.

Scapes erect, elongated in fruit, with hairs; involucre bracts 3.5–4.5 cm, basally connate into a 0.8–1.2 mm tube, apical palmate lobes linear, abaxially thickly puberulent. Sepals lilac to blue-violet, rarely milk-white to yellowish (subsp. *flavescens*), erect, oblong-ovate, ca. 3 × 1 cm, inside glabrous, outside sparsely hairy. Anthers yellow. Infructescences ca. 5 cm in diam.

Achenes ca. 5 mm, thickly puberulent. Persistent styles 2.8–4.8 cm. Fl. Jun–Jul.

Grassy slopes, mountain slopes under forests; ca. 1100 m. Heilongjiang, N Nei Mongol, N Xinjiang [Kazakhstan, Mongolia, Russia; N Europe, North America].

1a. Leaf blade lobes with 1 or 2 secondary lobes; ultimate lobes of leaf blade triangular, narrowly triangular, or triangular-lanceolate 5a. subsp. *patens*

1b. Leaf blade lobes finely divided; ultimate lobes of leaf blade linear-lanceolate to narrowly linear.

2a. Sepals lilac to blue-violet . 5b. subsp. *multifida*

2b. Sepals milk-white to yellowish

..... 5c. subsp. *flavescens*

5a. *Pulsatilla patens* subsp. *patens*

肾叶白头翁(原亚种) *shen ye bai tou weng* (yuan ya zhong)

Anemone patens Linnaeus, Sp. Pl. 1: 538. 1753.

Leaf blade nearly kidney-shaped, 2.5–4.5 × 4.5–7 cm; central leaflet subsessile; leaf blade lobes with 1 or 2 secondary lobes and ultimate lobes triangular, narrowly triangular, or triangular-lanceolate. Sepals lilac to blue-violet. Persistent styles 2.8–3 cm.

Mountain slopes; ca. 1100 m. N Xinjiang [Kazakhstan, Russia; N Europe].

5b. *Pulsatilla patens* subsp. *multifida* (Pritzel) Zämelis, Acta Hort. Bot. Univ. Latv. 1: 98. 1926.

掌叶白头翁 *zhang ye bai tou weng*

Anemone patens Linnaeus var. *multifida* Pritzel,

Linnaea 15:581. 1841; *Pulsatilla multifida* (Pritzel)

Juzepczuk; *P. patens* var. *multifida* (Pritzel) S. H. Li & Y. H. Huang.

Leaf blade round-ovate or 5-sided, 5.5–7 × 8–11 cm; central leaflet with a 0.6–1.4 cm petiolule; leaf blade lobes finely divided with ultimate lobes linear-lanceolate to narrowly linear. Sepals lilac to blue-violet. Persistent styles 3.5–4.8 cm.

Grassy slopes, mountain slopes under forests. Heilongjiang, N Nei Mongol, N Xinjiang [Mongolia, Russia; N Europe, North America].

5c. *Pulsatilla patens* subsp. *flavescens* (Zuccarini) Zämelis, Acta Hort. Bot. Univ. Latv. 1: 95. 1926.

发黄白头翁 *fa huang bai tou weng*

Anemone flavescens Zuccarini, Regensb. Zeit. 1: 371. 1826; *P. flavescens* (Zuccarini) Juzepczuk.

Leaf blade round-ovate or 5-sided, 5.5–7 × 8–11 cm; central leaflet with a 0.6–1.4 cm petiolule; leaf blade lobes finely divided with ultimate lobes linear-

lanceolate to narrowly linear. Sepals milk-white to yellowish. Persistent styles 3.5–4.8 cm.

N Xinjiang [Mongolia, E Russia].

6. *Pulsatilla ambigua* (Turczaninow ex Hayek) Juzepczuk, Fl. URSS 7: 307. 1937.

蒙古白头翁 meng gu bai tou weng

Anemone ambigua Turczaninow ex Hayek, Festschr. Z. Feier. D. Siebzigt. Geburtst. Prof. Dr. Ascher 466. 1904.

Plants 16–22 cm tall. Rhizome 5–8 mm in diam. Leaves 6–8; petiole 3–10 cm; leaf blade ovate, 2–3.2 × 1.2–3.2 cm, 3-foliolate, abaxially sparsely pilose, adaxially glabrous, base cuneate; lateral leaflets petiolulate, divided into three segments, segments further lobed; central leaflet petiolulate, broadly ovate, 3-lobed, central segment stipitate and deeply 3-lobed; ultimate lobes lanceolate, 0.8–1.5 mm wide, apically 2- or 3-toothed. Scapes 1 or 2, erect, ca. 4 cm, elongated to 16 cm in fruit, pilose; involucre bracts 3, 1.5–2.8 cm, basally connate into a ca. 2 mm tube, apical palmate lobes lanceolate to linear-lanceolate, abaxially puberulent, margin entire or with 1 or 2 lobes. Sepals dark violet, erect, oblong-ovate, 2.2–2.8 × 0.8–1 cm, abaxially puberulent, apex slightly acute and with or without a barbate apical appendage. Stamens ca. 1/2 as long as sepals; anthers yellow. Infructescences 4–4.5 cm in diam. Achenes ca. 2.5 mm, puberulent. Persistent styles 2.5–3 cm. Fl. and fr. Apr–Jul.

Grassy slopes, margin of forests; 2000–3400 m. N Gansu, Heilongjiang, Nei Mongol, Ningxia, N Qinghai, Xinjiang [Mongolia, Russia (Siberia)].

- 1a. Sepals apex without an apical appendage 6a. var. *ambigua*
- 1b. Sepal apex with a barbate apical appendage 6b. var. *barbata*

Rudolf V. Kamelin (pers. comm.) feels that the records for *Pulsatilla ambigua* in Xinjiang may be referable to *P. bungeana* C. A. Meyer.

6a. *Pulsatilla ambigua* var. *ambigua*

蒙古白头翁(原变种) meng gu bai tou weng (yuan bian zhong)

Sepal apex without an apical appendage.

Grassy slopes; 2000–3900 m. N Gansu, W Heilongjiang, Nei Mongol, Ningxia, N Qinghai, Xinjiang [Mongolia, Russia (W Siberia)].

6b. *Pulsatilla ambigua* var. *barbata* J. G. Liu, Bull. Bot. Res., Harbin 12: 236. 1992.

拟蒙古白头翁 ni meng gu bai tou weng

Sepal apex with a barbate apical appendage.

• Margin of forests; ca. 2100 m. Xinjiang (Shawen Xian).

7. *Pulsatilla campanella* Fischer ex Krylov, Fl. Zapadnoi Sib. 5: 1168. 1931.

钟萼白头翁 zhong e bai tou weng

Pulsatilla albana (Stevenson) Berchtold & J. Presl var. *campanella* Fischer ex Regel & Tiling, Fl. Ajan. 30. 1859.

Plants 14–20 cm tall, to 40 cm in fruit. Rhizome 2.5–4 mm in diam. Leaves 5–8, fully expanded by anthesis; petiole 2.5–12 cm, with pilose hairs; leaf blade ovate to narrowly ovate, 2.8–6 × 2–3.5 cm, 3-foliolate but lower leaflets essentially same shape as lateral segments of central leaflet, 2 × pinnate, abaxially sparsely pilose, adaxially nearly glabrous; lower leaflets and lateral segments of terminal leaflet obliquely ovate, pinnately divided, terminal lobes narrowly lanceolate to narrowly ovate, ca. 1 mm wide, apex acute. Scapes 1 or 2, erect, 2.5–4.5 cm, elongated to 22 cm in fruit, with hairs; involucre bracts ca. 1.8 cm, basally connate into a ca. 2 mm tube, apically deeply 3-lobed, lobes narrowly lanceolate, abaxially puberulent, margin entire or with 3 lobes. Flower nodding before and at anthesis. Sepals blue-violet to lilac, erect, elliptical to ovate, 1.4–1.9 × 0.8–0.9 cm, abaxially puberulent, apically slightly recurved. Anthers yellow. Infructescences ca. 5 cm in diam. Achenes ca. 4 mm, long puberulent. Persistent styles 1.5–2.4 cm. Fl. May–Jun.

Grassy slopes; 1800–3700 m. W Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia (W Siberia), Tajikistan].

8. *Pulsatilla turczaninovii* Krylov & Sergievskaja, Sist. Zametki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kuybysheva 5–6: 1. 1930.

细叶白头翁 xi ye bai tou weng

Pulsatilla turczaninovii f. *albiflora* Y. Z. Zhao.

Plants 15–25 cm tall. Leaves 4 or 5, expanding after anthesis; petiole 5–8 cm, with long pilose hairs; leaf blade narrowly elliptical, sometimes ovate, 7–8.5 × 2.5–4 cm, with (3 or) 4 pairs of lateral leaflets, 3 × pinnately divided, abaxially sparsely with hairs, adaxially glabrous; segments ovate, terminal lobes linear-lanceolate to linear, sometimes ovate, 1–1.5 (–2.5) mm wide, margin revolute, apex acute; lower segments petiolulate, upper segment sessile. Scapes ca. 1.5 cm, elongated to 15 cm in fruit, with hairs; involucre bracts 2.8–3.4 cm, basally connate into a 5–6 mm tube, apically finely divided, lobes linear to linear-lanceolate, 1–1.5 mm wide, abaxially puberulent. Sepals blue-violet, rarely white, erect, ovate-oblong to elliptical, 2.2–4.2 × 1–1.3 cm, abaxially puberulent, apex slightly acute to blunt. Anthers yellow. Infructescences ca. 5 cm in diam. Achenes ca. 4 mm, thickly puberulent. Persistent styles 4–5 cm. Fl. May–Jun, fr. Jun–Jul.

Grassy slopes. N Hebei, W Heilongjiang, W Jilin, W Liaoning, Nei Mongol, Ningxia, N Xinjiang [Mongolia, Russia (Far East, Siberia)]. This species is used medicinally.

9. *Pulsatilla tenuiloba* (Turczaninow ex Hayek) Juzepczuk, Fl. URSS 7: 298. 1937.

细裂白头翁 xi lie bai tou weng

Anemone tenuiloba Hayek, Festschr. Z. Feier. D. Siebzigt. Geburtst. Prof. Dr. Ascher 472. 1904.

Plants (8–)15–20 cm tall. Rhizome thick, with dried remains of previous year's leaves. Leaves appearing

before flowering, sparsely white puberulent; petiole ca. 2.5 cm; leaf blades narrowly oblong, ca. 5 × 2 cm, with 5 or 6 leaflets, 2 or 3 × pinnately divided, each lobe narrowly linear, 0.5–1 mm wide, apex acute. Scapes (1 or) 2 or 3, thickly white puberulent at anthesis, sparsely white puberulent in fruit; involucre bracts deeply 3-lobed, each lobe further pinnately divided, lobes narrowly linear, 0.5–1 mm wide, abaxially thickly white puberulent, adaxially glabrous. Sepals violet, narrowly oblong-ovate, 2–3 × 0.6–1 cm, hairy abaxially, glabrous adaxially. Stamens ca. 1/2 as long as sepals; anthers yellow. Ovary thickly puberulent. Achenes obovate-oblong. Persistent styles ca. 2 cm, thickly puberulent proximally, glabrous apically. Fl. Jun–Jul.

Rocky grasslands. Nei Mongol [Mongolia, Russia (W Siberia)].

10. *Pulsatilla sukaczewii* Juzepczuk, Fl. URSS 7: 741. 1937.

黄花白头翁 huang hua bai tou weng

Plants 5–15 cm tall. Rhizome ca. 6 cm, 3–5 mm in diam. Leaves 4–6, not fully expanded at anthesis; petiole 2–3.5(–5.5) cm, puberulent; leaf blade narrowly ovate to oblong-ovate, 2–3.7 × 1.2–1.7 cm, with 4 pairs of lateral leaflets, 2 or 3 × pinnately divided, glabrous or sparsely hairy, apex acute, terminal lobes lanceolate-linear, 0.5–0.8 mm wide, wrinkled on both surfaces. Scape 1, erect, 5–6 cm, elongated to 14 cm in fruit, with hairs; involucre bracts 1.5–1.8 cm, similar to leaves, basally connate into a 1.5–3 mm tube, apically finely divided, puberulent. Sepals yellow or sometimes white, erect, oblong-ovate, 1–2.3 × 0.5–1 cm, abaxially thickly puberulent, apex slightly acute. Anthers yellow. Infructescences ca. 4.2 cm in diam. Achenes ca. 3 mm,

thickly puberulent. Persistent styles 2–2.8 cm, basally puberulent, apically pilose. Fl. May–Jun.

Sandy slopes; ca. 300 m. Heilongjiang, Nei Mongol [Mongolia, Russia (E Siberia)].

11. *Pulsatilla millefolium* (Hemsley & E. H. Wilson) Ulbrich, Notizbl. Bot. Gart. Berlin-Dahlem 9: 225. 1925.

西南白头翁 xi nan bai tou weng

Anemone millefolium Hemsley & E. H. Wilson, Bull. Misc. Inform. Kew 1906: 149. 1906; *Anemone mairei* H. Léveillé.

Plants 3.5–20 cm tall. Rhizome 7–9 mm in diam. Leaves 5–14, fully developed at anthesis; petiole 1.9–6.5 cm, with long pilose hairs; leaf blade ovate-elliptical to ovate-oblong, 2–10 × 1.2–4 cm, with 5 or 6 pairs of lateral leaflets, 3 × pinnately divided, abaxially sparsely pilose, adaxially glabrous, apex acute, secondary lobes finely divided, terminal lobes triangular to narrowly ovate and ca. 2 mm wide. Scape 1, erect, 10–15 cm, thickly pilose; involucre bracts 0.9–2.2 cm, basally connate into a 2–2.5 mm tube, apically finely divided, terminal lobes lanceolate-linear, 0.5–1 mm wide, sparsely pilose. Sepals pale yellowish green, yellow, or reddish purple, erect, ovate-elliptical, 0.9–2 × 0.4–0.8 cm, abaxially thickly puberulent. Stamens ca. 1/2 as long as sepals; anthers yellow. Infructescences ca. 7 cm in diam. Achenes ca. 4 mm, thickly puberulent. Persistent styles 3–3.5 cm, puberulent. Fl. May–Jul.

• Forests, scrub, roadsides, slopes, dry stony places; 2200–3300 m. Sichuan, NE Yunnan.

28. METANEMONE W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 351. 1980.

毛茛莲花属 mao gen lian hua shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial. Rhizome lateral roots dense. Leaves basal, long petiolate, simple, palmate or undivided. Scape erect. Inflorescences terminal. Sepals petaloid, imbricate in bud. Stamens ca. 50. Pistils ca. 18; ovary densely yellow villous; ovule 1, pendulous. Styles subulate; stigma small.

• One species.

1. *Metanemone ranunculoides* W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 352. 1980.

毛茛莲花 mao gen lian hua

Rhizome ca. 1.5 cm, ca. 1 cm in diam. Leaves multi-morphic; petiole 1.5–5 cm, flat, spreading pilose; leaf blade ovate, 2.2–2.4 × 1.7–1.9 cm, herbaceous, base rounded, margin 1- or 2-toothed, apex obtuse; or leaf blade narrowly ovate-elliptic, 1.2–2 × 0.9–1 cm, both ends acuminate, subentire; or leaf blade palmate, cuneiform, ca. 1.8 × 0.9 cm, 3-lobed; or leaf blade pentagonal, ca. 2.5 × 3.2 cm, base truncate, 3-parted;

lateral lobes obliquely cuneiform, sparsely shortly hairy; central lobe cuneiform-obtrapezoid, larger than others, 3-parted and segments 1- or 2-toothed or entire. Scape ca. 15 cm tall, sparsely pubescent. Flowers ca. 2.2 cm in diam. Sepals ca. 19, bluish white, oblanceolate to narrowly obovate, 10–12 × 4–6 mm, outside pilose, inside glabrous, apically 3-toothed, apex retuse or entire. Stamens 3.5–5 mm; filaments linear, 1-veined; anthers ellipsoid, ca. 1 mm. Ovary ellipsoid, ca. 1.5 mm. Styles ca. 1.2 mm, glabrous. Fl. Jul.

• Mountain slopes; ca. 3500 m. NW Yunnan (Weixi Lisu Zu Zhi-xian).

29. CLEMATIS Linnaeus, Sp. Pl. 1: 543. 1753.

铁线莲属 tie xian lian shu

Wang Wencai (王文采 Wang Wen-tsai); Bruce Bartholomew

Archiclematis Tamura; *Atragene* Linnaeus.

Vines woody or herbaceous and perennial, rarely erect shrubs, subshrubs, or perennial herbs. Leaves opposite, rarely fascicled or alternate, simple or compound; leaf or leaflet blades palmately veined. Inflorescences cymose, sometimes solitary, usually pedunculate, 2-bracteate. Flowers bisexual or unisexual. Sepals 4 or 5(–8), petaloid, spreading, ascending, or erect, usually valvate in bud. Petals absent. Stamens numerous, sometimes outer ones sterile and becoming linear or petaloid staminodes; anthers introrse. Carpels numerous, usually pubescent or villous; ovaries 1-ovuled; ovule pendulous. Style elongated after anthesis, rarely slightly or not elongated. Achenes usually ± bilaterally compressed; persistent style usually strongly elongated, plumose.

About 300 species: widespread throughout the world; 147 species (93 endemic) in China.

In the protologue of *Clematis zhejiangensis* R. J. Wang (J. Trop. Subtrop. Bot. 7: 28. 1999), the author stated that his new species is related to *C. quinquefoliolata*. However, because the type specimen is in fruit, without flowers, the systematic position of this species is uncertain at present.

- 1a. Leaves alternate 147. *C. alternata*
 1b. Leaves opposite, rarely fasciculate.
 2a. Stamens hairy.
 3a. Sepals spreading 88. *C. liboensis*
 3b. Sepals ascending or erect.
 4a. Sepals ascending.
 5a. Flowers 1(–3), arising with leaves from axillary buds of previous year's or older branches; petaloid staminodes present.
 6a. Leaves 2-ternate.
 7a. Staminodes linear-spatulate, ca. 1/2 as long as sepals 145. *C. sibirica*
 7b. Staminodes (at least outer ones) narrowly lanceolate, nearly as long as sepals, sometimes inner ones linear-spatulate 146. *C. macropetala*
 6b. Leaves ternate, rarely pinnate.
 8a. Leaves ternate or pinnate; sepals linear-lanceolate, abaxially velutinous, apex long acuminate 144. *C. moisseenkoi*
 8b. Leaves ternate; sepals oblong, narrowly elliptic, or ovate, abaxially puberulous, apex obtuse or subacute.
 9a. Branches glabrous; bud scales 1–2 cm; flowers solitary, ca. 3.5 cm in diam.; sepals 1.7–2 cm 142. *C. koreana*
 9b. Branches sparsely pubescent; bud scales 3–7 mm; flowers 1–3-fasciculate, 4–7 cm in diam.; sepals 3.6–4.5(–5) cm 143. *C. iliensis*
 5b. Flowers in axillary or terminal cymes, or solitary and terminal, arising from leaf axils or apex of current year's branches; staminodes absent.
 10a. Leaves 1-pinnate or ternate; leaflet blades 3–7.5 cm wide; sepals white or blue; filaments linear 89. *C. pinnata*
 10b. Leaves 1- or 2-pinnate; leaflet blades 0.5–4 cm wide; sepals yellow or tinged with purple; filaments linear-lanceolate.
 11a. Flowers solitary, terminal, sometimes also in axillary, 1–3-flowered cymes.
 12a. Shrublets dwarf, erect.
 13a. Leaflet blades papery, margin ± densely denticulate; sepals adaxially glabrous .. 68. *C. tangutica*
 13b. Leaflet blades leathery, margin entire or 1- or 2-denticulate; sepals adaxially puberulous 70. *C. pamiralaica*
 12b. Vines woody.
 14a. Sepals adaxially glabrous.
 15a. Leaflet blades papery, both surfaces sparsely puberulous, margin densely denticulate; sepals not corniculate at apex abaxially 68. *C. tangutica*
 15b. Leaflet blades leathery, glabrous, margin entire or sometimes 1-denticulate; sepals corniculate at apex abaxially 72. *C. corniculata*
 14b. Sepals adaxially puberulous.

- 16a. Flowers solitary and terminal only, not in axillary cymes; sepals apically attenuate into a tail-like projection 3–6 mm 71. *C. caudigera*
- 16b. Flowers solitary and terminal and also in axillary cymes; sepals apically acute or cuspidate, without a tail-like projection.
- 17a. Leaflet blade margin \pm densely dentate or denticulate 68. *C. tangutica*
- 17b. Leaflet blade margin entire or 1- or 2-denticulate 69. *C. tibetana*
- 11b. Flowers in axillary cymes, not terminal.
- 18a. Sepals adaxially glabrous.
- 19a. Leaflet blade margin crenate 75. *C. akebioides*
- 19b. Leaflet blade margin entire or 1- or 2-denticulate.
- 20a. Leaflet blades narrowly elliptic, oblong, or narrowly ovate 76. *C. glauca*
- 20b. Leaflet blades lanceolate or linear-lanceolate 77. *C. intricata*
- 18b. Sepals adaxially puberulous.
- 21a. Leaflet blades gray-green 78. *C. orientalis*
- 21b. Leaflet blades green or bluish green.
- 22a. Leaflet blade margin entire or 1- or 2-denticulate 76. *C. glauca*
- 22b. Leaflet blade margin dentate, denticulate, or serrate.
- 23a. Leaflet blades ovate or broadly so, margin irregularly sparsely dentate; bracts ternate 73. *C. zandaensis*
- 23b. Leaflet blades mainly lanceolate or narrowly ovate, margin densely serrate or denticulate; bracts simple, lanceolate or linear 74. *C. serratifolia*
- 4b. Sepals erect
- 24a. Calyx tubular; stamens sparsely puberulous near apex of filaments; flowers polygamous.
- 25a. Flowers solitary, terminal; leaf pinnate and 5-foliolate or ternate 93. *C. tsugetorum*
- 25b. Flowers in terminal or axillary, 5- to many-flowered cymes.
- 26a. Leaves 2-ternate or pinnate 90. *C. tatarinowii*
- 26b. Leaves ternate.
- 27a. Leaflet blades adaxially appressed puberulous; peduncles and pedicels densely puberulous; anthers linear, 3.2–5 mm, apex apiculate, apiculus 0.2–0.5 mm 91. *C. heracleifolia*
- 27b. Leaflet blades adaxially glabrous; peduncles and pedicels velutinous; anthers narrowly oblong, ca. 2.8 mm, apex minutely apiculate, apiculus ca. 0.1 mm 92. *C. psilandra*
- 24b. Calyx campanulate; stamens \pm densely villous on filaments, sometimes also on anthers, rarely pubescent; flowers bisexual.
- 28a. Flowers 1–3, arising with 2 leaves from axillary buds of previous year's or older branches.
- 29a. Leaves ternate; sepals yellow 138. *C. barbellata*
- 29b. Leaves 2-ternate; sepals reddish purple or dark purple 139. *C. pseudopogonandra*
- 28b. Flowers usually arising from leaf axils or sometimes apex of current year's branches.
- 30a. Flowers solitary, axillary, pedicellate only, not pedunculate and 2-bracteate.
- 31a. Leaflet blades glabrous on both surfaces or sparsely puberulous only abaxially 136. *C. pogonandra*
- 31b. Leaflet blades appressed puberulous on both surfaces 137. *C. shenlungchiaensis*
- 30b. Flowers in axillary or terminal, usually pedunculate, 2-bracteate cymes, or solitary and terminal on current year's branches.
- 32a. Sepals longitudinally narrowly 2- or 3-winged abaxially.
- 33a. Branches and leaves glabrous 134. *C. pterantha*
- 33b. Branches and leaves \pm hairy.
- 34a. Branches erect, velutinous, hairs dense, spreading, short 132. *C. pinchuanensis*
- 34b. Branches scandent (sometimes erect in *C. ranunculoides*), pubescent or puberulous.
- 35a. Leaves simple, pentagonal, and 3-parted, or 1- or 2-ternate or pinnate, when leaflet blades ovate, broadly so, rhombic, or cordate, often 3-lobed, papery, margin usually dentate or denticulate 133. *C. ranunculoides*
- 35b. Leaves ternate; leaflet blades oblong-ob lanceolate, narrowly ovate, or narrowly elliptic, undivided, leathery, margin entire, sometimes 1-denticulate .. 135. *C. yuanjiangensis*

- 32b. Sepals not winged abaxially.
- 36a. Shrublets erect or perennial herbs.
 - 37a. Leaves sessile, simple 140. *C. integrifolia*
 - 37b. Leaves petiolate, compound 141. *C. fusca*
- 36b. Vines woody or herbaceous.
 - 38a. Leaves simple (sometimes ternate in *C. henryi*).
 - 39a. Anthers glabrous, apex obtuse.
 - 40a. Leaf blade narrowly ovate or lanceolate, margin minutely denticulate 103. *C. henryi*
 - 40b. Leaf blade broadly ovate, cordate-ovate, or suborbicular.
 - 41a. Leaf blade not reticulate, base rounded-cuneate or truncate, margin dentate 102. *C. chiupehensis*
 - 41b. Leaf blade reticulate on both surfaces, base cordate, margin entire . 104. *C. jingdungensis*
 - 39b. Anthers abaxially pubescent, apex usually minutely apiculate.
 - 42a. Flowers solitary, terminal on current year's branches, sometimes also in axillary, 1-flowered cymes 121. *C. yui*
 - 42b. Flowers in axillary, 1-flowered cymes only, not terminal.
 - 43a. Leaves all simple, papery or subleathery, base broadly cuneate, margin usually entire 122. *C. kweichowensis*
 - 43b. Leaves simple or sometimes ternate; leaf or leaflet blades papery, base subcordate, rounded, or broadly cuneate, margin sparsely dentate 134. *C. repens*
 - 38b. Leaves compound.
 - 44a. Leaves 1- or 2-pinnate, 2-ternate, or 2–4-pinnatisect.
 - 45a. Leaves 2–4-pinnatisect 131. *C. aethusifolia*
 - 45b. Leaves 1- or 2-pinnate or 2-ternate.
 - 46a. Leaflet blade margin entire.
 - 47a. Branches and leaves glabrous; sepals yellow, adaxially puberulous .. 126. *C. hupehensis*
 - 47b. Branches and leaves sparsely pubescent; sepals purple, adaxially glabrous 141. *C. fusca*
 - 46b. Leaflet blade margin dentate.
 - 48a. Petiole bases dilated and connate.
 - 49a. Vines woody; connate petiole bases strongly dilated, forming a suborbicular, platelike structure; leaflet blades 3.5–7.5 cm wide; sepals yellowish .. 129. *C. connata*
 - 49b. Vines herbaceous; connate petiole bases moderately dilated, turgid, not forming a platelike structure; leaflet blades 1.4–3(–4.5) cm wide; sepals purple-red 130. *C. lasiandra*
 - 48b. Petiole bases not or only slightly dilated, not connate.
 - 50a. Branches densely pubescent or velutinous.
 - 51a. Leaflet blades abaxially densely (rarely sparsely) pubescent; cymes usually many flowered; sepals abaxially densely appressed puberulous 119. *C. buchananiana*
 - 51b. Leaflet blades abaxially velutinous; cymes usually 3-flowered; sepals abaxially velutinous 120. *C. grewiiflora*
 - 50b. Branches sparsely puberulous or subglabrous.
 - 52a. Leaves 1-pinnate; sepals purple 127. *C. dasyandra*
 - 52b. Leaves 1- or 2-pinnate; sepals yellow.
 - 53a. Leaflet blades lobed; cymes usually many flowered, paniclelike 128. *C. rehderiana*
 - 53b. Leaflet blades parted; cymes few flowered 131. *C. aethusifolia*
 - 44b. Leaves 1-ternate.
 - 54a. Anthers hairy.
 - 55a. Branches densely pubescent; leaflet blades abaxially densely pubescent, adaxially sparsely pubescent, margin dentate; cymes 6- to many flowered 118. *C. rubifolia*
 - 55b. Branches sparsely puberulous or glabrous; leaflet blades glabrous or sparsely puberulous; cymes 1–3-flowered.
 - 56a. Sepals abaxially puberulous.
 - 57a. Leaflet blades lanceolate or narrowly ovate, margin entire or sparsely denticulate, apex attenuate or caudate-acuminate; sepals abaxially densely puberulous 115. *C. morii*
 - 57b. Leaflet blades ovate, margin irregularly dentate, apex acuminate; sepals abaxially sparsely puberulous only at base and apex 109. *C. jinzhaiensis*
 - 56b. Sepals abaxially glabrous.

- 117b. Plants not turning black on drying.
- 119a. Leaflet blades ovate, papery, abaxially densely puberulous 47. *C. shensiensis*
- 119b. Leaflet blades linear-lanceolate or lanceolate, papery or thinly leathery, both surfaces glabrous 48. *C. quinquefoliolata*
- 113b. Anthers linear or narrowly so (sometimes narrowly oblong in *C. florida*); cymes axillary, 1-flowered.
- 120a. Sepals 4.
- 121a. Leaves ternate; flowers axillary, pedicellate only 12. *C. laxistrigosa*
- 121b. Leaves 1- or 2-pinnate, rarely ternate; flowers in axillary, pedunculate, 1(–4)-flowered, 2-bracteate cymes.
- 122a. Bracts lanceolate, 2–2.2 × 0.5–0.6 cm; sepals yellowish white; anthers linear, 2.8–3 mm 35. *C. parviloba*
- 122b. Bracts broadly ovate or orbicular-ovate, 2–4 × 1.8–2.8 cm; sepals purple-red; anthers narrowly linear, 6–7.2 mm 96. *C. hancockiana*
- 120b. Sepals 5 or 6 (occasionally 4 in *C. longistyla*).
- 123a. Style appressed puberulous, not elongated after anthesis 100. *C. cadmia*
- 123b. Style villous or spreading pubescent, elongated and ± plumose after anthesis.
- 124a. Style ca. 3.5 mm, pubescent proximally, glabrous distally, after anthesis elongated to ca. 8 mm, spreading pubescent 99. *C. florida*
- 124b. Style 4–7.5 mm, densely villous, after anthesis elongated to 12–30 mm, plumose.
- 125a. Style glabrous above middle 97. *C. longistyla*
- 125b. Style densely villous from base to near apex 98. *C. courtoisii*
- 109b. Flowers less than 4 cm in diam.
- 126a. Filaments rugose 39. *C. crassifolia*
- 126b. Filaments not rugose.
- 127a. Achenes subulate-terete 56. *C. uncinata*
- 127b. Achenes ± bilaterally compressed, ovate, elliptic, or lanceolate.
- 128a. Leaves ternate, rarely simple.
- 129a. Anthers oblong or narrowly so, 0.8–2 mm, apex obtuse, rarely minutely apiculate.
- 130a. Sepals adaxially puberulous.
- 131a. Leaflet blade margin dentate; axillary cymes 7- to many flowered; anthers 1.5–1.8 mm; style 4–6 mm 18. *C. apiifolia*
- 131b. Leaflet blade margin entire, rarely sparsely denticulate; axillary cymes 1–3-flowered; anthers 2–2.6 mm; style 7–9 mm 23. *C. vaniotii*
- 130b. Sepals adaxially glabrous.
- 132a. Axillary cymes 1-flowered; anther apex minutely apiculate 20. *C. tenuipes*
- 132b. Axillary cymes 3- to many flowered; anther apex not apiculate.
- 133a. Leaflet blades lanceolate or narrowly ovate 22. *C. formosana*
- 133b. Leaflet blades ovate.
- 134a. Leaflet blade margin denticulate or entire; cymes 3–7-flowered; style ca. 6 mm, pubescent proximally, puberulous near middle, not elongated after anthesis 17. *C. tinghuensis*
- 134b. Leaflet blade margin entire; cymes many flowered; style ca. 5 mm, densely villous, after anthesis strongly elongated to ca. 3.5 cm 21. *C. burmanica*
- 129b. Anthers linear, narrowly oblong, or rarely oblong, 2.5–6.5 mm, apex often minutely apiculate.
- 135a. Leaflet blades abaxially densely puberulous 47. *C. shensiensis*
- 135b. Leaf or leaflet blades abaxially sparsely puberulous or glabrous.
- 136a. Leaves simple, rarely ternate.
- 137a. Petioles 1.5–2 cm; peduncles 10–18 cm; sepals abaxially glabrous; anthers linear, ca. 4 mm, apex obtuse 40. *C. xinhuiensis*

- 137b. Petioles 3–6 cm; peduncles ca. 7 cm; sepals abaxially puberulous; anthers narrowly oblong, 3–3.2 mm, apex minutely apiculate 45. *C. chekiangensis*
- 136b. Leaves ternate.
- 138a. Sepals 2.2–2.6 cm; anthers narrowly oblong, 2.5–3 mm 19. *C. mshanensis*
- 138b. Sepals 0.8–1.3 cm; anthers linear, rarely narrowly oblong, 3–6.5 mm.
- 139a. Axillary cymes (1–)3–7-flowered.
- 140a. Axillary cymes 1-flowered, with 1 or 2 pairs of bracteoles 44. *C. meyeniana*
- 140b. Axillary cymes usually 3–7-flowered, or 1-flowered but then without bracteoles 46. *C. finetiana*
- 139b. Axillary cymes paniclelike, many flowered.
- 141a. Leaflet blades not reticulate.
- 142a. Leaflet blades narrowly ovate or broadly lanceolate, to 8.8 × 3.4 cm, thinly papery, apex attenuate or long acuminate; anther apex obtuse, rarely minutely apiculate 43. *C. sinii*
- 142b. Leaflet blades ovate or oblong-ovate, to 14 × 9 cm, subleathery or thickly papery, apex acute or acuminate; anther apex minutely apiculate 44. *C. meyeniana*
- 141b. Leaflet blades reticulate on both surfaces.
- 143a. Branch nodes and base and apex of petioles and peduncles densely furfuraceous, elsewhere glabrous; leaflet blades leathery 41. *C. napoensis*
- 143b. Branch nodes, petioles, and peduncles puberulous, not furfuraceous; leaflet blades papery 42. *C. jialasaensis*
- 128b. Leaves 1- or 2-pinnate or 2-ternate, sometimes distal leaves 1-ternate.
- 144a. Anthers linear or narrowly oblong, more than 2 mm, apex often minutely apiculate.
- 145a. Leaflet blades conspicuously reticulate on both surfaces.
- 146a. Petiole base strongly dilated; sepals 5 or 6(or 7); anthers 3.5–4 mm, apex minutely apiculate 55. *C. dilatata*
- 146b. Petiole base not dilated; sepals 4(–6); anthers (1.5–)2–3(–3.2) mm, apex obtuse, rarely minutely apiculate.
- 147a. Plants not or occasionally turning black on drying; leaves 1-pinnate, leaflet blades often ovate or narrowly so, to 4.5 cm wide 52. *C. pashanensis*
- 147b. Plants turning black on drying; leaves 2-pinnate, sometimes 1-pinnate, leaflet blades often oblong or elliptic, to 2.8 cm wide 53. *C. kirilowii*
- 145b. Leaflet blades not reticulate.
- 148a. Leaves 2-pinnate or 2-ternate.
- 149a. Plants not turning black on drying; sepals obovate 2. *C. potaninii*
- 149b. Plants turning black on drying; sepals oblong, ovate-oblong, or lanceolate.
- 150a. Sepals 4; anthers narrowly oblong, 2.2–2.5 mm, apex obtuse 35. *C. parviloba*
- 150b. Sepals (4 or)5 or 6(or 7); anthers linear, 3.8–4.5 mm, apex minutely apiculate 54. *C. obscura*
- 148b. Leaves 1-pinnate.
- 151a. Sepals adaxially densely puberulous 23. *C. vaniotii*
- 151b. Sepals adaxially glabrous.
- 152a. Leaflet blades abaxially densely puberulous 47. *C. shensiensis*
- 152b. Leaflet blades abaxially glabrous or sparsely puberulous.
- 153a. Axillary cymes paniclelike, many flowered.
- 154a. Achenes strongly compressed, distinctly marginate; plants not turning black on drying 50. *C. terniflora*
- 154b. Achenes not strongly compressed, not marginate; plants turning black on drying 49. *C. chinensis*
- 153b. Axillary cymes 1–5(–7)-flowered.
- 155a. Leaflet blades linear-lanceolate or lanceolate 48. *C. quinquefoliolata*
- 155b. Leaflet blades ovate.

1. *Clematis brevipes* Rehder, J. Arnold Arbor. 9: 39. 1928.

短梗铁线莲 duan geng tie xian lian

Vines woody. Branches very shallowly 4-grooved, glabrous or only sparsely puberulous on nodes; branchlets densely puberulous. Leaves pinnate, 5-foliolate; petiole 3.6–5 cm, puberulous; leaflet blades broadly ovate to broadly rhombic, ca. 3.8 × 3.8 cm, papery, 3-lobed, abaxially pubescent on veins, adaxially sparsely puberulous on slightly impressed veins, base subtruncate to broadly cuneate; basal veins nearly flat; central lobe subrhombic, margin 1-dentate on each side; lateral lobes oblique cuneate, unequally 2-lobed. Cyme arising from leaf axils of current year's branches, 1-flowered; peduncle 2.5–6 cm, puberulous; bracts narrowly lanceolate, 2–4 mm, puberulous. Flowers ca. 3 cm in diam. Pedicel 0.6–1.5 cm, puberulous. Sepals 4, yellowish white, spreading, broadly obovate, orbicular-rhombic, or broadly elliptic, 1.2–1.8 × 1–1.5 cm, abaxially puberulous, adaxially glabrous. Stamens 8–10 mm, glabrous; anthers narrowly oblong, 1.8–2 mm, apex obtuse. Ovaries pubescent. Style ca. 8 mm, densely villous. Fl. Apr.*

• S Gansu (Min Xian).

2. *Clematis potaninii* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 9. 1890.

美花铁线莲 mei hua tie xian lian

Clematis fargesii Franchet; *C. fargesii* var. *souliei* Franchet ex Finet & Gagnepain; *C. montana* Buchanan-Hamilton ex de Candolle var. *potaninii* (Maximowicz) Finet & Gagnepain; *C. potaninii* var. *fargesii* (Franchet) Handel-Mazzetti.

Vines woody. Branches shallowly 5- or 6-grooved, appressed puberulous. Leaves usually (1 or) 2-pinnate; petiole 3–5 cm; leaflet blades ovate to broadly ovate, 1.5–6 × 0.8–5.5 cm, thin papery, both surfaces sparsely appressed puberulous, base broadly cuneate, rounded, or subcordate, margin serrate, apex acute to acuminate; basal veins flat. Cymes arising from axils of leaves on current year's branches, 1–3 (or 4)-flowered; peduncle 5.5–15 cm; bracts ternate or simple, 3-lobed. Flowers 3–7 cm in diam. Pedicel 3–9.8 cm, appressed puberulous. Sepals 5 or 6 (or 7), white, cuneate-obovate to narrowly obovate, 1.8–3.8 × 0.8–2.4 cm, abaxially densely appressed puberulous, adaxially glabrous, apex rounded and apiculate. Stamens 0.7–1.8 cm, glabrous; anthers narrowly oblong, 2–3 mm, apex obtuse. Ovaries pubescent. Style 7–11 mm, densely villous. Achenes obovate to elliptic, 3–4.5 × 2–2.8 mm, glabrous; persistent style 2.5–3.2 cm, plumose. Fl. Jun–Aug, fr. Aug–Oct.

• Forests, forest margins, slopes; 1400–4000 m. S Gansu, S Shaanxi, N to W Sichuan, E Xizang, NW Yunnan.

3. *Clematis acerifolia* Maximowicz, Bull. Soc. Imp. Naturalistes Moscou 54(1): 2. 1879.

槭叶铁线莲 qi ye tie xian lian

Shrublets 20–60 cm tall. Branches subterete, not grooved, glabrous; bud scales ovate to ovate-oblong, 4–

8 mm, puberulous near apex. Leaves simple, glabrous; petiole 2–5 cm; leaf blade pentagonal, 3–7.5 × 3.5–8 cm, palmately 5-lobed, thick papery, base subcordate to rarely broadly cuneate, margin sparsely dentate, apex acute; basal veins abaxially nearly flat to ± prominent. Flowers 2–4 borne together with leaves from a bud at apex of stem, 3.5–5 cm in diam. Pedicel 5.5–10 cm, glabrous. Sepals 5–8, white or pinkish, spreading, narrowly obovate to oblong, 1.5–2.5 × 0.7–1.5 cm, both surfaces glabrous, apex obtuse, subrounded, or acute. Stamens 5–8 mm, glabrous; anthers narrowly oblong to oblong, 1–2 mm, apex obtuse. Ovaries pubescent. Style ca. 4.5 mm, densely villous. Achenes narrowly ovate, 2.5–3 × 1.2–1.8 mm, densely pubescent; persistent style ca. 2.5 cm, plumose. Fl. Apr–May, fr. May–Jun.

• Rocky cliffs, soil slopes; ca. 200 m. Beijing Shi.

4. *Clematis montana* Buchanan-Hamilton ex de Candolle, Syst. Nat. 1: 164. 1817.

绣球藤 xiu qiu teng

Vines woody. Branches terete, often shallowly 4–10-grooved, puberulous, glabrescent. Leaves ternate; petiole 2.5–9 cm; leaflet blades ovate, rhombic-ovate, or elliptic, 1.8–7 (–14) × 1–5 cm, papery to herbaceous, undivided or 3-lobed, both surfaces sparsely puberulous, base broadly cuneate to rounded, margin sparsely dentate or occasionally entire, apex acuminate or acuminate; basal veins abaxially nearly flat. Flowers (1 or) 2–4 (–6) borne together with several leaves from axillary buds of old branches, 1.5–11 cm in diam. Pedicel 1–20 cm, sparsely puberulous. Sepals 4, white or sometimes tinged pink, spreading, obovate to oblong-obovate, (0.7–) 1.3–6.5 × (0.3–) 1–2.5 (–3.5) cm, abaxially puberulous, adaxially glabrous, apex rounded to rarely emarginate or short acuminate. Stamens 6–18 mm, glabrous; anthers narrowly oblong, sometimes linear, (1.5–) 2–3 (–4) mm, apex obtuse to minutely apiculate. Ovaries glabrous, rarely puberulous. Style 0.5–1 cm, densely villous. Achenes ovate to rhombic-ovate, 4–5 × 3–4 mm, glabrous, rarely appressed puberulous; persistent style 2–6 (–7) cm, plumose. Fl. Apr–Sep, fr. Jul–Sep.

Forests, forest margins, slopes, scrub, along streams; 1000–4000 m. S Anhui, NW Fujian, S Gansu, N Guangxi, Guizhou, SW Henan, Hubei, Hunan, Jiangxi, S Ningxia, E Qinghai, S Shaanxi, Sichuan, Taiwan, E and S Xizang, Yunnan, Zhejiang [Afghanistan, Bhutan, N India, Kashmir, N Myanmar, Nepal, N Pakistan, Sikkim].

1a. Ovaries and achenes puberulous.

2a. Leaflet blades 1.8–6 × 1.5–3 cm; pedicel 4–9 cm; sepals 1.5–2.5 × 1–1.4 cm 4b. var. *brevifoliola*

2b. Leaflet blades 5–12 × 3–5 cm; pedicel 10–16.5 cm; sepals 2.5–3.4 × 1.5–2.5 cm 4f. var. *glabrescens*

1b. Ovaries and achenes glabrous.

- 3a. Sepals 0.7–1.2 cm; persistent style
ca. 2 cm 4c. var. *sterilis*
3b. Sepals 1.3–6.5 cm; persistent style
2.5–6 cm.
4a. Persistent style to 6 cm ... 4e. var. *wilsonii*
4b. Persistent style 2.5–4.5 cm.
5a. Flowers 3–5 cm in diam.
..... 4a. var. *montana*
5b. Flowers 5–11 cm in diam.
..... 4d. var. *longipes*

4a. *Clematis montana* var. *montana*

绣球藤(原变种) xiu qiu teng (yuan bian zhong)

Clematis insularialpina Hayata; *C. kuntziana* H. Léveillé & Vaniot; *C. spooneri* Rehder & E. H. Wilson var. *subglabra* S. Y. Hu.

Leaflet blades 2–7 cm. Flowers 3–5 cm in diam. Pedicel 3–10(–12) cm. Sepals 1.3–3 × 0.8–1.5 cm. Anthers narrowly oblong, (1.5–)2–3 mm, apex obtuse. Ovaries glabrous. Achenes glabrous; persistent style 2.5–4 cm. Fl. Apr–Jun, fr. Jul–Sep.

Forests, forest margins, scrub, along streams; 1200–4000 m. S Anhui, NW Fujian, S Gansu, N Guangxi, Guizhou, SW Henan, Hubei, Hunan, Jiangxi, S Ningxia, S Shaanxi, Sichuan, Taiwan, S Xizang, Yunnan, Zhejiang [Afghanistan, Bhutan, N India, Nepal, N Pakistan].

4b. *Clematis montana* var. *brevifoliola* Kuntze, Verh. Bot. Vereins Prov. Brandenburg. 26: 141. 1885.

伏毛绣球藤 fu mao xiu qiu teng

Leaflet blades 1.8–6.1.5–3 cm. Flowers 3–5 cm in diam.; pedicel 4–9 cm. Sepals 1.5–2.5 × 1–1.4 cm, abaxially appressed puberulous, margin ± densely puberulous, apex rounded. Anthers narrowly oblong or linear, 2–3.2 mm. Ovaries puberulous. Achenes appressed puberulous; persistent style ca. 2 cm.

Abies or *Picea* foests, scrub; 1000–4200 m. S Xizang (Yadong Xian) [Bhutan, Kashmir, N Myanmar, Nepal, Sikkim].

4c. *Clematis montana* var. *sterilis* Handel-Mazzetti, Symb. Sin. 7: 320. 1931.

小叶绣球藤 xiao ye xiu qiu teng

Leaflet blades 1.2–3(–4) cm. Flowers 2–3 cm in diam. Pedicel 1–4 cm. Sepals 0.1–1.2 × 0.3–0.9 cm. Anthers narrowly oblong, 2–2.5 mm, apex obtuse. Ovaries glabrous. Achenes glabrous; persistent style ca. 2 cm. Fl. Apr–Jun, fr. Aug–Sep.

• Forests slopes; 2400–3000 m. SW Sichuan, E Qinghai, NW Yunnan.

4d. *Clematis montana* var. *longipes* W. T. Wang, Acta Phytotax. Sin. 38: 306. 2000.

大花绣球藤 da hua xiu qiu teng

Leaflet blades 3–6.5(–9.8) cm. Flowers 5–11 cm in diam. Pedicel 10–19 cm. Sepals 2.6–5 × 1.3–2.6(–3.5) cm, abaxially densely appressed puberulous near margin but with a glabrescent band 0.8–1.5 cm wide, apex usually rounded-obtuse to acuminate. Anthers narrowly oblong, (2–)3–4 mm, apex obtuse or obscurely minutely apiculate. Ovaries glabrous. Achenes glabrous; persistent style 2.5–4.5 cm. Fl. Apr–Aug, fr. Jul–Aug.

Scrub, along streams; 1100–4000 m. S Gansu, NE Guizhou, W Hubei, W Hunan, S Shaanxi, Sichuan, SE Xizang, NW Yunnan [N India].

This variety was mistakenly identified as the Himalayan variety *Clematis montana* var. *grandiflora* Hooker in FRPS 28: 222. 1980.

4e. *Clematis montana* var. *wilsonii* Sprague, Bot. Mag. 137: t. 8365. 1911.

晚花绣球藤 wan hua xiu qiu teng

Clematis montana var. *wilsonii* f. *platysepala* Rehder & E. H. Wilson.

Leaflet blades 3–8 cm. Flowers 4–8 cm in diam.

Pedicel 8–20 cm. Sepals 2–4 × 1.2–2.5 cm, abaxially densely appressed puberulous near margin but with a glabrescent band to 8 mm wide, apex usually emarginate. Anthers linear to narrowly oblong, 2.4–3.2(–4) mm, apex minutely apiculate. Ovaries glabrous. Achenes glabrous; persistent style to 6 cm. Fl. and fr. Aug.

• Forest margins, scrub; 2400–3600 m. W Sichuan.

4f. *Clematis montana* var. *glabrescens* (H. F. Comber) W. T. Wang & M. C. Chang in W. T. Wang, Acta Bot. Yunnan. 15: 351. 1993.

毛果绣球藤 mao guo xiu qiu teng

Clematis chrysocoma Franchet var. *glabrescens* H. F. Comber, Notes Roy. Bot. Gard. Edinburgh 18: 234.

1934; *C. montana* var. *trichogyne* M. C. Chang.

Leaflet blades 5–12 × 3–5 cm, apex acuminate, long acuminate, or attenuate. Flowers 5–10 cm in diam. Pedicel 10–16.5 cm. Sepals 2.5–3.4 × 1.5–2.5 cm, abaxially appressed puberulous. Anthers narrowly oblong, 2–3.5 mm, apex obtuse or obscurely minutely apiculate. Ovaries puberulous. Achenes appressed puberulous; persistent style 4.5–7 cm. Fl. May–Sep, fr. Sep.

• Forest margins, slopes, scrub; 2100–3500 m. E Xizang, NW Yunnan.

5. *Clematis gracilifolia* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 331. 1913.

薄叶铁线莲 bao ye tie xian lian

Vines woody. Branches shallowly 4–6-grooved, appressed puberulous, glabrescent. Leaves usually pinnate, 5-foliolate, rarely ternate; petiole 1.5–7.5 cm; leaflet blades ovate, narrowly ovate, broadly ovate, or obovate, 0.5–3.5 × 0.3–3 cm, thin papery, undivided or 3-lobed or rarely 2- or 3-parted or -sect, both surfaces sparsely puberulous, base cuneate to rounded, margin sparsely serrate to denticulate, apex acute; basal veins nearly flat. Flowers 1–5 borne together with several leaves from axillary buds of old branches, 1.5–6.5 cm in diam. Pedicel 2–6(–8) cm, sparsely puberulous. Sepals 4, white or abaxially tinged pinkish, spreading, obovate, 0.7–3.2 × 0.4–2 cm, abaxially puberulous, adaxially glabrous, apex rounded. Stamens 5.5–14 mm, glabrous; anthers narrowly oblong, 1.6–3.2 mm, apex obtuse. Ovaries glabrous or rarely puberulous. Style 5–7 mm, densely villous. Achenes broadly ovate, 4–4.5 × 3.2–3.8 mm, glabrous or rarely puberulous; persistent style 1.5–2.2 cm, plumose. Fl. Apr–Jun, fr. Jun–Oct.

• Forests, slopes, scrub, along streams; 2000–4000 m. S Gansu, W Sichuan, E to SE Xizang, NW Yunnan.

1a. Ovaries and achenes puberulous 5d. var. *lasiocarpa*
1b. Ovaries and achenes glabrous.

2a. Leaflet blades 2- or 3-parted or
-sect 5c. var. *dissectifolia*

2b. Leaflet blades undivided or 3-lobed.

3a. Flowers 2–3.5 cm in diam.
..... 5a. var. *gracilifolia*

3b. Flowers 5–6.5 cm in diam.
..... 5b. var. *macrantha*

5a. Clematis gracilifolia var. *gracilifolia*

薄叶铁线莲(原变种) bao ye tie xian lian (yuan bian zhong)

Clematis gracilifolia var. *pentaphylla* (Maximowicz) W. T. Wang; *C. gracilifolia* var. *trifoliata* M. F. Johnson; *C. montana* Buchanan-Hamilton ex de Candolle var. *pentaphylla* Maximowicz.

Leaflet blades undivided or 3-lobed. Flowers 2–3.5 cm in diam. Ovaries and achenes glabrous. Fl. Apr–Jun, fr. Jun–Oct.

• Forests, along streams; 2000–3800 m. S Gansu, W Sichuan, E Xizang, NW Yunnan.

5b. Clematis gracilifolia var. *macrantha* W. T. Wang & M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 359. 1980.

大花薄叶铁线莲 da hua bao ye tie xian lian

Leaflet blades undivided or 3-lobed. Flowers 5–6.5 cm in diam. Ovaries and achenes glabrous. Fl. Jun.

• W Sichuan (Baoping Xian, Li Xian).

5c. Clematis gracilifolia var. *dissectifolia* W. T. Wang & M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 359. 1980.

狭裂薄叶铁线莲 xia lie bao ye tie xian lian

Leaflet blades 2- or 3-parted or -sect. Flowers 1.5–2.3 cm in diam. Ovaries and achenes glabrous. Fl. May–Jun, fr. Sep.

• Slopes, scrub; 2800–4000 m. W Sichuan, E to SE Xizang.

5d. Clematis gracilifolia var. *lasiocarpa* W. T. Wang, Acta Phytotax. Sin. 38: 501. 2000.

毛果薄叶铁线莲 mao guo bao ye tie xian lian

Leaves pinnate, 5-foliolate; leaflets 2- or 3-lobulate or undivided. Flowers white. Ovaries and achenes puberulous.

• Scrub on slopes; ca. 3500 m. SE Xizang.

6. Clematis ningjingshanica W. T. Wang, Acta Phytotax. Sin. 39: 310. 2001.

宁静山铁线莲 ning jing shan tie xian lian

Vines woody. Branches subterete, not grooved, smooth, sparsely puberulous only at nodes, glabrous elsewhere; bud scales triangular, 4–5 × 3–3.5 mm, leathery, densely ciliolate. Leaves ternate; petiole 1–1.3 cm,

sparsely pilose; terminal leaflet blade petiolulate, rhombic-ovate, 3-parted, ca. 1.4 × 1.2 cm, leathery, abaxially pilose on midvein, adaxially glabrous, base broadly cuneate; central lobe narrowly rhombic, 3-lobulate, lateral lobes obliquely narrowly oblong, 1-denticulate or entire, apex acuminate; lateral leaflet blades subsessile, obliquely narrowly ovate, ca. 1.2 × 0.8 cm, 2- or 3-lobulate; basal veins nearly flat. Flowers 2 or 3, borne with 2 or 4 leaves on axillary buds of old branches, 2.7–3.2 cm in diam.; pedicel 2–3 cm, puberulous. Sepals 4, spreading, purple-red, obovate or narrowly so, rarely elliptic, 1.3–1.7 × 0.8–1.35 cm, abaxially sparsely puberulous, adaxially glabrous, apex rounded, mucronulate. Stamens 6–11 mm, glabrous; anthers linear, 2–2.8 mm, apex obtuse. Ovaries glabrous; style ca. 7 mm, densely villous. Fl. Jun.

• E Xizang (Ningjing Shan).

7. Clematis chrysocoma Franchet, Bull. Soc. Bot. France 33: 362. 1886.

金毛铁线莲 jin mao tie xian lian

Clematis chrysocoma var. *sericea* (Franchet ex Finet & Gagnepain) C. K. Schneider; *C. montana* de Candolle var. *sericea* Franchet ex Finet & Gagnepain; *C.*

spooneri Rehder & E. H. Wilson.

Vines woody, sometimes suberect. Branches shallowly 8-grooved, glabrescent. Leaves ternate; petiole 1–6.5 cm; leaflet blades rhombic-obovate to rhombic-ovate, 2–6 × 1.5–4.5 cm, papery, abaxially densely appressed yellowish pubescent, adaxially ± densely appressed pubescent, base broadly cuneate, margin few dentate, apex acute to acuminate; basal veins nearly flat.

Flowers 1–6 borne together with several leaves from axillary buds of old branches or solitary in leaf axils of current year's branches, 3.2–6 cm in diam. Pedicel 4.5–8.5(–20) cm, densely puberulous. Sepals 4, white or pink, spreading, obovate to elliptic-obovate, 1.6–3 × 0.8–2 cm, abaxially appressed puberulous, adaxially glabrous, margin abaxially velutinous, apex obtuse, rounded, or rarely acute. Stamens 6–11 mm, glabrous; anthers narrowly oblong, 3–4 mm, apex obtuse. Ovaries pubescent. Style ca. 7 mm, densely villous. Achenes ovate, 4–5 × 2–3 mm, pubescent; persistent style 2.2–2.7 cm, brownish plumose. Fl. Apr–Jul, fr. Jul–Oct.

• Grassy, dry, or stony slopes, scrub along streams; 1000–3000 m. W Guizhou, W Sichuan, Yunnan.

8. Clematis venusta M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 358. 1980.

丽叶铁线莲 li ye tie xian lian

Vines woody. Branches subterete, glabrescent. Leaves ternate; petiole 2–5.2 cm; leaflet blades lanceolate to narrowly ovate, 2.5–7 × 0.8–2 cm, papery, abaxially appressed sericeous-puberulous, adaxially very sparsely puberulous and often glabrescent, base cuneate, broadly cuneate, or rounded, margin entire or to 2-denticulate, apex attenuate; basal veins nearly flat. Flowers 1–3 borne together with several leaves arising from axillary buds of old branches, 5–8 cm in diam. Pedicel 4–15 cm,

sparsely puberulous. Sepals 4, white, spreading, elliptic, 2.5–4 × 2–2.5 cm, abaxially sparsely appressed pubescent, adaxially glabrous, margin abaxially densely puberulous, apex obtuse to emarginate. Stamens 0.8–1.2 cm, glabrous; anthers narrowly oblong, 2.5–3 mm, apex obtuse. Ovaries glabrous or sparsely pubescent. Style ca. 7 mm, densely villous. Fl. May.

• Forests, scrub; 2300–2700 m. NW Yunnan (Lijiang Naxi Zu Zizhixian, Zhongdian Xian).

9. *Clematis tripartita* W. T. Wang, Acta Phytotax. Sin. 38: 500. 2000.

深裂铁线莲 shen lie tie xian lian

Vines woody. Branches shallowly 6–10-grooved, glabrous. Leaves ternate; petiole 1–1.8 cm, puberulous; terminal leaflet blade broadly rhombic, nearly 3-parted to base, 6–15 × 6–14 mm, leathery or thickly so, both surfaces puberulous, base broadly cuneate, lobes narrowly rhombic, 3-lobulate or 3-dentate; lateral leaflet blades obliquely ovate, unequally 2-parted, slightly smaller than central blade, lobes narrowly rhombic or obovate, margin 1- or 2-denticulate on each side; basal veins nearly flat. Flowers 1–6, borne with 4 leaves from axillary buds of old branches, 2–2.7 cm in diam.; pedicel slender, 2.8–4 cm, densely puberulous. Sepals 4, white, spreading, broadly oblanceolate, obovate-oblong, or oblong, 11–15 × 4–6 mm, abaxially appressed puberulous, adaxially glabrous, apex obtuse or acute. Stamens 4–7 mm, glabrous; filaments linear or narrowly so; anthers narrowly oblong or sublinear, 2–2.2 mm, apex obtuse. Ovaries pubescent; style ca. 5 mm, densely villous, apex circinate. Fl. Jun.

Slopes, moraine margins; 3000–4000 m. S Xizang (Nyalam Xian) [Nepal].

10. *Clematis tongluensis* (Brühl) Tamura var. ***mollisepala*** W. T. Wang, Acta Phytotax. Sin. 38: 503. 2000.

软萼铁线莲 ruan e tie xian lian

Vines woody. Branches subterete, 10-grooved, puberulous; bud scales triangular, 5–10 mm, leathery, appressed puberulous. Leaves ternate; petiole 4.5–8 cm; leaflet blades ovate or rhombic-ovate, 2- or 3-lobed or undivided, 4.8–9 × 3.5–5.6 cm, papery, both surfaces appressed puberulous, base rounded or broadly cuneate, margin coarsely dentate, apex acute; basal veins nearly flat. Flowers 2 or 3, borne with ca. 2 leaves from axillary buds of old branches, 6–10.5 cm in diam.; pedicel 14–22.5 cm, densely puberulous. Sepals 4, white, spreading, oblong-oblanceolate or broadly oblanceolate, 2.9–4.9 × 0.9–1.9 cm, abaxially densely appressed puberulous, adaxially appressed puberulous, margin velutinous, apex acuminate or cuspidate. Stamens 6–16 mm, glabrous; filaments linear; anthers linear, 3.5–5.5 mm, apex obtuse. Ovaries distally densely pubescent; style ca. 9 mm, densely villous. Fl. Jun.

• Forest margins; ca. 2800 m. S Xizang (Nang Xian).

Clematis tongluensis var. *tongluensis* occurs in the Himalayas.

11. *Clematis wenshanensis* W. T. Wang, Acta Phytotax. Sin. 39: 313. 2001.

文山铁线莲 wen shan tie xian lian

Vines woody. Stems to 10 m; branches subterete, indistinctly 10-grooved, glabrous. Leaves ternate; petiole 2.4–4 cm; leaflet blade ovate or narrowly so, 3.5–7 × 1.8–3 cm, papery, abaxially sparsely appressed puberulous, adaxially very sparsely puberulous on veins, base rounded, margin dentate, apex acuminate or long acuminate; basal veins nearly flat. Flowers usually 2, borne with leaves from axillary buds of old branches, 6.5–7 cm in diam.; pedicel 9–11 cm, very sparsely puberulous. Sepals 4, white, spreading, ovate-oblong, 3.3–3.7 × 1.1–1.6 cm, abaxially subglabrous, adaxially glabrous, margin velutinous, apex attenuate and shortly cuspidate. Stamens 7–14 mm, glabrous; anthers linear or narrowly oblong, 2.5–3 mm, apex obtuse. Ovaries glabrous; style 8–11 mm, densely villous. Fl. May.

• Forests, bamboo thickets on slopes; 2400–2700 m. SE Yunnan (Wenshan Xian).

12. *Clematis laxistrigosa* (W. T. Wang & M. C. Chang) W. T. Wang, **comb. et stat. nov.**

糙毛铁线莲 cao mao tie xian lian

Basionym: *Clematis chrysocoma* var. *laxistrigosa* W. T. Wang & M. C. Chang in W. T. Wang, Acta Bot. Yunnan. 15: 352. 1993.

Vines woody. Branches subterete shallowly 8-grooved, puberulous, glabrescent. Leaves ternate; petiole 2.2–3.5 cm, puberulous; leaflet blade rhombic, narrowly so, or ovate, rarely long elliptic, undivided, sometimes 3-lobulate or 3-lobed, 1.5–4.8 × 1–3.5(–4) cm, papery, abaxially strigose, adaxially sparsely pubescent, base broadly cuneate or subrounded, margin few dentate or rarely entire, apex acute or shortly acuminate; basal veins abaxially slightly prominent. Flowers 1 or 2, arising from leaf axils of current year's branches, 5–5.6 cm in diam.; pedicel 5.8–9.5 cm, appressed puberulous. Sepals 4, white, spreading, narrowly elliptic, obovate-oblong, or narrowly obovate, (2–) 2.6–3 × 1–1.3 cm, abaxially appressed puberulous along 3 basal veins, adaxially glabrous, margin velutinous. Stamens 6–8.5 mm, glabrous; anthers linear, 3.5–3.8 mm, apex obtuse. Ovaries densely puberulous; style ca. 6 mm, densely yellowish villous. Achenes compressed, ovate or broadly so, 2–2.5 × 2–2.2 mm, appressed pubescent; persistent style 9–11 mm, yellowish plumose. Fl. Aug–Sep.

• Scrambling on small trees, grassy slopes, along streams; 1100–2800 m. SW Sichuan (Ganluo Xian, Hanyuan Xian).

13. *Clematis hastata* Franchet ex Finet & Gagnepain, Bull. Soc. Bot. France 50: 527. 1903.

戟状铁线莲 ji zhuang tie xian lian

Vines woody. Branches shallowly 8-grooved, glabrous; bracts of axillary floral buds of old branches narrowly

triangular to ovate, 6–8 mm, papery, sparsely puberulous toward apex. Leaves pinnate, 5–7-foliolate, rarely ternate, glabrous; petiole 2–3.5 cm; leaflet blades of lower pair narrowly ovate, 4.5–5.5 × 3.8–4.5 cm, subleathery, 3-parted or unequally 2-parted, base subcordate, margin entire, apex acute to ± obtuse; leaf blade of upper pair triangular-linear to narrowly triangular, 2.5–5 × 0.9–1.4 cm, base subcordate to truncate, margin entire and undivided; midvein abaxially ± prominent. Flowers 2–7, arising from axillary buds, 2.5–4 cm in diam. Pedicel 4–11.5 cm, pubescent. Sepals 4, white, spreading, oblanceolate to narrowly oblanceolate, 1.3–2.2 × 0.4–0.9 cm, abaxially densely appressed puberulous, adaxially glabrous, apex obtuse to rounded. Stamens ca. 8 mm, glabrous; anthers narrowly oblong, ca. 2 mm, apex obtuse or obscurely apiculate. Ovaries pubescent. Style ca. 7 mm, densely villous. Fl. Apr.

• Slopes in valleys. N to NE Sichuan.

14. *Clematis glabrifolia* K. Sun & M. S. Yan, Bull. Bot. Res., Harbin 12: 327. 1992.

光叶铁线莲 *guang ye tie xian lian*

Vines woody. Branches shallowly 8-grooved, glabrous. Leaves pinnate, 5-foliolate, or ternate, glabrous; petiole 2–5 cm; leaflet blades elliptic, ovate, or triangular-ovate, 2–5 × 1–3 cm, papery, base subcordate to rounded, margin entire, apex obtuse; basal veins flat on both surfaces. Flowers 2–7 borne together with several leaves from axillary buds of old branches, 3.6–4 cm in diam. Pedicel 6.5–7.5 cm, densely pubescent. Sepals 6, white, spreading, oblong-obovate, 1.8–2 × 0.8–1 cm, abaxially densely appressed puberulous, adaxially glabrous, apex rounded and often emarginate. Stamens ca. 1 cm, glabrous; anthers narrowly oblong to linear, 2–2.6 mm, apex obtuse. Ovaries pubescent. Style ca. 6 mm, densely villous. Fl. Mar.

• Grassy slopes; ca. 500 m. S Gansu (Wen Xian).

15. *Clematis fasciculiflora* Franchet, Pl. Delavay. 5. 1889.

滑叶藤 *hua ye teng*

Vines woody. Branches not grooved or very shallowly 4–8-grooved, sparsely puberulous, glabrescent. Leaves ternate; petiole 2–3(–6) cm; leaflet blades narrowly ovate, lanceolate, or elliptic, rarely linear-lanceolate, 2–8.5(–11) × (0.3–)0.8–3.5(–5) cm, subleathery, abaxially sparsely puberulous or glabrous, adaxially glabrous, base broadly cuneate to rounded, margin entire, apex acuminate; basal veins nearly flat. Flowers usually 2–4, sometimes borne together with 2 to several leaves from axillary buds of old branches, 1.4–1.7 cm in diam. Pedicel 0.5–2.4 cm, yellowish velutinous. Sepals 4, white, erect, obovate-oblong to suboblong, 1.2–2 × 0.5–0.8 cm, abaxially yellowish velutinous, adaxially glabrous, apex ± obtuse. Stamens 0.9–1.4 cm, glabrous; anthers narrowly oblong, 3–3.2 mm, apex obtuse. Ovaries glabrous. Style 0.9–1.2 cm, densely

villous. Achenes lanceolate, 5.5–8 × 1.5–3 mm, glabrous; persistent style 1–1.6 cm, plumose. Fl. Dec–Mar, fr. Jul–Oct.

Forests, scrub, along streams, stony slopes; 1500–3500 m. W Guangxi, SW Guizhou, SW Sichuan, Yunnan [N Myanmar, N Vietnam].

- 1a. Leaflet blades narrowly ovate, lanceolate, or elliptic, 0.8–3.5(–5) cm wide 15a. var. *fasciculiflora*
 1b. Leaflet blades linear-lanceolate, 0.3–0.6(–1) cm wide 15b. var. *angustifolia*

15a. *Clematis fasciculiflora* var. *fasciculiflora*

滑叶藤(原变种) *hua ye teng* (yuan bian zhong)

Clematis montana Buchanan-Hamilton ex de Candolle var. *fasciculiflora* (Franchet) Brühl.

Leaflet blades narrowly ovate, lanceolate, or elliptic, 0.8–3.5(–5) cm wide.

Forests, scrub, along streams; 1500–2500 m. W Guangxi, SW Guizhou, SW Sichuan, Yunnan [N Myanmar, N Vietnam].

15b. *Clematis fasciculiflora* var. *angustifolia* H. F. Comber, Notes Roy. Bot. Gard. Edinburgh 18: 236. 1934.

狭叶滑叶藤 *xia ye hua ye teng*

Leaflet blades linear-lanceolate, 0.3–0.6(–1) cm wide.

• Stony slopes; 2300–3300 m. NW Yunnan (Lijiang Naxi Zu Zizhixian, Zhongdian Xian).

16. *Clematis napaulensis* de Candolle, Syst. Nat. 1: 164. 1817.

合苞铁线莲 *he bao tie xian lian*

Clematis cirrhosa Linnaeus var. *napaulensis* (de Candolle) Kuntze.

Vines woody. Branches terete or indistinctly 6-angulate, glabrous. Leaves ternate; petiole 3–7.5 cm; leaflet blades narrowly ovate to lanceolate, 3–7.5 × 1.2–2.6 cm, herbaceous, both surfaces glabrous or abaxially sparsely puberulous, base broadly cuneate to rounded, margin basally few denticulate or entire, apex attenuate; basal veins nearly flat. Cymes 1–3 borne together with several leaves from axillary buds of old branches, 1-flowered; peduncle 2–4 cm, sparsely puberulous; involucre cup-shaped, 4–7 mm, 2-lobed, outside sparsely puberulous. Flowers 1.6–1.8 cm in diam. Pedicel 2–12 mm. Sepals 4, greenish white, erect, oblong, 1.6–2 × 0.6–0.85 mm, abaxially velutinous, adaxially glabrous, apex ± obtuse. Stamens 0.7–2 cm, glabrous; anthers oblong, 3–3.8 mm, apex minutely apiculate. Ovaries pubescent. Style 1.4–2 cm densely villous. Achenes obovate to subrhombic, ca. 4 × 2 mm, pubescent; persistent style 4.5–5 cm, plumose. Fl. Nov–Dec, fr. Feb–Mar.

Forests; 1500–2300 m. S Guizhou, E Xizang, Yunnan [Bhutan, N India, N Myanmar, Nepal, Sikkim].

17. *Clematis tinghuensis* C. T. Ting in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 357. 1980.

鼎湖铁线莲 *ding hu tie xian lian*

Vines woody. Branches longitudinally 6- or 7-grooved, sparsely puberulous. Leaves ternate or simple; petiole 1.2–4 cm, sparsely puberulous; leaflet blades or leaf

blade ovate to broadly ovate, 2–8 × 1–5 cm, papery, abaxially sparsely appressed puberulous, adaxially minutely puberulous only on basal veins, base subcordate, truncate, or rounded, margin sparsely minutely denticulate or entire, apex acuminate; basal veins nearly flat. Cymes axillary or terminal, 3–7-flowered; peduncle 3.5–6 cm, sparsely puberulous; bracts petiolate, ovate, 0.7–2 cm. Flowers ca. 2 cm in diam. Pedicel 0.6–1.8 cm, appressed puberulous. Sepals 4, white, spreading, obovate-oblong, 10–12 × 3–4 mm, abaxially appressed puberulous, adaxially glabrous, margin abaxially velutinous, apex acute. Stamens 6–7 mm, glabrous; anthers oblong, ca. 1 mm, apex obtuse. Ovaries pubescent. Style ca. 6 mm, densely brownish pubescent from base to middle, subappressed brownish shortly hairy at middle, glabrous apically. Achenes narrowly ovate, 8–9 × 3.8–4.2 mm, appressed puberulous; persistent style ca. 6 mm, basally pubescent, middle puberulous, apically glabrous. Fl. Jun–Jul, fr. Oct.

• Forests, forest margins; 200–400 m. S Guangdong (Dinghu Shan, Gaoyao Xian).

18. *Clematis apiifolia* de Candolle, Syst. Nat. 1: 149. 1817.
女菱 nu wei

Vines woody. Stems 1–6 m; branches longitudinally 5- or 6-grooved, densely appressed puberulous. Leaves ternate; petiole 1.5–14 cm, puberulous; leaflet blades ovate, broadly ovate, or elliptic, 2–9(–13) × 1.6–7(–9.5) cm, papery, often indistinctly 3-lobed, abaxially puberulous, densely puberulous, or velutinous, adaxially puberulous, base rounded, rounded-truncate, or subcordate, margin distally sparsely 1- or 2(–5)-dentate or rarely entire, apex acuminate to acute; basal veins abaxially ± prominent to nearly flat. Cymes axillary or terminal, (3–)7- to many flowered; peduncle 1.8–9.5 cm; bracts petiolate, elliptic to broadly ovate, 1–4 cm, undivided or 3-lobed. Flowers 1–1.6(–2.8) cm in diam. Pedicel 5–12(–28) mm, densely puberulous. Sepals 4, white, spreading, obovate-oblong to oblanceolate, 6–8(–15) × 2.2–3.2(–4) mm, abaxially appressed puberulous, adaxially velutinous, margin abaxially velutinous, apex obtuse. Stamens 4–6(–10) mm, glabrous; anthers narrowly oblong, 1.5–1.8 mm, apex obtuse. Ovaries pubescent. Style 4–6 mm, densely villous. Achenes oblong-ovate to fusiform, 3.5–4.5 × 1–2 mm, puberulous; persistent style 0.8–2.5(–2.7) cm, plumose. Fl. May–Sep, fr. Jun–Oct.

Forests, grassy slopes, along streams; 100–2300 m. S Anhui, N Fujian, S Gansu, N Guangdong, N Guangxi, Guizhou, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, E Yunnan, Zhejiang [Japan, Korea].

1a. Leaflet blades abaxially sparsely puberulous; persistent style 0.8–1.2(–1.5) cm 18a. var. *apiifolia*

1b. Leaflet blades abaxially densely puberulous to velutinous, rarely sparsely puberulous; persistent style 1.5–2.5(–2.7) cm 18b. var. *argenticucida*

18a. *Clematis apiifolia* var. *apiifolia*

女菱(原变种) nu wei (yuan bian zhong)

Leaflet blades 2–8 × 1.5–6 cm, abaxially sparsely puberulous. Persistent style 0.8–1.2(–1.5) cm. Fl. Jul–Sep, fr. Sep–Oct.

Forests, grassy slopes, along streams; 100–400 m. S Anhui, N Fujian, S Jiangsu, NE Jiangxi, Zhejiang [Japan, Korea].

18b. *Clematis apiifolia* var. *argenticucida* (H. Léveillé & Vaniot) W. T. Wang, Acta Phytotax. Sin. 31: 216. 1993.

钝齿铁线莲 dun chi tie xian lian

Clematis vitalba Linnaeus var. *argenticucida* H.

Léveillé & Vaniot, Bull. Acad. Int. Géogr. Bot. 11: 167. 1902; *C. apiifolia* var. *obtusidentata* Rehder & E.

H. Wilson; *C. grata* Wallich var. *argenticucida* (H. Léveillé & Vaniot) Rehder; *C. obtusidentata* (Rehder & E. H. Wilson) H. Eichler.

Leaflet blades 2.5–13 × 2.2–9.5 cm, abaxially densely puberulous to velutinous, rarely sparsely puberulous. Persistent style 1.5–2.5(–2.7) cm. Fl. May–Jul, fr. Jun–Aug.

• Forests, along streams; 200–2300 m. S Anhui, S Gansu, N Guangdong, N Guangxi, Guizhou, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, E Yunnan, W Zhejiang.

19. *Clematis mashanensis* W. T. Wang, Bull. Bot. Res., Harbin 9(2): 7. 1989.

马山铁线莲 ma shan tie xian lian

Vines woody. Branches shallowly 4–6-grooved, sparsely spreading puberulous. Leaves ternate; petiole ca. 6 cm, puberulous; leaflet blades ovate to narrowly ovate, 6.5–7.4 × 2.8–4.3 cm, leathery, abaxially sparsely puberulous on midvein, adaxially glabrous, base rounded, margin entire, apex acuminate; basal veins abaxially ± prominent. Cymes axillary, 1-flowered; peduncle 3.5–4.7 cm, spreading puberulous; bracts simple or foliaceous, short petiolate, broadly lanceolate to lanceolate, 1.6–3 cm. Flowers 4.5–5 cm in diam. Pedicel 2.8–3.6 cm, puberulous. Sepals 4, spreading, lanceolate to oblong-lanceolate, 2.2–2.6 × 0.9–1 cm, abaxially densely appressed sericeous, adaxially glabrous, margin abaxially velutinous, apex ± acute. Stamens 0.7–1.3 cm, glabrous; anthers narrowly oblong, 2.5–3 mm, apex obtuse to minutely apiculate. Ovaries pubescent. Style ca. 1 cm, densely villous. Fl. Apr.

• Limestone hills; ca. 400 m. C Guangxi (Mashan Xian).

20. *Clematis tenuipes* W. T. Wang, Acta Phytotax. Sin. 6: 377. 1957.

细梗铁线莲 xi geng tie xian lian

Clematis parviloba Gardner & Champion var. *tenuipes* (W. T. Wang) C. T. Ting.

Vines woody, turning black on drying. Branches shallowly 4-grooved, appressed puberulous. Leaves ternate; petiole 2–4 cm; leaflet blades elliptic-ovate to ovate, 4.2–6.8 × 1.6–3 cm, subleathery, both surfaces strigose only on basal veins, base rounded to subcordate, margin entire, apex acute, acuminate, or short caudate; basal veins abaxially ± prominent, adaxially impressed. Cymes axillary, 1-flowered; peduncle slender, 1–2.5 cm, appressed puberulous; bracts linear, 3–4 mm, densely puberulous. Flowers 2.5–3 cm in diam. Pedicel 1.8–2.2 cm. Sepals 4, white, spreading, elliptic-oblong, 12–15 × 5–7 mm, abaxially densely sericeous-puberulous, adaxially glabrous, margin abaxially velutinous, apex obtuse. Stamens 8–10 mm, glabrous; anthers oblong, ca. 1.5 mm, apex apiculate. Ovaries pubescent. Style ca. 6 mm, densely brownish villous. Fl. Apr–May.

• Forests; 700–1000 m. SE Yunnan (Funing Xian).

21. *Clematis burmanica* Lace, Bull. Misc. Inform. Kew 1915: 394. 1915.

缅甸铁线莲 mian dian tie xian lian

Vines woody. Branches shallowly 10-grooved, appressed puberulous. Leaves ternate; petiole 6–10 cm; leaflet blade ovate or triangular-ovate, 6–11 × 3.4–6 cm, subleathery or papery, abaxially sparsely pubescent on basal veins and veinlets, adaxially sparsely puberulous on basal veins, base rounded or truncate-rounded, margin entire, apex acute or attenuate; basal veins abaxially slightly prominent. Cymes axillary, paniclelike, many flowered; peduncle 0.7–9.5 cm, sparsely puberulous; bracts petiolate, narrowly elliptic, 0.7–2.5 cm. Flowers 1.3–2.4 cm in diam.; pedicel 0.6–2.6 cm, densely puberulous. Sepals 4, white, spreading, narrowly oblong, 6.5–14 × 3–5 mm, abaxially densely appressed puberulous, adaxially glabrous, margin sometimes velutinous. Stamens 5–9 mm, glabrous; anthers oblong or narrowly so, 1.2–1.8 mm, apex obtuse. Ovaries densely puberulous; style ca. 5 mm, densely villous. Achenes compressed, broadly elliptic, ca. 5 × 4 mm, densely appressed pubescent; persistent style ca. 3.5 cm, yellow plumose. Fl. Aug–Dec.

Forests; 900–1700 m. SW Yunnan [Myanmar, N Thailand].

22. *Clematis formosana* Kuntze, Hooker's Icon. Pl. 20: t. 1945. 1891.

宝岛铁线莲 bao dao tie xian lian

Clematis sasakii Shimizu.

Vines perennial, herbaceous. Branches shallowly 4–6-grooved, densely puberulous. Leaves ternate; petiole 2.8–6.2 cm; leaflet blades lanceolate to narrowly ovate, rarely ovate, 3.2–6.3(–7.4) × (0.8–)1.1–2.3(–3.4) cm, papery, undivided or 3-lobed, abaxially sparsely puberulous, adaxially glabrous or subglabrous, base broadly cuneate, margin entire, apex attenuate to acuminate and mucronate; basal veins abaxially ± prominent. Cymes axillary or terminal, 3–5-flowered;

peduncle 0.5–3 cm, densely puberulous; bracts petiolate, narrowly ovate to lanceolate. Flowers 1.5–2.5 cm in diam. Pedicel 0.5–3.4 cm, densely puberulous. Sepals 4, white, spreading, narrowly oblong, 8–13 × 3–4 mm, abaxially densely appressed puberulous, adaxially glabrous, apex acute-mucronate. Stamens 2–9 mm, glabrous; anthers oblong, 0.8–1 mm, apex obtuse. Ovaries pubescent. Style 6–7 mm, densely villous. Achenes ovate to elliptic, 3–5 × ca. 2.5 mm, pubescent; persistent style 1.5–4 cm, yellowish plumose. Fl. Nov–Jan, fr. Jan–Feb.

• Sunny areas, forest margins; near sea level to 800 m. E to S Taiwan.
23. *Clematis vaniotii* H. Léveillé & Porter, Repert. Spec. Nov. Regni Veg. 9: 20. 1910.

云贵铁线莲 yun gui tie xian lian

Clematis phaseolifolia W. T. Wang.

Vines woody. Branches shallowly 8-grooved, sparsely puberulous or glabrous. Leaves ternate or pinnate, 5-foliolate; petiole 3–7 cm; leaflet blades ovate, narrowly ovate, or oblong, 3–10 × 2–5 cm, papery, both surfaces sparsely puberulous on veins, base rounded to rounded-truncate, margin entire or sometimes sparsely 1–3-denticulate, apex acuminate; basal veins nearly flat. Cymes (1–)3-flowered; peduncle 1.8–5.5 cm, glabrous; bracts lanceolate, 3–7 mm. Flowers 2–3.4 cm in diam. Pedicel 2–5 cm, sparsely puberulous only near apex. Sepals 4, yellowish white, spreading, oblong to obovate-oblong, 10–16 × 4–6 mm, abaxially sparsely puberulous near apex, adaxially densely puberulous, margin abaxially velutinous, apex obtuse. Stamens 7–12 mm, glabrous; anthers oblong to narrowly oblong, 2–2.6 mm, apex obtuse. Ovaries pubescent. Style 7–9 mm, densely villous. Fl. Mar–Apr, fr. May.

• Forests, slopes, forest margins; 600–1500 m. S Guizhou, SE Yunnan.

24. *Clematis gratopsis* W. T. Wang, Acta Phytotax. Sin. 6: 385. 1957.

金佛铁线莲 jin fo tie xian lian

Clematis grata Wallich var. *lobulata* Rehder & E. H. Wilson.

Vines woody, turning black on drying. Stems to 2.5 m; branches longitudinally 4- or 5-grooved, densely puberulous and mixed with hairs. Leaves pinnate, (3–)5-foliolate; petiole 2–5.5 cm, densely pubescent; leaflet blades broadly ovate to deltoid-ovate, 1.8–7 × 1.1–7.8 cm, papery, 3-lobed or parted, abaxially densely puberulous but velutinous on veins, adaxially densely appressed pubescent, base subcordate, cordate, or rounded-truncate, margin sparsely unequally dentate, apex acute to acuminate; basal veins abaxially nearly flat. Cymes axillary or terminal, (1–)3–14-flowered; peduncle 3–9 cm; bracts short petiolate, elliptic to broadly ovate, 0.7–2 cm. Flowers 1.3–1.7 cm in diam. Pedicel 0.8–2.4 cm, puberulous. Sepals 4, white, spreading, obovate-oblong, 7–9.5 × 2.8–5 mm,

abaxially densely puberulous to velutinous, adaxially glabrous, margin abaxially velutinous, apex obtuse. Stamens 6–8.5 mm, glabrous; anthers narrowly oblong, 1–1.2 mm, apex rounded. Ovaries pubescent. Style ca. 5 mm, densely villous. Achenes ovate, ca. 4 × 2 mm, puberulous; persistent style 2.3–4.5 cm, plumose. Fl. Aug–Oct, fr. Oct–Nov.

• Scrub on slopes, along streams; 200–1700 m. S Gansu, W Hubei, NW Hunan, S Shaanxi, NE and SE Sichuan.

25. *Clematis grandidentata* (Rehder & E. H. Wilson) W. T. Wang, Acta Phytotax. Sin. 31: 218. 1993.

粗齿铁线莲 *cu chi tie xian lian*

Vines woody. Stems 1.8–3.5 m; branches longitudinally 5- or 6-grooved, densely appressed puberulous. Leaves pinnate, (3–)5-foliolate; petiole 2.5–7 cm, puberulous; leaflet blades ovate, broadly ovate, or elliptic, 3.5–8(–10) × 1.8–4.8(–8) cm, papery, undivided or 3-lobed, abaxially densely puberulous or sometimes velutinous to sparsely puberulous, adaxially sparsely appressed puberulous, base rounded, broadly cuneate, truncate, or subcordate, margin sparsely coarsely dentate, apex acuminate to acute; basal veins nearly flat or ± prominent. Cymes axillary or terminal, 3–20-flowered, axillary ones often 3–6-flowered; peduncle 2–6 cm; bracts sometimes foliaceous, linear to narrowly lanceolate, 5–11 mm. Flowers 1.6–3 cm in diam. Pedicel 1.2–3 cm, densely puberulous. Sepals 4 or 5, white, spreading, obovate-oblong, 10–15 × 2.5–5 mm, abaxially densely appressed puberulous, adaxially glabrous or sparsely appressed puberulous, margin abaxially velutinous, apex obtuse. Stamens 7–10 mm, glabrous; anthers narrowly oblong, 1.2–2 mm, apex obtuse. Ovaries pubescent or glabrous. Style ca. 7 mm, densely villous. Achenes broadly ovate to broadly elliptic, 2.2–3 × 2–2.5 mm, ± pubescent or glabrous; persistent style 2–3.4 cm, plumose. Fl. May–Aug, fr. Jul–Aug.

• Sparse forests, scrub on slopes, along streams; 400–3400 m. W Anhui, S Gansu, Guizhou, SW Hebei, W Henan, Hubei, W Hunan, S Ningxia, E Qinghai, S Shaanxi, Shanxi, Sichuan, N to NW Yunnan, NW Zhejiang.

1a. Ovaries and achenes pubescent 25a. var. *grandidentata*

1b. Ovaries and achenes glabrous 25b. var. *likiangensis*

25a. *Clematis grandidentata* var. *grandidentata*

粗齿铁线莲(原变种) *cu chi tie xian lian* (yuan bian zhong)

Clematis grata Wallich var. *grandidentata* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 338. 1913.

Ovaries and achenes pubescent.

• Scrub on slopes; 400–3200 m. W Anhui, S Gansu, Guizhou, SW Hebei, W Henan, Hubei, W Hunan, S Ningxia, E Qinghai, S Shaanxi, S Shanxi, Sichuan, N Yunnan.

25b. *Clematis grandidentata* var. *likiangensis* (Rehder) W. T. Wang, Acta Phytotax. Sin. 31: 219. 1993.

丽江铁线莲 *li jiang tie xian lian*

Clematis grata Wallich var. *likiangensis* Rehder, J. Arnold Arbor. 14: 201. 1933; *C. argenticulida* W. T. Wang var. *likiangensis* (Rehder) W. T. Wang.

Ovaries and achenes glabrous.

• Sparse forests, scrub on slopes, along streams; 2000–3400 m. Guizhou, SW Hebei, W Hubei, Sichuan, NW Yunnan, NW Zhejiang.

26. *Clematis chingii* W. T. Wang, Acta Phytotax. Sin. 6: 383. 1957.

两广铁线莲 *liang guang tie xian lian*

Vines woody. Stems 2–10 m; branches shallowly longitudinally 7- or 8-grooved, densely puberulous. Leaves pinnate, (3–)5-foliolate; petiole 2.5–6 cm, densely puberulous; leaflet blades ovate, broadly ovate, or elliptic, 4–8 × 1.5–6.5 cm, papery, undivided or rarely 3-lobed, abaxially densely puberulous, adaxially strigose, base rounded to subcordate, margin usually 1–4-dentate or rarely entire, apex acuminate to acute; basal veins abaxially prominent. Cymes axillary or terminal, (3–)10–85-flowered; peduncle 2.2–8.5 cm; bracts short petiolate, ovate to elliptic, 0.5–6 cm. Flowers 1.3–1.8 cm in diam. Pedicel 0.5–1.7 cm, densely puberulous. Sepals 4, white, spreading, elliptic-oblong, oblong, or obovate-oblong, 7–9.5 × 2–4.5 mm, abaxially densely velutinous, adaxially glabrous, margin abaxially velutinous, apex obtuse. Stamens 3–6 mm, glabrous; anthers narrowly oblong, 1.2–2 mm, apex rounded to obtuse. Ovaries puberulous. Style ca. 4 mm, densely villous. Fl. Jul–Sep, fr. Oct–Dec.

• Scrub on slopes; 200–1700 m. N Guangdong, W Guangxi, SW Guizhou, S and W Hunan (Fenghuang Xian), SE Yunnan.

27. *Clematis tsaii* W. T. Wang, Acta Phytotax. Sin. 6: 382. 1957.

福贡铁线莲 *fu gong tie xian lian*

Vines woody. Branches shallowly 5- or 6-grooved, densely puberulous. Leaves pinnate, (3–)5-foliolate; petiole 3–8 cm, densely puberulous; leaflet blades elliptic-ovate to elliptic-oblong, rarely obliquely rhombic, 7–13 × 3–6 cm, papery, abaxially densely puberulous, adaxially sparsely strigose, base broadly cuneate to rounded, margin entire, apex acuminate to acute; basal veins abaxially prominent. Cymes axillary or terminal, 9–60-flowered; peduncle 4–12 cm; bracts linear, 6–9 mm. Flowers ca. 1.7 cm in diam. Pedicel 0.9–2 cm, densely puberulous. Sepals 4, white, spreading, obovate-oblong to oblanceolate, 7–9 × 2–4 mm, abaxially velutinous, adaxially glabrous, margin abaxially velutinous, apex obtuse. Stamens 6.2–8 mm, glabrous; anthers narrowly oblong, 1.3–1.5 mm, apex obtuse. Ovaries puberulous. Style ca. 5 mm, densely villous. Achenes elliptic-ovate, 2.2–3 × ca. 2 mm, pubescent; persistent style 4.5–6.5 cm, plumose. Fl. Jul–Sep, fr. Oct–Dec.

• Forests, slopes; 1500–2000 m. SE Xizang, C to NW Yunnan.

28. Clematis peterae Handel-Mazzetti, Acta Horti Gothob. 13: 213. 1939–1940.

钝萼铁线莲 *dun e tie xian lian*

Vines woody. Branches shallowly 5-grooved, puberulous, glabrescent. Leaves pinnate or 2-pinnate; petiole 1.5–5.4 cm, puberulous to subglabrous; leaflet blades ovate, elliptic-ovate, narrowly ovate, or lanceolate, 2–9.5 × 0.9–4.5 cm, papery, undivided or rarely 3-lobed, abaxially subglabrous to sparsely or rarely densely puberulous, adaxially glabrous or nearly so to rarely sparsely puberulous, base truncate-rounded, rounded, subcordate, or broadly cuneate, margin entire or to 2-dentate on each side, apex acuminate to attenuate; basal veins abaxially ± prominent. Cymes axillary or terminal, few to many flowered; peduncle 1.3–7 cm; bracts foliaceous or simple. Flowers 1–1.5 cm in diam. Pedicel 0.7–1.5 cm, puberulous. Sepals 4, white, spreading, obovate-oblong to narrowly obovate, 6–10 × 2–5 mm, abaxially densely puberulous or rarely glabrous, adaxially appressed puberulous or glabrous, margin abaxially velutinous, apex obtuse to truncate. Stamens 3–7 mm, glabrous; anthers narrowly oblong to oblong, 2–2.5 mm, apex obtuse. Ovaries glabrous or pubescent. Style ca. 5 mm, densely villous. Achenes elliptic-ovate to elliptic, 2–4 × 2–2.5 mm, glabrous or pubescent; persistent style (1–)1.5–3.3 cm, plumose. Fl. May–Nov, fr. Aug–Feb.

• Mixed forests, forest margins, slopes, scrub, along streams; 600–3400 m. S Anhui, S Gansu, E Guangxi, Guizhou, SW Hebei, S to W Henan, Hubei, NW and S Hunan, S Jiangsu, N Jiangxi, S Shaanxi, S Shanxi, Sichuan, C Taiwan, SE Xizang, Yunnan, Zhejiang.

- 1a. Leaves 2-pinnate, 9–15-foliolate; sepals adaxially glabrous; persistent style yellowish plumose 28c. var. *lishanensis*
- 1b. Leave 1-pinnate, (3–)5-foliolate; sepals adaxially puberulous; persistent white plumose.
 - 2a. Ovaries and achenes glabrous 28a. var. *peterae*
 - 2b. Ovaries and achenes pubescent 28b. var. *trichocarpa*

28a. Clematis peterae var. *peterae*

钝萼铁线莲(原变种) *dun e tie xian lian* (*yuan bian zhong*)

Clematis gouriana Roxburgh ex de Candolle var. *finetii* Rehder & E. H. Wilson; *C. peterae* var. *mollis* W. T. Wang; *C. vitalba* Linnaeus var. *microcarpa* Franchet. Leaves pinnate, (3–)5-foliolate; leaflets ovate to elliptic-ovate, 2–9.5 × 0.9–4 cm, abaxially subglabrous, sparsely puberulous, or rarely densely puberulous, base truncate-rounded to rounded, margin entire or to 2-dentate on each side. Sepals 6–8 × 2–4 mm, abaxially puberulous or glabrous, adaxially puberulous. Stamens 5.5–7 mm. Ovaries glabrous. Achenes 2–3.5 mm, glabrous; persistent style (1–)2 cm, white plumose. Fl. May–Aug, fr. Sep–Nov.

• Mixed forests, along streams; 600–3400 m. S Gansu, E Guangxi, Guizhou, SW Hebei, W Hubei, NW Hunan, S Shaanxi, S Shanxi, Sichuan, SE Xizang, Yunnan.

28b. Clematis peterae var. *trichocarpa* W. T. Wang, Acta Phytotax. Sin. 6: 381. 1957.

毛果铁线莲 *mao guo tie xian lian*

Leaves pinnate, (3–)5-foliolate; leaflets ovate to elliptic-ovate, 2–9.5 × 0.9–4 cm, abaxially subglabrous to sparsely puberulous, base truncate-rounded to rounded, margin entire or to 2-dentate on each side. Sepals 6–8 × 2–4 mm, abaxially puberulous or glabrous, adaxially puberulous. Stamens 5.5–7 mm. Ovaries pubescent. Achenes 2–3.5 mm, pubescent; persistent style (1–)2 cm, white plumose. Fl. Jun–Sep, fr. Aug–Nov.

• Slopes, scrub, along streams; 600–1900 m. S Anhui, S Gansu, Guizhou, S to W Henan, Hubei, NW and S Hunan, S Jiangsu, N Jiangxi, S Shaanxi, Sichuan, N Zhejiang.

28c. Clematis peterae var. *lishanensis* (T. Y. Yang & T. C. Huang) W. T. Wang, Acta Phytotax. Sin. 36: 155. 1998.

梨山铁线莲 *li shan tie xian lian*

Clematis gouriana Roxburgh ex de Candolle subsp. *lishanensis* T. Y. Yang & T. C. Huang, J. Taiwan Mus. 44(1): 144. 1991.

Leaves 2-pinnate, 9–15-foliolate; leaflet blades narrowly ovate, lanceolate, or ovate, (3.6–)4.3–6.2(–7.5) × (1.2–)1.6–2.9(–4) cm, abaxially sparsely puberulous, base subcordate, rounded, or broadly cuneate, margin entire. Sepals 7–10 × 4–5 mm, abaxially densely puberulous, adaxially glabrous or nearly so. Stamens 3–6 mm. Ovaries pubescent. Achenes 2–4 mm, pubescent; persistent style 1.5–3.3 cm, yellowish plumose. Fl. Sep–Nov, fr. Nov–Feb.

• Forest margins, slopes; 1200–2600 m. C Taiwan.

29. Clematis gouriana Roxburgh ex de Candolle, Syst. Nat. 1: 138. 1817.

小蓑衣藤 *xiao suo yi teng*

Clematis martini H. Léveillé; *C. vitalba* subsp. *gouriana* (Roxburgh ex de Candolle) Kuntze; *C. vitalba* Linnaeus var. *gouriana* (Roxburgh ex de Candolle) Finet & Gagnepain; *C. vitalba* var. *micrantha* H. Léveillé & Vaniot.

Vines woody. Stems 3–5 m; branches longitudinally 5-grooved, puberulous, glabrescent. Leaves pinnate, 5-foliolate; petiole 1–7 cm, sparsely puberulous to subglabrous; leaflet blades ovate, narrowly ovate, or lanceolate, 2.4–10.5 × 1.2–5.5 cm, papery to subleathery, both surfaces glabrous or only sparsely puberulous on midveins, base rounded to subcordate, margin entire or rarely 1-denticulate, apex attenuate to acuminate; basal veins abaxially prominent. Cymes axillary or terminal, 9–100-flowered; peduncle 1.2–7 cm; bracts simple or foliaceous, triangular to ovate, 4–10 mm. Flowers 7–10 mm in diam. Pedicel 6–12 mm, puberulous. Sepals 4, white, spreading, narrowly obovate to obovate-oblong, 5–6 × 1.8–2 mm, abaxially usually densely puberulous, adaxially sparsely puberulous, margin abaxially velutinous, apex obtuse to

truncate. Stamens 3–4.5 mm, glabrous; anthers narrowly oblong, 1.1–1.5 mm, apex obtuse. Ovaries pubescent. Style 3–3.8 mm, densely villous. Achenes lanceolate to fusiform, 3–3.5 × 1–1.5 mm, appressed puberulous; persistent style ca. 2 cm, plumose. Fl. Sep–Oct, fr. Nov–Dec.

Slopes, scrub, along streams; below 100–1800 m. Guangdong, Guangxi, Guizhou, W Hubei, W Hunan, Sichuan, C to W Yunnan [Bhutan, India, Myanmar, Nepal, New Guinea, Philippines, Sikkim].

30. *Clematis grata* Wallich, Pl. Asiat. Rar. 1: 93. 1830.
秀丽铁线莲 *xiu li tie xian lian*

Vines woody. Branches shallowly 4- or 5-grooved, densely puberulous. Leaves usually pinnate, rarely ternate; petiole 2.2–6.5 cm, densely to sparsely puberulous; leaflet blades triangular-ovate, ovate, or narrowly ovate, 2–5.8 × 1.5–4.6 cm, papery, 3-lobed, undivided, or occasionally unequally 2-parted, abaxially usually densely sericeous-puberulous, adaxially appressed puberulous, base subcordate to rounded, margin sparsely incised, apex acuminate to narrowly acuminate; basal veins abaxially ± prominent. Cymes axillary or terminal, usually many flowered; peduncle 2.8–6.5 cm, densely puberulous; bracts foliaceous or simple, ovate. Flowers 1.1–2 cm in diam. Pedicel 0.6–1.5 cm, densely puberulous. Sepals 4, white, spreading, obovate-oblong, oblong, or narrowly obovate, 6–10 × 2–4 mm, abaxially densely appressed sericeous-puberulous, adaxially glabrous, apex obtuse to subtruncate. Stamens 4–7.8 mm, glabrous; anthers narrowly oblong, 1.2–1.8 mm, apex minutely apiculate to obtuse. Ovaries pubescent. Style 4–5 mm, densely villous. Achenes elliptic, 2–3 × 1.3–1.8 mm, appressed puberulous; persistent style 1.2–2.6 cm, plumose. Fl. Jul–Aug, fr. Sep.

Forest margins on slopes; ca. 2400 m. S Xizang (Gyirong Xian) [Afghanistan, Bhutan, N India, Nepal, N Pakistan].

31. *Clematis javana* de Candolle, Syst. Nat. 1: 152. 1817.
台湾铁线莲 *tai wan tie xian lian*

Clematis grata Wallich var. *lobulata* Rehder & E. H. Wilson; *C. grata* var. *ryukiensis* Tamura; *C. taiwaniana* Hayata.

Vines woody. Branches shallowly 5- or 6-grooved, densely puberulous. Leaves pinnate, 1- or 2-ternate; petiole 4.2–9.7 cm; leaflet blades ovate, deltoid, or elliptic, (2.3–)3.7–7.6(–13) × 2–5.6(–10) cm, papery, often 3-lobed, abaxially usually densely sericeous-puberulous to rarely sparsely puberulous, adaxially sparsely puberulous or glabrous, base cordate, obtuse, or cuneate, margin coarsely dentate, apex acuminate to narrowly acuminate; basal veins abaxially ± prominent. Cymes axillary, usually many flowered; peduncle 3.2–6.4 cm; bracts elliptic to lanceolate, undivided or 3-lobed. Flowers 1.5–2.5 cm in diam. Pedicel 1.6–2 cm, densely puberulous. Sepals 4, white, spreading, obovate-oblong to obovate-lanceolate, 9–15 × 3–5 mm, abaxially densely puberulous, adaxially puberulous, apex acute. Stamens 4–8 mm, glabrous; anthers oblong,

1.2–2 mm, apex obtuse. Ovaries puberulous. Style 5–7 mm, densely villous. Achenes narrowly elliptic to fusiform, 2.5–3 × 1.2–1.5 mm, puberulous; persistent style 1.6–3 cm, yellowish plumose. Fl. Apr–Sep, fr. Aug–Sep.

Forest margins, along streams, open areas; sea level to 2500 m. Taiwan [Indonesia, Japan (Ryukyu Islands), Papua New Guinea, Philippines].

32. *Clematis subumbellata* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 39: 61. 1870.

细木通 *xi mu tong*

Clematis kerriana J. R. Drummond & Craib; *C. laxipaniculata* C. Pei.

Vines woody. Branches longitudinally 5- or 6-grooved, densely puberulous. Leaves 2-pinnate or pinnate, 5–21-foliolate; petiole 2–6.5 cm, densely puberulous; leaflet blades narrowly ovate, narrowly elliptic, ovate, or oblong, 1.8–8.5 × 1–4.2 cm, papery to subleathery, unequally 2-lobed, abaxially densely appressed puberulous, adaxially sparsely puberulous, base rounded to obtuse, margin entire or rarely 1-dentate, apex acute to acuminate; basal veins abaxially ± prominent. Cymes axillary or terminal, 8- to many flowered; peduncle 2.5–6.5 cm, sometimes nearly absent; bracts short petiolate or sessile, ovate to linear, 3–14 mm. Flowers 1–1.2 cm in diam. Pedicel 0.8–1.8 cm, densely puberulous. Sepals 4, white, spreading, oblong to obovate-oblong, 5–8 × 1.8–3 mm, abaxially velutinous, adaxially densely appressed puberulous, apex obtuse. Stamens 3.8–6 mm, glabrous; anthers narrowly oblong to oblong, 1.5–2.2 mm, apex obtuse. Ovaries pubescent. Style ca. 5 mm, densely villous. Achenes narrowly lanceolate to fusiform, 4–4.5 × 1–1.2 mm, pubescent; persistent style 2.5–4 cm, plumose. Fl. Dec–Jan, fr. Feb–Apr.

Forest margins, slopes, scrub; 400–1900 m. S to SW Yunnan [Laos, N Myanmar, N Thailand, N Vietnam].

33. *Clematis brevicaudata* de Candolle, Syst. Nat. 1: 138. 1817.

短尾铁线莲 *duan wei tie xian lian*

Vines woody. Branches shallowly longitudinally 5-grooved, puberulous to subglabrous. Leaves usually 2-ternate, sometimes 2-pinnate or pinnate, rarely ternate, (3–)9(–11)-foliolate; petiole 1.7–8 cm, sparsely to densely puberulous or subglabrous; leaflet blades ovate to lanceolate, undivided or 3-lobed, (1–)1.5–6 × 0.7–3.5 cm, thinly papery, both surfaces subglabrous or sparsely appressed puberulous, or abaxially densely sericeous-puberulous and adaxially sparsely puberulous, base rounded, broadly cuneate, or subcordate, margin 1–3(–6)-dentate on each side, apex acuminate, narrowly acuminate, or rarely acute; basal veins ± prominent. Cymes axillary or terminal, usually shorter than leaves, 4–25-flowered; peduncle 2–5 cm; bracts ovate to linear, 4–12 mm, undivided or 3-parted. Flowers (1–)1.5–2 cm in diam. Pedicel (0.5–)0.9–1.3

cm, puberulous. Sepals 4, white, spreading, obovate-oblong to oblong, (6–)9–11 × (2–)3–4 mm, abaxially appressed puberulous, adaxially sparsely appressed puberulous, margin abaxially velutinous, apex obtuse. Stamens 6–10 mm, glabrous; anthers narrowly oblong, 1–2 mm, apex obtuse. Ovaries pubescent. Style ca. 5 mm, densely villous. Achenes elliptic to elliptic-ovate, ca. 3 × 2 mm, densely appressed puberulous; persistent style 1.2–2 cm, plumose. Fl. Jul–Sep, fr. Sep–Oct.

Sparse forests, scrub; 400–2800 m. C and S Gansu, N and W Hebei, Heilongjiang, W Henan, Hubei, Hunan, N Jiangsu, E Jilin, Liaoning, Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shanxi, NC and W Sichuan, E Xizang, NW Yunnan [Korea, Mongolia, Russia (Far East)].

1a. Leaflet blades on both surfaces
subglabrous or sparsely
appressed puberulous 33a. var. *brevicaudata*

1b. Leaflet blades abaxially densely
sericeous-puberulous, adaxially
sparsely puberulous 33b. var. *malacotricha*

33a. *Clematis brevicaudata* var. *brevicaudata*

短尾铁线莲(原变种) duan wei tie xian lian (yuan bian zhong)

Clematis vitalba Linnaeus subsp. *brevicaudata* (de Candolle) Kuntze.

Leaflet blades on both surfaces subglabrous or sparsely appressed puberulous.

Sparse forests, scrub; 400–2800 m. C and S Gansu, N and W Hebei, Heilongjiang, W Henan, Hubei, Hunan, N Jiangsu, E Jilin, Liaoning, Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shanxi, W Sichuan, E Xizang, NW Yunnan (Dêqên Xian) [Korea, Mongolia, Russia (Far East)].

33b. *Clematis brevicaudata* var. *malacotricha* W. T. Wang, Acta Phytotax. Sin. 39: 313. 2001.

密毛短尾铁线莲 mi mao duan wei tie xian lian

Leaflet blades abaxially densely sericeous-puberulous, adaxially sparsely puberulous.

• Scrambling on small trees; ca. 2800 m. NC Sichuan (Zoigê Xian).

34. *Clematis wissmanniana* Handel-Mazzetti, Acta Horti Gothob. 13: 212. 1939–1940.

厚萼铁线莲 hou e tie xian lian

Clematis gratopsis W. T. Wang var. *integriloba* W. T. Wang.

Vines woody. Branches longitudinally grooved, densely puberulous. Leaves 2-pinnate or pinnate; petiole 5–8 cm, densely puberulous; leaflet blades long ovate to ovate-lanceolate, 2–8 × 1–3 cm, papery, unlobed or rarely unequally to 3-lobed, both surfaces densely appressed puberulous, base rounded, margin usually entire or sometimes 2-dentate, apex acute to acuminate.

Cymes axillary or terminal, 9–20-flowered; peduncle 5–10 cm, densely appressed puberulous; bracts narrowly ovate, ovate, or elliptic, undivided or 3-lobed. Flowers 2–3.2 cm in diam. Pedicel 1.2–6 cm, densely appressed puberulous. Sepals 4, white, spreading, oblong to elliptic-oblong, 1–2 × 0.4–1 cm, thick, abaxially densely puberulous, adaxially glabrous, apex ± obtuse. Stamens 0.7–1.4 cm, glabrous; anthers oblong, 1.5–2 mm, apex obtuse. Ovaries puberulous. Style ca. 5 mm, densely villous. Fl. Sep–Oct, fr. Nov.

Sparse woods, scrub; 1200–1800 m. S Yunnan [Thailand].

35. *Clematis parviloba* Gardner & Champion, Hooker's J. Bot. Kew Gard. Misc. 1: 241. 1849.

裂叶铁线莲 lie ye tie xian lian

Vines woody, often turning black on drying. Branches shallowly 6-grooved, puberulous or pubescent. Leaves 2-pinnate or 2-ternate, rarely 1-pinnate; petiole 3–8.5 cm; leaflet blades ovate, narrowly so, or lanceolate, 1.5–7(–8.5) × 0.7–4 (–5.5) cm, papery, abaxially usually densely appressed puberulous, adaxially puberulous or subglabrous, base rounded or broadly cuneate, margin entire or 1-dentate or sparsely serrate on each side, apex attenuate, acute, or acuminate; basal veins nearly flat. Cymes both axillary and terminal, (1–)5–9(to many)-flowered; peduncle 2.8–10 cm; bracts narrowly ovate, undivided or 3-lobed. Flowers 1.5–4.6 cm in diam.; pedicel 1.2–3 cm, densely puberulous; bracteoles ovate or elliptic. Sepals 4, white, spreading, lanceolate, oblong, or obovate-oblong, 1–2.4 × 0.4–1.2 cm, abaxially appressed sericeous-puberulous, adaxially glabrous, margin velutinous, apex subacute. Stamens 5–17 mm, glabrous; anthers oblong or narrowly so, rarely linear, 1–3 mm, apex obtuse. Ovaries pubescent; style 6–9 mm, densely villous. Achenes compressed, ovate or narrowly elliptic, 3–5 × 2–2.8 mm, pubescent, indistinctly or not marginate; persistent style 2–3.2 cm, plumose. Fl. Apr–Oct.

• Forest margins, slopes, scrub, along streams; 800–2500 m. Fujian, Guangdong, Guangxi, Guizhou, S Jiangxi, Sichuan, Taiwan, Yunnan, S Zhejiang.

- 1a. Anthers narrowly oblong or linear, 2.2–3 mm; leaves 1- or 2-pinnate.
- 2a. Leaves 2-pinnate; axillary cymes 3-flowered; sepals ovate-oblong, ca. 1.8 × 0.7 cm, apex obtuse; anthers narrowly oblong, 2.2–2.5 mm, apex obtuse 35d. var. *suboblonga*
- 2b. Leaves 1-pinnate; axillary cymes 1-flowered; sepals narrowly lanceolate-oblong, 2–2.4 × 0.5–0.7 cm, apex obtuse; anthers linear, 2.8–3 mm, apex obtuse or minutely apiculate 35e. var. *longianthera*

- 1b. Anthers oblong or narrowly so, 1–1.8 mm; leaves 2-ternate or 2-pinnate.
- 3a. Leaflet blade margin dentate, rarely entire; sepals elliptic-oblong or narrowly oblong, 1.3–1.6(–2.5) × 0.5–0.65(–1.2) cm, apex acute; anther apex obtuse or minutely apiculate 35c. var. *bartlettii*
- 3b. Leaflet blade margin entire; sepals lanceolate, oblong-lanceolate, or obovate-oblong, 1–2 × 0.35–0.8 cm, apex obtuse or attenuate; anther apex obtuse.
- 4a. Sepals lanceolate or oblong-lanceolate, 1.6–2 × 0.35–0.8 cm, apex attenuate; anthers 1.2–1.8 mm; achenes narrowly ovate or narrowly elliptic, ca. 5 × 2.2–2.8 mm, slightly marginate 35a. var. *parviloba*
- 4b. Sepals obovate-oblong, 1–1.1 × 0.4–0.5 cm, apex obtuse; anthers 1–1.2 mm; achenes rhombic-elliptic, ca. 4 × 2.6 mm, not marginate 35b. var. *rhombicoelliptica*

35a. *Clematis parviloba* var. *parviloba*

裂叶铁线莲(原变种) *lie ye tie xian lian* (*yuan bian zhong*)

Leaves 2-pinnate; leaflet blade margin entire. Axillary cymes (1–)3–5(–9)-flowered. Sepals lanceolate or oblong-lanceolate, 1.6–2 × 0.35–0.8 cm, apex attenuate. Anthers oblong or narrowly so, 1.2–1.8 mm long, apex obtuse. Achenes narrowly ovate or narrowly elliptic, ca. 5 × 2.2–2.8 mm, slightly marginate. Fl. Jun–Sep.

• Forests, scrub, often by streams; 800–1500 m. Fujian, Guangdong, Guangxi, Guizhou, W Hunan, S Jiangxi, S Yunnan, S Zhejiang.

35b. *Clematis parviloba* var. *rhombicoelliptica* W. T. Wang, *Acta Phytotax. Sin.* 38: 405. 2000.

菱果裂叶铁线莲 *ling guo lie ye tie xian lian*

Leaves 2-pinnate; leaflet blade margin entire. Axillary cymes many flowered. Sepals obovate-oblong, 1–1.1 × 0.4–0.5 cm, apex obtuse. Anthers 1–1.2 mm, apex obtuse. Achenes rhombic-elliptic, ca. 4 × 2.6 mm, not marginate. Fl. Oct.

• Forest, forest margins, scrub, slopes; 1100–1800 m. SE Yunnan.

35c. *Clematis parviloba* var. *bartlettii* (Yamamoto) W. T. Wang, *Acta Phytotax. Sin.* 38: 405. 2000.

巴氏铁线莲 *ba shi tie xian lian*

Clematis bartlettii Yamamoto, *Trans. Nat. Hist. Soc. Taiwan* 20: 101. 1930; *C. parviloba* subsp. *bartlettii* (Yamamoto) T. Y. Yang & T. C. Huang.

Leaves 2-ternate or 2-pinnate; leaflet blade margin dentate, rarely entire. Axillary cymes many flowered. Sepals elliptic-oblong or narrowly oblong, 1.3–1.6(–2.5)

× 0.5–0.65(–1.2) cm, apex acute. Anthers oblong, 1–1.6 mm, apex obtuse or minutely apiculate. Fl. Aug–Oct.

• Forest margins, slopes; 1100–2500 m. Taiwan.

35d. *Clematis parviloba* var. *suboblonga* W. T. Wang, *Acta Phytotax. Sin.* 38: 405. 2000.

长圆裂叶铁线莲 *chang yuan lie ye tie xian lian*

Leaves 2-ternate; leaflet blade margin entire. Axillary cymes 3-flowered. Sepals ovate-oblong, ca. 1.8 × 0.7 cm, apex obtuse. Anthers narrowly oblong, 2.2–2.5 mm, apex obtuse. Fl. Apr.

• Forests; 900–1000 m. SE Sichuan (Nanchuan Xian).

35e. *Clematis parviloba* var. *longianthera* W. T. Wang, *Acta Phytotax. Sin.* 36: 156. 1998.

长药裂叶铁线莲 *chang yao lie ye tie xian lian*

Leaves 1-pinnate; leaflet blade margin entire. Axillary cymes 1-flowered. Sepals lanceolate-oblong, 2–2.4 × 0.5–0.7 cm, apex obtuse. Anthers linear, 2.8–3 mm, apex obtuse or minutely apiculate. Fl. Apr.

• Open forests; ca. 800 m. C Sichuan (Emei Shan).

36. *Clematis tamurae* T. Y. Yang & T. C. Huang, *Taiwania* 40: 239. 1995.

田村铁线莲 *tian cun tie xian lian*

Vines perennial, herbaceous, turning black on drying.

Branches shallowly grooved, puberulous. Leaves 2-pinnate, 15-foliolate; petiole 4.4–5.8 cm; leaflet blades lanceolate to narrowly ovate, (3.7–)4.6–5.9(–6.2) ×

(0.8–)1.2–1.8 cm, papery, undivided or rarely 2- or 3-lobed, both surfaces sparsely puberulous to sometimes

adaxially subglabrous, base broadly cuneate to cuneate, margin entire, apex attenuate to acuminate; basal veins

abaxially ± prominent. Cymes axillary or terminal, few flowered; peduncle 2.5–5 cm; bracts ternate or simple,

narrowly ovate, 3-parted. Flowers 1.3–2.5 cm in diam. Pedicel 0.7–1.3 cm, puberulous. Sepals 4, white,

spreading, oblong, 10–15 × 4–6 mm, abaxially densely puberulous, adaxially puberulous, apex acute to obtuse.

Stamens 4–8 mm, glabrous; anthers oblong, ca. 2.4 mm, apex obtuse. Ovaries pubescent. Style ca. 7 mm,

densely villous. Achenes elliptic to ovate, 2.8–4.2 × ca. 2 mm, pubescent; persistent style 2.5–4 cm, brown to

yellowish brown plumose. Fl. Aug–Oct, fr. Aug–Oct.

• Forest margins, open areas; below 1500 m. Taiwan.

37. *Clematis puberula* J. D. Hooker & Thomson in J. D. Hooker, *Fl. Brit. India* 1: 4. 1872.

短毛铁线莲 *duan mao tie xian lian*

Vines woody, often turning black on drying. Branches shallowly 4–10-grooved, puberulous. Leaves 2-pinnate or 2-ternate, distal ones sometimes 1-pinnate; petiole 1–

7.5 cm; leaflet blades ovate, narrowly so, or lanceolate, undivided or 3-lobed, 1.5–9.8 × 0.6–5 cm, papery, both

surfaces sparsely puberulous or subglabrous, or abaxially densely sericeous, base rounded, subcordate,

or broadly cuneate, margin irregularly dentate or entire, apex attenuate or acuminate; basal veins slightly

prominent or nearly flat. Cymes both axillary and terminal, (3–) 9- to many flowered; peduncle 2–10 cm,

puberulous or glabrous; bracts simple and ovate or

linear, or ternate. Flowers 1.4–2.4(–3.6) cm in diam.; pedicel 1–7 cm, puberulous or glabrous. Sepals 4, white, spreading, obovate-oblong to narrowly oblong, 7–12(–16) × 3–5.8(–6) mm, abaxially appressed puberulous or subglabrous, adaxially glabrous, margin velutinous, apex subtruncate, obtuse, or acute. Stamens 5–9(–11) mm, glabrous; anthers oblong or narrowly so, 0.8–2 mm, apex obtuse. Ovaries puberulous or glabrous; style 3.5–5(–7) mm, densely villous. Achenes strongly compressed, orbicular-ovate or suborbicular, 3.5–5 × 2–3.2 mm, puberulous or glabrous, with distinct, winglike margin; persistent style 2–3.5 cm, plumose. Fl. Jul–Oct. Forests, scrub, grassy slopes, by streams; 200–3300 m. S Anhui, N Fujian, S Gansu, W Guangdong, N Guangxi, Guizhou, S and W Henan, Hubei, Hunan, NE Jiangsu, Jiangxi, S Shaanxi, Shandong, S Shanxi, Sichuan, E to SE Xizang, Yunnan, N Zhejiang [Bhutan, N India, N Myanmar, Nepal].

- 1a. Ovaries and achenes puberulous.
 - 2a. Leaflet blades abaxially densely or sparsely puberulous; sepals abaxially densely puberulous 37a. var. *puberula*
 - 2b. Leaflet blades and sepals abaxially sparsely puberulous or subglabrous 37b. var. *tenuisepala*
- 1b. Ovaries and achenes glabrous.
 - 3a. Leaflet blades abaxially densely sericeous-puberulous 37c. var. *subsericea*
 - 3b. Leaflet blades abaxially sparsely puberulous or subglabrous 37d. var. *ganpiniana*

37a. *Clematis puberula* var. *puberula*

短毛铁线莲(原变种) duan mao tie xian lian (yuan bian zhong)

Clematis parviloba Gardner & Champion subsp. *puberula* (J. D. Hooker & Thomson) Kuntze.

Leaflet blades abaxially densely or sparsely puberulous. Sepals abaxially densely puberulous. Ovaries and achenes puberulous. Fl. Aug–Oct.

Forests, scrub, grassy slopes; 1000–3000 m. W Sichuan, SE Xizang, N Yunnan [Bhutan, N India, N Myanmar, Nepal].

37b. *Clematis puberula* var. *tenuisepala* (Maximowicz) W. T. Wang, Acta Phytotax. Sin. 38: 406. 2000.

毛果扬子铁线莲 mao guo yang zi tie xian lian
Clematis brevicaudata de Candolle var. *tenuisepala* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 9. 1890; *C. brevicaudata* var. *filipes* Rehder & E. H. Wilson; *C. ganpiniana* var. *tenuisepala* (Maximowicz) C. T. Ting.

Leaflet blades and sepals abaxially sparsely puberulous or subglabrous. Ovaries and achenes puberulous.

• Forests, grassy slopes, by streams; 200–1000 m. S Gansu, N Guangxi, S and W Henan, W Hubei, NE Jiangsu, S Shaanxi, Shandong, S Shanxi, SE Sichuan, NE Yunnan, N Zhejiang.

37c. *Clematis puberula* var. *subsericea* (Rehder & E. H. Wilson) W. T. Wang, Acta Phytotax. Sin. 38: 407. 2000.

毛叶扬子铁线莲 mao ye yang zi tie xian lian

Clematis brevicaudata var. *subsericea* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 341. 1913; *C. ganpiniana* var. *subsericea* (Rehder & E. H. Wilson) C. T. Ting.

Leaflet blades abaxially densely sericeous-puberulous. Sepals abaxially densely puberulous. Ovaries glabrous. • Scrub, grassy slopes; 300–2500 m. W Sichuan.

37d. *Clematis puberula* var. *ganpiniana* (H. Léveillé & Vaniot) W. T. Wang, Acta Phytotax. Sin. 38: 407. 2000.

扬子铁线莲 yang zi tie xian lian

Clematis vitalba Linnaeus var. *ganpiniana* H. Léveillé & Vaniot, Bull. Acad. Int. Géogr. Bot. 11: 167. 1902; *C. brevicaudata* var. *ganpiniana* (H. Léveillé & Vaniot) Handel-Mazzetti; *C. brevicaudata* var. *leiophylla* Handel-Mazzetti; *C. brevicaudata* var. *lissocarpa* Rehder & E. H. Wilson; *C. ganpiniana* (H. Léveillé & Vaniot) Tamura; *C. parviloba* var. *ganpiniana* (H. Léveillé & Vaniot) Rehder; *C. parviloba* var. *glabrescens* Finet & Gagnepain.

Leaflet blades abaxially sparsely puberulous or subglabrous. Sepals abaxially sparsely puberulous to subglabrous. Ovaries and achenes glabrous.

• Forests, scrub, slopes; 400–3300 m. S Anhui, N Fujian, W Guangdong, N Guangxi, Guizhou, S Henan, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, E Xizang, C and N Yunnan, N Zhejiang.

38. *Clematis baominiana* W. T. Wang, Acta Phytotax. Sin. 36: 157. 1998.

多毛铁线莲 duo mao tie xian lian

Clematis villosa B. M. Yang, Acta Phytotax. Sin. 27: 230. 1989, not de Candolle (1817).

Vines woody. Stems to 10 m, pubescent. Leaves ternate; petiole 4–6 cm, pubescent; leaflet blades rhombic to obovate-elliptic, 3–7 × 1–4 cm, papery, unlobed or sometimes indistinctly 3-lobed, both surfaces pubescent, base broadly cuneate, margin 1- or 2-dentate apically from middle, apex acute. Cymes axillary, 1-flowered; peduncle 3–4 cm, pubescent; bracts linear, ca. 7 mm, pubescent. Flowers ca. 6 cm in diam. Pedicel 1–1.5 cm, densely pubescent. Sepals 6, white, spreading, linear-lanceolate, ca. 3 × 0.3 cm, abaxially densely villous, adaxially glabrous, apex acute. Stamens ca. 1.4 cm, glabrous; anthers oblong, ca. 3 mm, apex obtuse. Ovaries pubescent. Style ca. 1.3 cm, densely villous basally, densely pubescent apically. Achenes ovate, ca. 5 × 3.5 mm, pubescent; persistent style 2.5–3 cm, plumose. Fl. May, fr. Sep–Oct.

• Slopes. Hunan (Taojiang Xian).

39. *Clematis crassifolia* Bentham, Fl. Hongk. 7. 1861.

厚叶铁线莲 hou ye tie xian lian

Vines woody. Branches shallowly 10–12-grooved, glabrous. Leaves ternate, glabrous; petiole 5.5–10 cm; leaflet blades elliptic, oblong, ovate, or broadly ovate, 5–12 × 2.5–6.5(–9.5) cm, subleathery, base broadly

cuneate to rounded, margin entire, apex acuminate to obtuse; basal veins flat or adaxially ± prominent. Cymes axillary or terminal, many flowered; peduncle 3–5 cm, glabrous; bracts linear to subulate, 5–6 mm, glabrous or puberulous. Flowers 2.4–4 cm in diam. Pedicel 1–2.8 cm, glabrous. Sepals 4, white or tinged ± pink, spreading, linear-lanceolate to narrowly oblanceolate, 1.2–2.2 × 0.2–0.4 cm, abaxially subglabrous to puberulous, adaxially sparsely appressed puberulous, margin abaxially velutinous, apex attenuate. Stamens 5–12 mm, glabrous; filaments rugose; anthers oblong, 1.2–2.2 mm, apex obtuse. Ovaries pubescent. Style 8–11 mm, densely villous. Achenes ovate to elliptic, 4–6 × ca. 3 mm, pubescent; persistent style 2.4–4 cm, plumose. Fl. Dec–Jan, fr. Feb. Forests, slopes, along streams; 300–2300 m. Fujian, Guangdong, Guangxi, Hainan, S Hunan, Taiwan [S Japan].

40. *Clematis xinhuiensis* R. J. Wang, J. Trop. Subtrop. Bot. 7: 26. 1999.

新惠铁线莲 *xin hui tie xian lian*

Vines woody. Branches terete, shallowly grooved, sparsely puberulous, glabrescent. Leaves simple; petiole 1.5–2 cm; leaf blade broadly lanceolate to ovate, 9–12.5 & 4.5–5.5 cm, leathery, both surfaces glabrous, base subtruncate, margin entire, apex acute or acuminate; basal veins 3–5, abaxially prominent. Cymes terminal, paniclelike, many flowered; peduncle 10–18 cm; bracts leaflike. Flowers ca. 1 cm in diam.; pedicel ca. 1 cm. Sepals 4, white, oblong, 7–8 × 2–3 mm, abaxially glabrous, adaxially glabrous, margin velutinous, apex rounded or obtuse. Stamens ca. 7 mm; anthers linear, ca. 4 mm, apex obtuse. Ovaries densely puberulous; style ca. 6 mm, densely villous. Fl. Sep.

• S Guangdong (Xinhui Xian), Hong Kong.

41. *Clematis napoensis* W. T. Wang in W. T. Wang et al., Acta Phytotax. Sin. 37: 217. 1999.

那坡铁线莲 *na po tie xian lian*

Vines woody. Branches shallowly 12-grooved, glabrous, densely minutely white furfuraceous at nodes. Leaves ternate, glabrous; petiole ca. 8 cm, base and apex white furfuraceous; leaflet blades ovate or narrowly so, 10.5–14.5 × 4.8–8 cm, leathery, both surfaces finely reticulate, base subcordate or truncate-rounded, margin entire, apex subacute or acuminate; basal veins distinctly prominent. Cymes axillary, paniclelike, many flowered, glabrous; peduncle ca. 8 cm, base and apex white furfuraceous; bracts narrowly triangular, ca. 4 mm. Flowers 1.5–2 cm in diam.; pedicel 0.8–1.8 cm, glabrous. Sepals 4, white, oblanceolate or narrowly oblong, rarely narrowly obovate, 8–12 × 2.5–3.5(–4.2) mm, both surfaces glabrous, margin velutinous abaxially, apex subobtuse, rarely truncate. Stamens 4.8–6 mm, glabrous; anthers linear, 2.5–3 mm, apex obtuse. Ovaries pubescent; style ca. 5 mm, densely villous. Fl. Apr.

• Scrub on limestone hills; ca. 800 m. SW Guangxi (Napo Xian).

42. *Clematis jialasaensis* W. T. Wang, Acta Bot. Yunnan. 8: 268. 1986.

加拉萨铁线莲 *jia la sa tie xian lian*

Vines woody. Branches shallowly 10-grooved, sparsely puberulous only on nodes. Leaves ternate; petiole 6.5–7.4 cm, sparsely puberulous; leaflet blades narrowly ovate to ovate, 6–9.5 × 2.7–4.5 cm, papery, both surfaces glabrous and reticulate, base subcordate to cordate-rounded, margin entire, apex acute to acuminate; basal veins prominent on both surfaces. Cymes axillary or terminal, many flowered, paniclelike; peduncle 3.5–7.5 cm, sparsely puberulous; bracts narrowly triangular to subulate, 3.5–5.5 mm. Flowers 1.6–3.7 cm in diam. Pedicel 1.5–2.5 cm, glabrous. Sepals 4, white, spreading, spatulate-linear to narrowly oblong, 0.8–2 cm × 2.2–6 mm, abaxially glabrous, adaxially glabrous, margin abaxially velutinous, apex acute. Stamens 6–7.5 mm, glabrous; anthers linear, 3.2–4.2 mm, apex obtuse. Ovaries pubescent. Style ca. 6 mm, densely villous. Fl. Apr.

• Evergreen broad-leaved forest margins in valleys; ca. 2100 m. SE Xizang, N Yunnan.

1a. Flowers 1.6–2.5 cm in diam.; sepals

0.8–1.3 cm × 2.2–4 mm 42a. var. *jialasaensis*

1b. Flowers 2.5–3.7 cm in diam.; sepals

1.4–2 cm × 4–6 mm 42b. var. *macrantha*

42a. *Clematis jialasaensis* var. *jialasaensis*

加拉萨铁线莲(原变种) *jia la sa tie xian lian* (yuan bian zhong)

Flowers 1.6–2.5 cm in diam. Sepals 0.8–1.3 cm × 2.2–4 mm.

• Evergreen broad-leaved forest margins in valleys; ca. 2100 m. SE Xizang (Médog Xian).

42b. *Clematis jialasaensis* var. *macrantha* W. T. Wang, Acta Phytotax. Sin. 39: 4. 2001.

滇北铁线莲 *dian bei tie xian lian*

Flowers 2.5–3.7 cm in diam. Sepals 1.4–2 cm × 4–6 mm.

• N Yunnan.

43. *Clematis sinii* W. T. Wang, Acta Phytotax. Sin. 39: 314. 2001.

辛氏铁线莲 *xin shi tie xian lian*

Vines woody. Branches subterete, shallowly 8-grooved, sparsely pilose or subglabrous. Leaves ternate; petiole 5.5–6.8 cm; leaflet blades narrowly ovate or broadly lanceolate, 7–8.8 × 2.5–3.4 cm, thinly papery, both surfaces glabrous or sparsely pilose on midvein near base abaxially, base rounded, margin entire, apex attenuate or long acuminate; basal veins abaxially slightly prominent. Cymes axillary, ± paniclelike, ca. 10-flowered; peduncle 4.4–4.8 cm, subglabrous; bracts triangular, ca. 3.5 mm, sparsely ciliolate. Flowers ca. 1.2 cm in diam.; pedicel slender, 1.2–2.2 cm, sparsely appressed puberulous. Sepals 4, oblong, ca. 11 × 4 mm,

both surfaces glabrous, margin velutinous abaxially, apex acute. Stamens 5–8 mm, glabrous; anthers linear, 3.2–3.8 mm, apex obtuse or sometimes indistinctly minutely apiculate. Ovaries densely puberulous; style ca. 6 mm, densely villous. Fl. Jun.

• E Guangxi (Dayao Shan).

44. *Clematis meyeniana* Walpers, Nov. Actorum Acad. Caes. Leop.-Carol. Nat. Cur. 19(suppl. 1): 297. 1843.

毛柱铁线莲 *mao zhu tie xian lian*

Vines woody. Branches shallowly longitudinally 10-grooved. Leaves ternate; petiole 2–11 cm, sparsely puberulous, glabrescent; leaflet blades ovate, elliptic-ovate, or narrowly ovate, 7.5–12(–14) × 1.5–5(–9.5) cm, subleathery to papery, both surfaces sparsely puberulous, glabrescent, adaxially smooth or rarely finely rugose, base rounded, subcordate, or broadly cuneate, margin entire, apex acuminate to acute; basal veins abaxially prominent. Cymes axillary or terminal, usually paniclelike and many flowered, rarely 1-flowered; peduncle 2.6–7.5 cm, sparsely puberulous; bracts subulate, 3.5–6 mm. Flowers 1.6–2.5 cm in diam. Pedicel 0.6–1.6 cm, puberulous or rarely glabrous. Sepals 4, white, spreading, narrowly oblong to lanceolate, 8–13 × 2.2–4 mm, abaxially glabrous, adaxially glabrous, margin abaxially velutinous, apex ± obtuse. Stamens 5–9.5 mm, glabrous; anthers narrowly oblong to linear, 3–5.5 mm, apex minutely apiculate. Ovaries puberulous. Style 5–9 mm, densely villous. Achenes falcate-lanceolate, 5–7 × 1.8–2 mm, pubescent; persistent style 2–4 cm, yellow plumose. Fl. Jun–Aug, fr. Aug–Oct.

Forests, forest margins, scrub, slopes, along streams; near sea level to 1800 m. Fujian, Guangdong, Guangxi, S Guizhou, Hainan, Hubei, S Hunan, Jiangxi, Sichuan, Taiwan, S Yunnan, S Zhejiang [Japan (including Ryukyu Islands), Laos, Myanmar, Philippines, Vietnam].

- 1a. Leaflet blades adaxially finely rugose 44d. var. *granulata*
- 1b. Leaflet blades adaxially smooth.
 - 2a. Pedicel glabrous 44c. var. *insularis*
 - 2b. Pedicel puberulous.
 - 3a. Axillary cymes paniclelike, usually many flowered 44a. var. *meyeniana*
 - 3b. Axillary cymes 1-flowered 44b. var. *uniflora*

44a. *Clematis meyeniana* var. *meyeniana*

毛柱铁线莲(原变种) *mao zhu tie xian lian* (yuan bian zhong)

Clematis meyeniana f. *major* Sprague; *C. meyeniana* f. *retusa* Sprague; *C. oreophila* Hance ex Walpers.

Leaflet blades adaxially smooth. Axillary cymes paniclelike, usually many flowered. Pedicel puberulous.

Sparse forests, scrub, along streams; 300–1800 m. Fujian, Guangdong, Guangxi, S Guizhou, Hainan, Hubei, S Hunan, Jiangxi, Sichuan,

Taiwan, S Yunnan, S Zhejiang [Japan, Laos, Myanmar, Philippines, Vietnam].

44b. *Clematis meyeniana* var. *uniflora* W. T. Wang, Acta Phytotax. Sin. 36: 158. 1998.

单花毛柱铁线莲 *dan hua mao zhu tie xian lian*

Leaflet blades adaxially smooth. Axillary cymes 1-flowered. Pedicel puberulous.

• Forests; 1300–1500 m. Fujian (Longxi Shan, Jiangle Xian).

44c. *Clematis meyeniana* var. *insularis* Sprague, Bull. Misc. Inform. Kew 1916: 46. 1916.

光梗毛柱铁线莲 *guang geng mao zhu tie xian lian*

Leaflets adaxially smooth. Axillary cymes paniclelike, many flowered. Pedicel glabrous.

Forest margins, slopes; 200–1200 m. Taiwan [S Japan (Ryukyu Islands), Philippines (Luzon)].

44d. *Clematis meyeniana* var. *granulata* Finet & Gagnepain, Bull. Soc. Bot. France 50: 531. 1903.

沙叶铁线莲 *sha ye tie xian lian*

Clematis granulata (Finet & Gagnepain) Ohwi.

Leaflet blades adaxially finely rugose. Axillary cymes paniclelike, many flowered. Pedicel puberulous.

Forests, forest margins, scrub, along streams; near sea level to 1300 m. Guangdong, Guangxi, Hainan, S Yunnan [Laos, Vietnam].

45. *Clematis chekiangensis* C. Pei, Contr. Biol. Lab. Chin. Assoc. Advancem. Sci., Sect. Bot. 10: 105. 1936.

浙江山木通 *zhe jiang shan mu tong*

Vines woody. Branches sparsely puberulous, glabrescent. Leaves simple or ternate; petiole 3–6 cm; leaf blade or leaflet blades oblong-lanceolate to lanceolate, 4–12 × 2–5 cm, papery, both surfaces glabrous, base subcordate to rounded, margin entire, apex attenuate to acuminate; basal veins flat. Cymes terminal or axillary, ca. 10-flowered; peduncle ca. 7 cm; bracts foliaceous, petiolate, narrowly ovate. Flowers ca. 1.5 cm in diam. Pedicel 1–2.5 cm. Sepals 4, white, spreading, oblong, 8–10 × 5–6 mm, abaxially puberulous, adaxially glabrous, margin abaxially velutinous, apex rounded. Stamens ca. 4.8 mm, glabrous; anthers narrowly oblong, 3–3.2 mm, apex minutely apiculate. Ovaries pubescent. Style ca. 6 mm, densely villous. Achenes fusiform, ca. 5 × 2.5 mm, puberulous; persistent style ca. 2.5 cm, plumose. Fl. Jun.

• Forests. S Zhejiang (Qingyuan Xian).

46. *Clematis finetiana* H. Léveillé & Vaniot, Bull. Soc. Bot. France 51: 219. 1904.

山木通 *shan mu tong*

Vines woody. Branches shallowly longitudinally 6–8-grooved, puberulous near nodes, glabrescent. Leaves ternately 3-foliolate, rarely pedately 5-foliolate; petiole 2–7.8 cm, sparsely puberulous to subglabrous; leaflet blades ovate-lanceolate, narrowly ovate, or ovate, 3.5–10(–15) × 1.5–3.5(–6) cm, subleathery to leathery, both surfaces glabrous, base rounded to subcordate, margin entire, apex acute to acuminate; basal veins abaxially ± prominent. Cymes axillary or terminal,

axillary ones 1–5(–7)-flowered; peduncle 1.5–9 cm; bracts triangular to subulate, 2–5 mm. Flowers 2–4 cm in diam. Pedicel 1.5–6 cm, glabrous or nearly so. Sepals 4(–6), white, spreading, narrowly oblong, obovate-oblong, or narrowly lanceolate, 10–20 × 2–5 mm, abaxially glabrous except for velutinous margin, adaxially glabrous, apex acute to ± obtuse. Stamens 7–12 mm, glabrous; anthers narrowly oblong to linear, 4–6.5 mm, apex minutely apiculate. Ovaries pubescent. Style ca. 7 mm, densely villous. Achenes falcate-fusiform, ca. 5 × 1.5 mm, pubescent; persistent style 1.5–2.5 cm, yellow-brown plumose. Fl. Apr–Jun, fr. Jul–Nov.

• Sparse forests, slopes, scrub, along streams; 100–1200 m. S Anhui, Fujian, N Guangdong, N Guangxi, Guizhou, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, Shaanxi, Sichuan, Zhejiang.

1a. Leaves ternately 3-foliolate 46a. var. *finetiana*

1b. Leaves pedately 5-foliolate 46b. var. *pedata*

46a. *Clematis finetiana* var. *finetiana*

山木通(原变种) shan mu tong (yuan bian zhong)
Clematis meyeniana Walpers var. *pavoliniana* (Pampanini) Sprague; *C. pavoliniana* Pampanini.
Leaves ternately 3-foliolate.

• Sparse forests, scrub, along streams; 100–1200 m. S Anhui, Fujian, N Guangdong, N Guangxi, Guizhou, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, Shaanxi, Sichuan, Zhejiang.

46b. *Clematis finetiana* var. *pedata* W. T. Wang, Acta Bot. Yunnan. 8: 269. 1986.

鸟足叶铁线莲 niao zu ye tie xian lian
Leaves pedately 5-foliolate.

• Slopes; ca. 600 m. NW Hunan (Dayong Xian).

47. *Clematis shensiensis* W. T. Wang, Acta Phytotax. Sin. 6: 378. 1957.

陕西铁线莲 shan xi tie xian lian
Clematis wutangensis W. T. Wang.

Vines woody. Branches shallowly longitudinally 10-grooved, puberulous. Leaves pinnate, 5-foliolate; petiole 3–6 cm; leaflet blades ovate to broadly ovate, 2.5–7 × 1.5–5.5 cm, papery, abaxially densely curled puberulous, adaxially sparsely puberulous on veins to subglabrous, base subcordate, cordate, truncate, or rounded, margin entire, apex acute, acuminate, or obtuse; basal veins abaxially ± prominent. Cymes axillary or terminal, 3(–7)-flowered; peduncle 3.5–12 cm; bracts petiolate, simple, ovate to narrowly ovate, 1–4.5 cm, or foliaceous. Flowers 2.5–4.6 cm in diam. Pedicel 1–3.2 cm, densely puberulous. Sepals 4(–6), white, spreading, obovate-oblong to narrowly oblong, 1.3–2(–2.4) × 0.4–0.7 cm, abaxially puberulous, adaxially glabrous, margin abaxially velutinous, apex obtuse to ± obtuse. Stamens 8–11 mm, glabrous; anthers narrowly oblong, 3.2–4.5 mm, apex minutely apiculate. Ovaries pubescent. Style 5–8 mm, densely yellowish villous. Achenes elliptic, 6–8 × 3.5–5 mm, pubescent; persistent style 2.5–4.5 cm, brownish yellow plumose. Fl. May–Jun, fr. Aug–Sep.

• Scrub, cliffs, along streams; 700–1300 m. Henan, W Hubei, S Shaanxi, S Shanxi.

48. *Clematis quinquefoliolata* Hutchinson, Gard. Chron., ser. 3, 41: 3. 1907.

五叶铁线莲 wu ye tie xian lian

Vines woody. Branches shallowly 10–12-grooved, sparsely puberulous, glabrescent. Leaves pinnate, (3–)5-foliolate; petiole 2.2–5.8 cm, sparsely puberulous or glabrous; leaflet blades linear-lanceolate, lanceolate, or ovate, 4–11 × 1–3.2 cm, papery to subleathery, both surfaces glabrous, base rounded to broadly cuneate, margin entire, apex attenuate, acute, or obtuse; basal veins abaxially ± prominent. Cymes axillary or terminal, 3–7-flowered; peduncle 3.8–7 cm; bracts foliaceous or simple, linear to lanceolate, 0.5–5.5 cm. Flowers 2.6–5 cm in diam. Pedicel 1.2–4 cm, puberulous or glabrous. Sepals 4 or 5, white, spreading, narrowly oblong to obovate-oblong, 1.3–2.5 × 0.3–0.7 cm, abaxially puberulous to subglabrous, adaxially glabrous, margin abaxially velutinous, apex ± obtuse. Stamens 0.7–1.5 cm, glabrous; anthers narrowly oblong to oblong, 2–3 mm, apex obtuse or minutely apiculate. Ovaries pubescent. Style 6–7 mm, densely villous. Achenes elliptic to ovate, 5–5.5 × 2.8–3.5 mm, pubescent; persistent style ca. 5 cm, plumose. Fl. Jun–Aug, fr. Jul–Oct.

• Slopes, scrub, along streams; 1000–1800 m. NE Guizhou, W Hubei, NW Hunan, Sichuan, CN Yunnan.

49. *Clematis chinensis* Osbeck, Dagb. Ostind. Resa 205, 242. 1757.

威灵仙 wei ling xian

Vines woody, turning black on drying. Branches longitudinally 8–14-grooved, glabrous or sparsely or ± densely puberulous. Leaves pinnate, usually 5-foliolate; petiole 1.8–7.5 cm; leaflet blades ovate, narrowly so, or lanceolate, sometimes lanceolate-linear or orbicular-ovate, 1.5–9.5 × 0.7–6.4 cm, papery, both surfaces subglabrous or very sparsely puberulous only on basal veins, or abaxially ± densely puberulous, base rounded, broadly cuneate, or subcordate, margin entire, apex attenuate, acuminate, or acute, rarely obtuse or rounded; basal veins abaxially ± prominent. Cymes axillary or terminal, usually paniclelike and many flowered, rarely 1(–3)-flowered; peduncle 3–8.5 cm; bracts petiolate and elliptic to oblong or sessile, small, and linear. Flowers 1.2–2.2 cm in diam. Pedicel 1.4–3 cm, sparsely puberulous. Sepals 4, white, spreading, obovate-oblong, oblanceolate, or lanceolate, 6–20 × 1.8–4 mm, abaxially puberulous near apex, adaxially glabrous, margin abaxially velutinous, apex acute. Stamens 3–6 mm, glabrous; anthers narrowly oblong to linear, 2–3.5 mm, apex minutely apiculate or subobtuse. Ovaries pubescent. Style 3–5 mm, densely villous. Achenes elliptic, 5–7 ×

3.5–4 mm, appressed puberulous; persistent style 1.8–4 cm, plumose. Fl. Jun–Sep, fr. Aug–Nov.

Scrub, slopes, along streams; 100–1500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, S Yunnan, Zhejiang [Japan (including Ryukyu Islands), Vietnam].

1a. Branches and leaflet blades abaxially ± densely puberulous; sepals 6–9 × 2–3 mm 49c. var. *vestita*

1b. Branches glabrous or sparsely puberulous; leaflet blades on both surfaces subglabrous or very sparsely puberulous only on basal veins; sepals 6–20 × 1.8–4 mm.

2a. Axillary cymes usually paniclelike and many flowered; sepals 6–13 × 1.8–3(–4) mm 49a. var. *chinensis*

2b. Axillary cymes 1(–3)-flowered; sepals 10–20 × ca. 4 mm 49b. var. *anhweiensis*

49a. *Clematis chinensis* var. *chinensis*

威灵仙(原变种) wei ling xian (yuan bian zhong)

Clematis cavaleriei H. Léveillé & Porter; *C. chinensis* Retzius (1781), not Osbeck (1757); *C. funebris* H. Léveillé & Vaniot; *C. minor* Loureiro; *C. oligocarpa* H. Léveillé & Vaniot; *C. sinensis* Loureiro (1790).

Branches glabrous or sparsely puberulous. Leaflet blades 1.5–9.5 × 0.7–6.4 cm, both surfaces subglabrous or very sparsely puberulous only on basal veins.

Axillary cymes usually paniclelike, many flowered.

Sepals 6–13 × 1.8–3(–4) mm.

Scrub, slopes, along streams; 100–1500 m. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, S Yunnan, Zhejiang [Japan (Ryukyu Islands), Vietnam].

49b. *Clematis chinensis* var. *anhweiensis* (M. C. Chang) W.

T. Wang, Acta Phytotax. Sin. 39: 317. 2001.

安徽铁线莲 an hui tie xian lian

Clematis anhweiensis M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 357. 1980.

Branches sparsely puberulous, glabrescent. Leaflet blades 4–8 × 1.5–5 cm, both surfaces subglabrous or very sparsely puberulous only on basal veins. Axillary cymes 1(–3)-flowered. Sepals 10–20 × ca. 4 mm.

• Scrub, slopes, along streams; 200–300 m. S Anhui, W Zhejiang (Jiande Xian).

49c. *Clematis chinensis* var. *vestita* (Rehder & E. H. Wilson)

W. T. Wang, Acta Phytotax. Sin. 36: 158. 1998.

毛叶威灵仙 mao ye wei ling xian

Clematis chinensis f. *vestita* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 330. 1913.

Branches ± densely puberulous. Leaflet blades to 3.5(–5) × 2(–2.5) cm, abaxially ± densely puberulous.

Axillary cymes usually paniclelike, many flowered.

Sepals 6–9 × 2–3 mm

• Grassy slopes. Anhui, S Henan, Hubei, S Jiangsu, S Shaanxi, Zhejiang.

50. *Clematis terniflora* de Candolle, Syst. Nat. 1: 137. 1817.

圆锥铁线莲 yuan zhui tie xian lian

Vines woody. Branches shallowly 4–10-grooved, puberulous or only nodes puberulous. Leaves pinnate, 5(–7)-foliolate; petiole 2.5–4.5 cm; leaflet blades ovate to narrowly ovate, sometimes ovate-lanceolate, 2.5–8 × 1–4.2 cm, papery to subleathery, both surfaces sparsely puberulous, glabrescent, base rounded, subcordate, or broadly cuneate, margin entire, apex acute to obtuse; basal veins abaxially ± prominent to nearly flat. Cymes axillary or terminal, usually many flowered; peduncle 1–7 cm; bracts linear, elliptic, or oblong, 0.8–3.5(–5) cm. Flowers 1.4–3 cm in diam. Pedicel 0.5–3 cm, puberulous or glabrous. Sepals 4, white, spreading, obovate-oblong to oblong, 5–15 × 2–6 mm, abaxially puberulous or glabrous, adaxially glabrous, margin abaxially velutinous, apex ± acute to obtuse. Stamens 3–7(–8) mm, glabrous; anthers narrowly oblong to oblong, 2–3 mm, apex obtuse or minutely apiculate. Ovaries pubescent. Style 4–7 mm, densely villous. Achenes orange-yellow, broadly elliptic to obovate, 4–9 × 2.5–6 mm, appressed pubescent; persistent style 1.2–4 cm, plumose. Fl. Jun–Aug, fr. Aug–Nov.

Forest margins, scrub on slopes, grassy areas on hills, among rocks in coastal areas; near sea level to 800 m. S Anhui, Heilongjiang, S Henan, Hubei, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, SE Shaanxi, S Taiwan, Zhejiang [Japan, Korea, Mongolia, Russia (Siberia)].

1a. Branches and pedicels puberulous; achenes 6–9 mm 50a. var. *terniflora*

1b. Branch nodes puberulous and pedicels glabrous or subglabrous; achenes to 6 mm.

2a. Anther apex minutely apiculate 50b. var. *mandshurica*

2b. Anther apex obtuse 50c. var. *garanbiensis*

50a. *Clematis terniflora* var. *terniflora*

圆锥铁线莲(原变种) yuan zhui tie xian lian (yuan bian zhong)

Clematis dioscoreifolia H. Léveillé & Vaniot; *C. dioscoreifolia* var. *robusta* (Carrière) Rehder; *C. flammula* Linnaeus var. *robusta* Carrière; *C. maximowicziana* Franchet & Savatier; *C. terniflora* var. *robusta* (Carrière) Tamura.

Branches and pedicels puberulous. Anther apex obtuse, occasionally minutely apiculate. Achenes 6–9 × 3–6 mm.

Forest margins, grassy areas on hills; below 400 m. S Anhui, S Henan, Hubei, Jiangsu, Jiangxi, SE Shaanxi, Zhejiang [Japan, Korea].

50b. *Clematis terniflora* var. *mandshurica* (Ruprecht) Ohwi, Acta Phytotax. Geobot. 7: 43. 1938.

辣蓼铁线莲 *la liao tie xian lian*

Clematis mandshurica Ruprecht, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 15: 258. 1857; *C. liaotungensis* Kitagawa; *C. recta* Linnaeus var. *mandshurica* (Ruprecht) Maximowicz.

Branch nodes puberulous. Pedicel glabrous or subglabrous. Anther apex minutely apiculate. Achenes 4–6 × 2.5–4 mm.

Scrub on slopes; 200–800 m. Heilongjiang, Jilin, Liaoning, Nei Mongol [N Korea, Mongolia, Russia (Siberia)].

50c. *Clematis terniflora* var. *garanbiensis* (Hayata) M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 170. 1980.

鹅銮鼻铁线莲 *e luan bi tie xian lian*

Clematis garanbiensis Hayata, Icon. Pl. Formos. 9: 1. 1920.

Branches only puberulous on nodes, glabrous on other parts. Pedicel glabrous. Anther apex obtuse. Achenes 5–6 × ca. 4 mm.

• Among rocks in coastal areas; near sea level. S Taiwan.

51. *Clematis akoensis* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 13. 1911.

屏东铁线莲 *ping dong tie xian lian*

Clematis dolichosepala Hayata; *C. owatarii* Hayata. Vines woody. Branches shallowly grooved, glabrous. Leaves pinnate, 5-foliolate, sometimes ternate, glabrous; petiole 4–7 cm; leaflet blades deltoid, cordate-ovate, ovate, or broadly elliptic, (1.6–)3.3–5.8(–7.4) × (1.2–)3–4.6(–5.4) cm, subleathery, base subcordate, truncate, or broadly cuneate, margin sparsely serrulate or rarely entire, apex acute, obtuse, or emarginate; basal veins abaxially ± prominent. Cymes axillary, (1–)5-flowered; peduncle 1–7.5 cm; bracts petiolate, ovate, elliptic, or linear. Flowers 3.5–7.5 cm in diam. Pedicel 4–6(–8) cm, glabrous. Sepals (5 or)6, obovate-oblong to oblong, 2–3.5 × 0.5–1.3 cm, abaxially densely puberulous, adaxially glabrous, apex mucronate. Stamens 0.8–1.5 cm, glabrous; anthers narrowly oblong to linear, 3.5–5 mm, apex apiculate. Ovaries pubescent. Style ca. 1 cm, densely villous. Achenes narrowly ovate to rhombic, 5–8 × ca. 3 mm, densely pubescent; persistent style to 4 cm, plumose. Fl. Nov–Feb, fr. Dec–Mar.

• Forest margins, sunny areas; near sea level to 800 m. S Taiwan.

52. *Clematis pashanensis* (M. C. Chang) W. T. Wang, **comb. et stat. nov.**

巴山铁线莲 *ba shan tie xian lian*

Vines woody, not or occasionally turning blackish on drying. Branches 4–6-angulate, shallowly grooved, puberulous. Leaves pinnate; petiole 2.2–48 cm; leaflet blades ovate, narrowly so, or lanceolate, undivided, rarely 2- or 3-lobed, 3–9 × 1–4.6 cm, subleathery or papery, both surfaces conspicuously reticulate, puberulous near base or on midvein, or subglabrous,

rarely abaxially densely puberulous, base rounded or broadly cuneate, margin entire; basal veins prominent. Cymes both axillary and terminal, often paniclelike, (1–)5- to many flowered; peduncle 1–4.8 cm; bracts often petiolate, narrowly ovate or lanceolate, and 0.9–2.5 cm, or sessile, linear, and ca. 6 mm. Flowers 1.4–2.6 cm in diam.; pedicel 1.2–3 cm, puberulous. Sepals 4, white, spreading, obovate-oblong, suboblong, or oblanceolate, 7–15 × 3–5(–7) mm, abaxially sparsely appressed puberulous, adaxially glabrous, margin velutinous, apex rounded or obtuse. Stamens 4–6.5 mm, glabrous; filaments linear; anthers linear, sometimes narrowly oblong, (1.5–)2–3(–3.2) mm, apex obtuse or minutely apiculate. Ovaries densely pubescent; style 2.5–4 mm, densely villous. Achenes strongly compressed, elliptic or narrowly so, 5–7 × 3–3.2 mm, appressed puberulous, conspicuously marginate; persistent style 1.8–2.4 cm, tawny villous. Fl. Jun–Sep.

• Scrub, slopes, along streams, on rocks; 100–2000 m. S Anhui, S and W Henan, W Hubei, S Jiangsu, S Shaanxi, S Shanxi, E Sichuan.

1a. Anther apex obtuse 52a. var. *pashanensis*

1b. Anther apex minutely apiculate 52b. var. *latisepala*

52a. *Clematis pashanensis* var. *pashanensis*

巴山铁线莲(原变种) *ba shan tie xian lian* (*yuan bian zhong*)

Basionym: *Clematis kirilowii* Maximowicz var. *pashanensis* M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 356. 1980.

Anther apex obtuse.

• Scrub, slopes, along streams; 100–1000 m. S Anhui, S and W Henan, W Hubei, S Jiangsu, S Shaanxi, E Sichuan.

52b. *Clematis pashanensis* var. *latisepala* (M. C. Chang) W. T. Wang, **comb. nov.**

尖药巴山铁线莲 *jian yao ba shan tie xian lian*

Basionym: *Clematis terniflora* de Candolle var. *latisepala* M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 357. 1980; *C. kirilowii* var. *latisepala* (M. C. Chang) W. T. Wang.

Anther apex minutely apiculate.

• Scrub, slopes, along streams, on rocks; 300–2000 m. S and W Henan, W Hubei, SE Shaanxi, S Shanxi.

53. *Clematis kirilowii* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 22: 210. 1877.

太行铁线莲 *tai hang tie xian lian*

Vines woody, turning black on drying. Branches shallowly 4–8-grooved, sparsely puberulous. Leaves 1- or 2-pinnate; petiole 1.4–4.5 cm; leaflet blades ovate, narrowly so, elliptic, oblong, lanceolate, narrowly so, or linear, undivided or 2- or 3-fid, 1.4–6 × 0.2–2.8 cm, leathery, both surfaces very sparsely puberulous on

veins or subglabrous and conspicuously reticulate, base rounded or cuneate, margin entire, apex obtuse, acute, attenuate, acuminate, or sometimes emarginate; basal veins prominent. Cymes both axillary and terminal, (1–)3- to many flowered; peduncle 0.9–6.7 cm; bracts sessile or petiolate, triangular, elliptic, or linear, 0.1–1.1 cm. Flowers 1.4–3 cm in diam.; pedicel 1–2.5 cm, puberulous. Sepals 4(–6), white, obovate-oblong, 0.7–1.5 × 0.35–0.7 cm, abaxially appressed puberulous, adaxially glabrous, margin velutinous, apex subtruncate. Stamens 4–6(–7) mm, glabrous; anthers narrowly oblong, 2–3 mm, apex obtuse. Ovaries puberulous; style 3–5 mm, densely villous. Achenes strongly compressed, elliptic, 4–5 × 3–3.8 mm, pubescent, conspicuously marginate; persistent style ca. 1.8 cm, plumose. Fl. Apr–Aug, fr. Aug–Oct.

• Thickets, scrub, slopes; 100–1700 m. N Anhui, W Hebei, Henan, W Hubei, N Jiangsu, S Shaanxi, Shandong, SE Shanxi.

1a. Leaflet blades ovate, narrowly so, elliptic, oblong, or lanceolate, 0.5–2.8 cm wide, apex obtuse, acute, acuminate, or sometimes emarginate 53a. var. *kirilowii*

1b. Leaflet blades narrowly lanceolate or linear, 0.2–1 cm wide, apex acute or attenuate 53b. var. *chanetii*

53a. *Clematis kirilowii* var. *kirilowii*

太行铁线莲(原变种) tai hang tie xian lian (yuan bian zhong)

Clematis matsumurana Yabe; *C. recta* Linnaeus subsp. *kirilowii* (Maximowicz) Kuntze.

Leaflet blades ovate, narrowly so, elliptic, oblong, or lanceolate, 1.5–6 × 0.5–2.8 cm wide, apex obtuse, acute, acuminate, or sometimes emarginate.

• Thickets, grassy slopes; 200–1700 m. N Anhui, W Hebei, W Henan, W Hubei, N Jiangsu, S Shaanxi, Shandong, SE Shanxi.

53b. *Clematis kirilowii* var. *chanetii* (H. Léveillé) Handel-Mazzetti, Acta Horti Gothob. 13: 205. 1939–1940.

狭裂太行铁线莲 xia lie tai hang tie xian lian

Clematis chanetii H. Léveillé, Repert. Spec. Nov. Regni Veg. 11: 495. 1913.

Leaflet blades narrowly lanceolate or linear, 1.4–6 × 0.2–1 cm wide, apex acute or attenuate.

• Scrub, slopes; 100–900 m. W Hebei, Henan, Shandong, SE Shanxi.

54. *Clematis obscura* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 6. 1890.

秦岭铁线莲 qin ling tie xian lian

Vines woody, turning black on drying. Branches shallowly 8–10-grooved, sparsely puberulous, glabrescent. Leaves pinnate or 2-pinnate, 5–11-foliolate; petiole 1.2–5.5 cm; leaflet blades ovate, triangular-ovate, or lanceolate, 1.2–7.8 × 0.5–3 cm, papery, undivided or sometimes 3-lobed, both surfaces subglabrous to sparsely puberulous on veins, base cuneate, rounded, or

subcordate, margin entire, apex acute, attenuate, or acute; basal veins abaxially ± prominent. Cymes axillary or terminal, 1–3(–5)-flowered; peduncle 1–7.6 cm, sparsely puberulous; bracts often petiolate, ovate, narrowly ovate, or elliptic, 0.8–5 cm, rarely ternate.

Flowers 2.5–4.8 cm in diam. Pedicel 3–8 cm, subglabrous to sparsely puberulous. Sepals (4 or)5 or 6(or 7), white, spreading, oblong, obovate-oblong, or lanceolate, 1.2–2.6 × 0.4–0.8 cm, abaxially glabrous except for velutinous margin, adaxially glabrous, apex acute to obtuse. Stamens 5–8 mm, glabrous; anthers linear, 3.8–4.5 mm, often longer than filaments, apex minutely apiculate. Ovaries densely pubescent. Style ca. 4 mm, densely villous. Achenes elliptic to ovate, 4.5–5 × 2.8–3 mm, appressed pubescent; persistent style to 2.5 cm, brown-yellow plumose. Fl. Apr–Jun, fr. Aug–Nov.

• Slopes, scrub; 400–2600 m. S Gansu, W Henan, Hubei, S Shaanxi, Shanxi, Sichuan.

55. *Clematis dilatata* C. Pei, Contr. Biol. Lab. Chin. Assoc. Advancem. Sci., Sect. Bot. 10: 105. 1936.

舟柄铁线莲 zhou bing tie xian lian

Vines woody. Branches shallowly 10-grooved, puberulous, glabrescent. Leaves pinnate or 2-pinnate; petiole 6.5–10 cm, basally usually widened and connate to opposite petiole, puberulous, glabrescent; leaflet blades narrowly ovate, ovate, ovate-orbicular, or oblong-lanceolate, 3–10 × 1.5–5.2 cm, subleathery, both surfaces glabrous and conspicuously reticulate, abaxially glaucous, base rounded to subcordate, margin entire, apex acute to obtuse; basal veins ± prominent on both surfaces. Cymes axillary or terminal, 7–13-flowered; peduncle 3–8 cm, puberulous; bracts linear to subulate, 7–10 mm. Flowers 3.4–5.5 cm in diam.

Pedicel 2–5 cm, densely puberulous. Sepals 5 or 6(or 7), white tinged pink, spreading, obovate-lanceolate to oblong, 1.8–3.5 × 0.5–1 cm, abaxially velutinous to puberulous, adaxially puberulous, margin abaxially velutinous, apex acute. Stamens 0.9–1.4 cm, glabrous; anthers narrowly oblong, 3.5–4 mm, apex minutely apiculate. Ovaries puberulous. Style ca. 1.1 cm, densely villous. Achenes narrowly ovate, ca. 5 × 2 mm, appressed pubescent; persistent style ca. 3 cm, plumose. Fl. May, fr. Jun–Jul.

• Forests, along streams in ravines; 300–800 m. C to S Zhejiang.

56. *Clematis uncinata* Champion ex Bentham, Hooker's J. Bot. Kew Gard. Misc. 3: 255. 1851.

柱果铁线莲 zhu guo tie xian lian

Vines woody. Branches shallowly longitudinally 10–14-grooved, glabrous. Leaves pinnate or 2-pinnate, 5–15-foliolate, glabrous; petiole 3–8.5 cm; leaflet blades ovate-elliptic, ovate, narrowly ovate, or lanceolate, 3–13 × 1.5–5 cm, leathery to papery, abaxially reticulate or not, base rounded, broadly cuneate, subcordate, or truncate, margin entire, apex acuminate, acute, or attenuate; basal veins abaxially prominent. Cymes axillary or terminal, usually many flowered, paniclelike,

glabrous; peduncle 1–8 cm; bracts sessile, subulate, 3–8 mm, sometimes petiolate, lanceolate, to 3.5 cm. Flowers 1.7–3 cm in diam. Pedicel 1–2.2 cm. Sepals 4, white, spreading, narrowly oblong to narrowly obovate-oblong, 6–15 × 2–7 mm, abaxially glabrous except for velutinous margin, adaxially glabrous, apex acute. Stamens (3–)8–11 mm, glabrous; anthers narrowly oblong to linear, 2.8–3.2 mm, apex minutely apiculate. Ovaries glabrous or pubescent. Style 5–8 mm, densely villous. Achenes subulate-terete, 5–7 × 1.4–1.8 mm, glabrous or pubescent; persistent style 1.5–2(–3) cm, plumose. Fl. Apr–Jul, fr. Jul–Nov.

Forests, forest margins, slopes, scrub, open areas, along streams; 100–2500 m. S Anhui, Fujian, S Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, SE Yunnan, Zhejiang [S Japan, Vietnam].

- 1a. Sepals 6–9 mm; ovaries and achenes pubescent 56c. var. *okinawensis*
- 1b. Sepals 10–15 mm; ovaries and achenes glabrous.
 - 2a. Leaflet blades subleathery to papery, abaxially reticulate . 56a. var. *uncinata*
 - 2b. Leaflet blades leathery, abaxially not reticulate 56b. var. *coriacea*

56a. Clematis uncinata var. **uncinata**

柱果铁线莲(原变种) zhu guo tie xian lian (yuan bian zhong)

Clematis alsomitrifolia Hayata; *C. chinensis* Osbeck var. *uncinata* (Champion ex Benth) Kuntze; *C. drakeana* H. Léveillé & Vaniot; *C. floribunda* (Hayata) Yamamoto; *C. gagnepainiana* H. Léveillé & Vaniot; *C. uncinata* var. *biternata* W. T. Wang; *C. uncinata* var. *floribunda* Hayata.

Leaflet blades subleathery to papery, abaxially glaucous and reticulate. Sepals 10–15 × 2–3.8(–5) mm. Ovaries and achenes glabrous. Fl. Jun–Jul, fr. Jul–Sep.

Forest margins, scrub, along streams; 100–2500 m. S Anhui, Fujian, S Gansu, Guangdong, Guangxi, Guizhou, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, SE Yunnan, Zhejiang [S Japan, Vietnam].

56b. Clematis uncinata var. **coriacea** Pampanini, Nuovo Giorn. Bot. Ital., n.s., 22: 288. 1915.

皱叶铁线莲 zhou ye tie xian lian

Clematis leiocarpa Oliver.

Leaflet blades leathery, abaxially strongly glaucous and not reticulate. Sepals 10–15 × 2–3.8(–5) mm.

Ovaries and achenes glabrous. Fl. Jun–Jul, fr. Aug–Sep.

•Forests, slopes, scrub, along streams; 500–2000 m. S Gansu, Hubei, NW Hunan, S Shaanxi, N Sichuan.

56c. Clematis uncinata var. **okinawensis** (Ohwi) Ohwi, Fl. Japan, 515. 1953.

毛柱果铁线莲 mao zhu guo tie xian lian

Clematis okinawensis Ohwi, Acta Phytotax. Geobot. 6: 146. 1937; *C. okinawensis* var. *trichocarpa* (Tamura) Tamura; *C. trichocarpa* Tamura.

Leaflet blades leathery. Sepals 6–9 × 3–7 mm. Ovaries and achenes pubescent. Fl. Apr–Jul, Aug–Nov.

Forest margins, open areas; below 600 m. Taiwan [Japan (Ryukyu Islands)].

57. Clematis lingyunensis W. T. Wang, Acta Bot. Yunnan. 8: 266. 1986.

凌云铁线莲 ling yun tie xian lian

Vines woody. Branches shallowly 15-grooved, sparsely puberulous only on nodes; scales of axillary bud deltoid to triangular, 5–12 mm, undivided or 3-lobed, brown puberulous, apex acute. Leaves ternate; petiole 6–8 cm, sparsely puberulous; leaflet blades ovate, 6.7–9.2 × 3.7–5.8 cm, leathery, both surfaces glabrous and reticulate, base subcordate to cordate, margin entire, apex acuminate; basal veins abaxially prominent.

Cymes ca. 3 arising from axillary buds of old branches; central cyme to 20 cm, many flowered, paniclelike; lateral 2 cymes 3.5–9 cm, 5–9-flowered; peduncle 3–5 cm, brownish puberulous; bracts linear-triangular to linear, ca. 9 mm, undivided or 3-lobed, brownish puberulous. Flowers 0.9–1.2 cm in diam. Pedicel 4–12 mm, glabrous or very sparsely puberulous. Sepals 4, yellow, spreading, linear-lanceolate, broadly lanceolate, or elliptic, 5–7 × 2–3 mm, both surfaces glabrous except margin velutinous abaxially, apex ± obtuse. Stamens 3–3.2 mm, glabrous; anthers linear, 2.5–2.8 mm, apex apiculate. Ovaries pubescent. Style ca. 4 mm, densely villous. Fl. Apr.

•Open forest along streams. NW Guangxi (Lingyun Xian).

58. Clematis armandii Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 184. 1886.

小木通 xiao mu tong

Vines woody. Stems to 6 m; branches shallowly longitudinally 10–16-grooved, sparsely puberulous, glabrescent; scales of axillary buds ovate, triangular, or oblong, 0.8–2 cm, puberulous, abaxially longitudinal veins prominent. Leaves ternate; petiole 3.6–11 cm, basally sparsely puberulous or glabrous; leaflet blades narrowly ovate, lanceolate, or ovate, 5–16 × 1.5–7 cm, leathery, both surfaces glabrous, base rounded, subcordate, or broadly cuneate, margin entire, apex acuminate to attenuate; basal veins abaxially prominent. Cymes 1- to many flowered, from axillary buds of old branches, rarely from leaf axils of current year's branches; peduncle 0.4–8 cm, puberulous or glabrous; bracts narrowly oblong to linear, 0.7–2 cm, undivided or sometimes 3-lobed. Flowers 2–8 cm in diam. Pedicel 1.8–7 cm, sparsely puberulous or glabrous. Sepals 4(–6), white or pinkish, spreading, narrowly oblong, obovate-oblong, or oblong, 1.2–4.7 × 0.2–2 cm, abaxially sparsely puberulous or glabrous, adaxially glabrous, margin abaxially velutinous to puberulous, apex obtuse to rounded. Stamens 6–11 mm, glabrous; anthers narrowly oblong to linear, 3–4.5 mm, apex minutely apiculate or obtuse. Ovaries pubescent. Style 6–8 mm, densely villous. Achenes narrowly ovate to elliptic-ovate, 4–5 × 2–2.6 mm, sparsely pubescent; persistent style 1.6–4.8 cm, white plumose. Fl. Mar–Apr, fr. Apr–Jul.

Forests, forest margins, slopes, scrub, along streams; 100–2400 m. Fujian, S Gansu, N Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, E Xizang, Yunnan, S Zhejiang [N Myanmar].

- 1a. Cymes 7- to many flowered 58a. var. *armandii*
1b. Cymes 1–3-flowered.
2a. Cymes usually 3-flowered;
sepals 4 or 5, 2.1–4 × 0.6–1.2
cm 58b. var. *farquhariana*
2b. Cymes 1–3-flowered; sepals
5 or 6, 3.7–4.7 × 1–2 cm 58c. var. *hefengensis*

58a. Clematis armandii var. **armandii**

小木通(原变种) xiao mu tong (yuan bian zhong)
Clematis armandii var. *biondiana* (Pavolini) Rehder; *C. biondiana* Pavolini; *C. ornithopus* Ulbrich.
Cymes 7- to many flowered. Sepals 4(or 5), 1.2–2.4 × 0.2–0.7 cm.

Forest margins, slopes, scrub, along streams; 100–2400 m. Fujian, S Gansu, N Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, E Xizang, Yunnan, S Zhejiang [N Myanmar].

58b. Clematis armandii var. **farquhariana** (Rehder & E. H. Wilson) W. T. Wang, Acta Phytotax. Sin. 36: 158. 1998.

大花小木通 da hua xiao mu tong
Clematis armandii f. *farquhariana* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 327. 1913.

Cymes usually 3-flowered. Sepals 4 or 5, 2.1–4 × 0.6–1.2 cm.

• Open forests, scrub, along streams; 500–1500 m. W Hubei, NW Hunan, E Sichuan.

58c. Clematis armandii var. **hefengensis** (G. F. Tao) W. T. Wang, Acta Phytotax. Sin. 29: 464. 1991.

鹤峰铁线莲 he feng tie xian lian
Clematis hefengensis G. F. Tao, Acta Phytotax. Sin. 22: 424. 1984.

Cymes 1–3-flowered. Sepals 4–6, 3.7–4.7 × 1–2 cm.

• Forests, along streams; ca. 1400 m. SW Hubei (Hefeng Tujia Zu Zizhixian).

59. Clematis zygophylla Handel-Mazzetti, Acta Horti Gothob. 13: 209. 1939–1940.

对叶铁线莲 dui ye tie xian lian
Vines woody. Branches shallowly longitudinally grooved, glabrous, turning black on drying; scales of axillary floral bud lanceolate, 0.8–2 cm, brownish velutinous. Leaves ternate or pinnate, 5-foliolate, glabrous; petiole 4–6 cm; leaflet blades narrowly lanceolate, 6–14 × 1–2 cm, subleathery, base cuneate to cuneate-rounded, margin entire, apex falcate-acuminate. Cymes axillary, many flowered; peduncle 8–9.5 cm; bracts linear-lanceolate, often 3-lobed, brownish puberulous. Flowers 3–3.5 cm in diam. Pedicel 1–2 cm, glabrous. Sepals 4, spreading, linear-lanceolate to oblanceolate, 1.5–1.8 × 0.2–0.5 cm, abaxially glabrous except for velutinous margin, adaxially glabrous, apex obtuse to ± acute. Stamens 5–8 mm, glabrous; anthers linear to narrowly oblong, 2.8–3 mm, apex obtuse. Ovaries pubescent. Style ca. 5 mm, densely villous.

• Guizhou (Anshun Shi).

60. Clematis lancifolia Bureau & Franchet, J. Bot. (Morot) 5: 18. 1891.

披针铁线莲 pi zhen tie xian lian

Shrubs small, erect, 35–100 cm. Stems simple or branched; branches shallowly 10-grooved, sparsely puberulous to subglabrous. Leaves simple or ternate; petiole 0.4–4.5 cm; leaf blade or leaflet blades lanceolate, oblong-lanceolate, or linear-lanceolate, 4–14 × 1–2.4 cm, leathery, both surfaces very sparsely puberulous to subglabrous, base cuneate, broadly cuneate, or rounded, margin entire, apex obtuse to ± acute; basal veins abaxially ± prominent. Cymes terminal, 3–5-flowered; bracts foliaceous or small and linear, 3–10 mm. Flowers ca. 2 cm in diam. Pedicel 2–5.5 cm. Sepals 4–6, white, spreading, narrowly oblong, ca. 10 × 3 mm, abaxially glabrous except for velutinous margin, adaxially glabrous, apex ± acute. Stamens 5.5–8 mm, glabrous; anthers narrowly oblong, 3.2–5.5 mm, apex minutely apiculate or obtuse. Ovaries pubescent. Style 5–7 mm, densely villous. Achenes narrowly ovate to elliptic, 4–5 × 2.2–3 mm, pubescent; persistent style 1.4–2.3 cm, plumose. Fl. Jul–Aug, fr. Sep–Oct.

• Forests, slopes, grassy areas; 1100–1900 m. SW Sichuan, CN to NE Yunnan.

- 1a. Leaves simple; petiole 0.4–2.5 cm 60a. var. *lancifolia*
1b. Leaves ternate; petiole 2.2–4.5 cm 60b. var. *ternata*

60a. Clematis lancifolia var. **lancifolia**

披针叶铁线莲(原变种) pi zhen ye tie xian lian (yuan bian zhong)

Clematis duclouxii H. Léveillé; *C. iochanica* Ulbrich. Leaves simple; petiole 0.4–2.5 cm; leaf blade lanceolate, oblong-lanceolate, or linear-lanceolate, 4–14 × 1–2.4 cm.

• Forests, grassy areas; 1500–1900 m. SW Sichuan, CN to NE Yunnan.

60b. Clematis lancifolia var. **ternata** W. T. Wang & M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 356. 1980.

竹叶铁线莲 zhu ye tie xian lian

Leaves ternate; petiole 2.4–4.5 cm; leaflet blades linear-lanceolate.

• Slopes; ca. 1100 m. SW Sichuan (Miyi Xian).

61. Clematis songorica Bunge, Del. Semin. Hort. Dorpat. 8. 1839.

准噶尔铁线莲 zhun ga er tie xian lian

Shrubs small and erect or perennial herbs, 40–150 cm tall. Branches shallowly 4- or 5-grooved, glabrous or only sparsely puberulous near nodes. Leaves both opposite and fasciculate, simple, except apical ones pinnatisect; petiole 0.5–2 cm; leaf blade linear, linear-

lanceolate, or lanceolate, 2–8 × 0.2–2 cm, subleathery, undivided or pinnatisect, both surfaces glabrous, base attenuate, margin entire or sparsely denticulate, apex acute to obtuse; basal veins nearly flat or ± prominent. Cymes terminal or axillary, (1- to) few to many flowered; bracts foliaceous. Flowers 1.6–2.8 cm in diam. Pedicel 1–3.5 cm, glabrous. Sepals 4(–6), white, spreading, oblong-obovate to obovate, 5–15 × 3–9 mm, abaxially puberulous to subglabrous, adaxially glabrous or sparsely puberulous, margin abaxially velutinous, apex rounded to subtruncate. Stamens (5–)6–7 mm, glabrous; anthers narrowly oblong, (2–)2.6–4 mm, apex obtuse or occasionally minutely apiculate. Ovaries pubescent. Style 4–6 mm, densely villous. Achenes ovate to obovate, 2.5–3.5 × 1.5–2 mm, densely pubescent; persistent style 1.4–2.6 cm, plumose. Fl. Jun–Aug, fr. Jul–Sep.

Grassy areas, gravelly or rocky slopes, gravelly banks, along streams; 400–2500 m. N Gansu, Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan].

1a. All leaves undivided 61a. var. *songorica*

1b. Lower leaves undivided, upper ones pinnatisect 61b. var. *aspleniifolia*

61a. Clematis songorica var. *songorica*

准噶尔铁线莲(原变种) zhun ga er tie xian lian (yuan bian zhong)

Clematis gebleria Bongard; *C. recta* Linnaeus subsp. *songorica* (Bunge) Kuntze.

All leaves undivided. Sepals adaxially glabrous or sparsely puberulous. Anthers (2–)2.6–3 mm.

Grassy areas, gravelly or rocky slopes; 400–2500 m. N Gansu, Xinjiang [Kazakhstan, Mongolia].

61b. Clematis songorica var. *aspleniifolia* (Schrenk) Trautvetter, Bull. Soc. Imp. Naturalistes Moscou 33(1): 56. 1860.

蕨叶铁线莲 jue ye tie xian lian

Clematis aspleniifolia Schrenk in Fischer & C. A. Meyer, Enum. Pl. Nov. 2: 68. 1842; *C. aspleniifolia* var. *boissieriana* (Korshinsky) Krasch; *C. boissieriana* Korshinsky; *C. songorica* var. *intermedia* Trautvetter.

Lower leaves undivided, upper ones pinnatisect. Sepals adaxially glabrous. Anthers 3–4 mm.

Grassy areas, gravelly banks, along streams; 500–2500 m. W Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan].

62. Clematis delavayi Franchet, Bull. Soc. Bot. France 33: 360. 1886.

银叶铁线莲 yin ye tie xian lian

Small shrubs, to 1.5 m tall. Stems few or many branches, spinescent or not; branches densely sericeous-puberulous. Leaves pinnate, 7–13-foliolate; petiole 0.2–1.8 cm, densely puberulous; leaflet blades ovate, narrowly ovate, or oblong (0.2–)0.8–4 × 0.4–1.6 cm, papery, unlobed or rarely 2- or 3-lobed, abaxially densely silvery-pannose to appressed puberulous on all or only part of surface, adaxially sparsely puberulous but glabrescent, base rounded to broadly cuneate, margin entire, apex acute; basal veins obscure. Cymes

terminal, few to many flowered; bracts foliaceous. Flowers 1.7–2.3 cm in diam. Pedicel 1.4–2 cm, densely puberulous. Sepals 4–6, white, spreading, obovate-oblong, 8–14 × 5–8 mm, abaxially velutinous, adaxially glabrous, apex rounded to obtuse. Stamens 5–8 mm, glabrous; anthers narrowly oblong, 2–2.8 mm, apex inconspicuously apiculate. Ovaries puberulous. Style 4–6 mm, densely villous. Achenes ovate, ca. 4 × 2 mm, puberulous; persistent style ca. 2.5 cm, plumose. Fl. Jul–Aug, fr. Oct.

• Slopes, scrub, thickets, stony areas; 1800–3800 m. SW to W Sichuan, E Xizang, NW Yunnan.

1a. Leaflet blades abaxially densely silvery-pannose, indumentum covering whole abaxial surface.

2a. Leaflet blades unlobed 62a. var. *delavayi*

2b. Leaflet blades 2- or 3-lobed 62d. var. *limprichtii*

1b. Leaflet blades abaxially appressed puberulous and gray-green, indumentum not covering whole abaxial surface.

3a. Stems few branched, branches not spinescent; leaflet blades 0.8–2 cm 62b. var. *calvescens*

3b. Stems many branched, branches spinescent; leaflet blades 0.2–1 cm 62c. var. *spinescens*

62a. Clematis delavayi var. *delavayi*

银叶铁线莲(原变种) yin ye tie xian lian (yuan bian zhong)

Branches not spinescent. Leaflet blades 0.8–4 × 0.4–1.6 cm, unlobed, abaxially densely silvery-pannose.

• Slopes, scrub; 1800–3000 m. W Sichuan, NW Yunnan.

62b. Clematis delavayi var. *calvescens* C. K. Schneider, Bot. Gaz. 63: 517. 1917.

疏毛银叶铁线莲 shu mao yin ye tie xian lian

Branches not spinescent. Leaflet blades 0.8–2 × 0.4–1 cm, unlobed, abaxially gray-green appressed puberulous.

• On dry slopes. SW Sichuan (Muli Zang Zu Zizhixian), NW Yunnan.

62c. Clematis delavayi var. *spinescens* Balfour ex Diels, Notes Roy. Bot. Gard. Edinburgh 5: 262. 1912.

刺铁线莲 ci tie xian lian

Branches many, apically spinescent. Leaflet blades 2–10 × 1–3 mm, unlobed, abaxially appressed puberulous.

• Stony areas, dry slopes in ravines of Jinsha Jiang; 2000–3800 m. SW Sichuan, E Xizang, NW Yunnan.

62d. Clematis delavayi var. *limprichtii* (Ulbrich) M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 154. 1980.

裂银叶铁线莲 lie yin ye tie xian lian

Clematis limprichtii Ulbrich, Repert. Spec. Nov. Regni Veg. Beih. 12: 373. 1922.

Branches not spinescent. Leaflet blades 3–17 × 1–12 mm, 2- or 3-lobed, abaxially densely silvery-pannose.

• Thickets, grassy slopes; 1800–3200 m. W Sichuan, NW Yunnan.

63. *Clematis hexapetala* Pallas, Reise Russ. Reich. 3: 735. 1776.

棉团铁线莲 mian tuan tie xian lian

Herbs perennial, erect, 30–100 cm tall. Stems simple or branched; branches shallowly 8–12-grooved, sparsely pubescent, glabrescent. Leaves 1- or 2-pinnatisect; petiole 0.5–2 cm; ultimate lobe linear-lanceolate, elliptic, or linear, 1.5–10 × 0.1–2(–2.6) cm, leathery, both surfaces sparsely pubescent to subglabrous and reticulate, base cuneate, margin entire, apex acute to obtuse; basal veins prominent on both surfaces. Cymes terminal or axillary, (1–)3- to many flowered; peduncle 3.5–8.5 cm; bracts foliaceous or undivided, lanceolate. Flowers 2.5–4 cm in diam. Pedicel 1–7 cm, puberulous to subglabrous. Sepals (4 or)5 or 6(–8), white, spreading, narrowly obovate to narrowly oblong, 1–2.5 × 0.3–1 cm, abaxially velutinous or glabrous except for velutinous margin, adaxially glabrous, apex rounded to subtruncate. Stamens 6–9 mm, glabrous; anthers narrowly oblong, 2.6–3.2 mm, apex minutely apiculate. Ovaries pubescent. Style 5.5–8 mm, densely villous. Achenes obovate, 2.5–3.5 × 2–3 mm, pubescent; persistent style 1.5–3 cm, plumose. Fl. Jun–Aug, fr. Jul–Oct.

Slopes, grassy areas, dunes; 100–1300 m. E Gansu, Hebei, Heilongjiang, W Henan, N Hubei, N Jiangsu, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, E Shandong, Shanxi [Korea, Mongolia, Russia (E Siberia)].

1a. Sepals abaxially velutinous ... 63a. var. *hexapetala*

1b. Sepals abaxially glabrous except for velutinous margin 63b. var. *tchefouensis*

63a. *Clematis hexapetala* var. *hexapetala*

棉团铁线莲(原变种) mian tuan tie xian lian (yuan bian zhong)

Clematis angustifolia Jacquin; *C. angustifolia* var. *breviloba* Freyn; *C. angustifolia* var. *dissecta* Yabe; *C. angustifolia* var. *longiloba* Freyn; *C. hexapetala* var. *longiloba* (Freyn) S. Y. Hu; *C. hexapetala* var. *smithiana* S. Y. Hu.

Sepals abaxially velutinous.

Grassy areas, dry slopes, dunes; 100–1300 m. E Gansu, Hebei, Heilongjiang, W Henan, N Hubei, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shanxi [Korea, Mongolia, Russia (E Siberia)].

63b. *Clematis hexapetala* var. *tchefouensis* (Debeaux) S. Y. Hu, J. Arnold Arbor. 35: 193. 1954.

长冬草 chang dong cao

Clematis angustifolia Jacquin var. *tchefouensis* Debeaux, Acta Soc. Linn. Bordeaux 31: 117. 1876; *C. hexapetala* var. *elliptica* S. Y. Hu; *C. hexapetala* var. *insularis* S. Y. Hu.

Sepals abaxially glabrous except for velutinous margin.

• Grassy slopes; 100–500 m. N Jiangsu, E Shandong.

64. *Clematis fruticosa* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 5: 180. 1832.

灌木铁线莲 guan mu tie xian lian

Shrubs small, erect. Stems to 1 m; branches shallowly 4- or 5-grooved, puberulous, glabrescent. Leaves simple; petiole 0.3–1.2 cm; leaf blade lanceolate, oblong-lanceolate, or narrowly rhombic-ovate, undivided, with 1 lobule on each side near base, or pinnatifid, 1.5–4.5 × 0.5–2.2(–3) cm, leathery or subleathery, both surfaces subglabrous or sparsely or densely puberulous, base cuneate or broadly so, margin few dentate or entire; midvein abaxially slightly prominent, lateral basal veins inconspicuous. Cymes terminal, 1–5-flowered; peduncle 0.7–2 cm; bracts leaflike. Flowers 1.8–3.5 cm in diam.; pedicel 0.4–1.8 cm, puberulous. Sepals 4, yellow, ascending, elliptic-ovate or long elliptic, 1–2.4 × 0.5–1.2 cm, abaxially subglabrous or sparsely puberulous, adaxially glabrous, margin sometimes velutinous. Stamens 8–13 mm, glabrous; anthers narrowly oblong, 2.5–4 mm, apex obtuse. Ovaries pubescent; style 7–11 mm, densely villous. Achenes compressed, ovate or narrowly elliptic, 5–6 × 2.8–3.5 mm, pubescent; persistent style ca. 2.5 cm, plumose. Fl. Jul–Aug, fr. Oct.

Scrub, dry and grassy slopes, grasslands, sandy places, cliffs; 800–1800 m. SE Gansu, N Hebei, NC and SW Nei Mongol, SE and W Ningxia, N Shaanxi, Shanxi [Mongolia].

1a. Leaves pinnatifid 64c. var. *lobata*

1b. Leaves undivided or with 1 lobule on each side near base.

2a. Leaves undivided or with 1 lobule on each side near base, subglabrous or sparsely puberulous 64a. var. *fruticosa*

2b. Leaves undivided, densely puberulous 64b. var. *canescens*

64a. *Clematis fruticosa* var. *fruticosa*

灌木铁线莲(原变种) guan mu tie xian lian (yuan bian zhong)

Clematis fruticosa var. *viridis* Turczaninow.

Leaves undivided or with 1 lobule on each side near base, subglabrous or sparsely puberulous.

Scrub, grassy slopes, cliffs; 1000–1800 m. N Hebei, SW Nei Mongol, N Shaanxi, N Shanxi [Mongolia].

64b. *Clematis fruticosa* var. *canescens* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 5: 180. 1832.

毛灌木铁线莲 mao guan mu tie xian lian

Clematis canescens (Turczaninow) W. T. Wang & M. C. Chang.

Leaves undivided, densely puberulous.

Grasslands, sandy places. NC Nei Mongol [Mongolia].

64c. Clematis fruticosa var. **lobata** Maximowicz, Enum. Pl. Mong. 3. 1889.

浅裂铁线莲 qian lie tie xian lian

Clematis fruticosa f. *atriplexifolia* Kozlova; *C. fruticosa* f. *chenopodiifolia* Kozlova.

Leaves pinnatilobed.

• Dry slopes, cliffs; 800–1800 m. SE Gansu, NW Hebei, SW Nei Mongol, SE and W Ningxia, N Shaanxi, Shanxi.

65. Clematis nannophylla Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 23: 305. 1877.

小叶铁线莲 xiao ye tie xian lian

Shrubs small, erect. Stems 30–100 cm; branches shallowly 4- or 5-grooved, appressed puberulous. Leaves simple; petiole 1.5–4(–7) mm; leaf blade ovate or lanceolate in outline, pinnatipartite or pinnatisect, sometimes pinnatilobed, 0.5–5 × 0.3–3 cm, leathery, both surfaces sparsely puberulous or subglabrous, base cuneate or subtruncate; lobes in 1–3(or 4) pairs, undivided and linear or subrhombic and unequally 2- or 3-lobulate, 4–15 mm, apex acute; lobules (if present) ovate, triangular, or linear; midvein abaxially slightly prominent or flat, inconspicuous. Cymes terminal, 1–3(–7)-flowered; peduncle 1–2 cm; bracts leaflike. Flowers 1.2–2.2 cm in diam.; pedicel 0.5–1.3 cm, densely puberulous. Sepals 4, yellow, ascending, oblong or long elliptic, 0.8–1.6 × 0.4–0.85 cm, abaxially puberulous or glabrous, adaxially glabrous, margin narrowly winglike, velutinous on inner line, apex obtuse. Stamens 6–8 mm, glabrous; anthers narrowly oblong, 2.2–3 mm, apex obtuse or indistinctly minutely apiculate. Ovaries densely pubescent; style 5–7 mm, densely villous. Achenes compressed, elliptic, 3–4 × 2.2–2.5 mm, densely pubescent; persistent style ca. 2 cm, plumose. Fl. Jul–Aug, fr. Aug–Sep.

• Dry or gravelly slopes; 1200–3200 m. Gansu, SW Nei Mongol, Ningxia, Qinghai, Shaanxi.

1a. Leaf blade 0.5–1.4(–2) cm ... 65a. var. *nannophylla*
1b. Leaf blade 2.5–5 cm.

2a. Leaf blade 0.9–2 cm wide, lobes subrhombic, 3-lobulate, 7–11 mm, lobules ovate or triangular 65b. var. *pinnatisecta*

2b. Leaf blade 1.6–3 cm wide, lobes undivided and linear or 2- or 3-lobulate, 4–15 mm, lobules linear 65c. var. *foliosa*

65a. Clematis nannophylla var. **nannophylla**

小叶铁线莲(原变种) xiao ye tie xian lian (yuan bian zhong)

Clematis recta Linnaeus subsp. *nannophylla* (Maximowicz) Kuntze.

Leaf blade 0.5–1.4(–2) × 0.3–0.9(–1.4) cm.

• Dry slopes; 1200–3200 m. Gansu, SW Nei Mongol, Ningxia, Qinghai, Shaanxi.

65b. Clematis nannophylla var. **pinnatisecta** W. T. Wang & L. Q. Li, var. **nov.**

长小叶铁线莲 chang xiao ye tie xian lian

Type: China. Shaanxi: Huanglong Xian, Huanglong Shan, 10 Aug 1939, K. T. Fu 2122 (holotype, PE).

A var. *nannophylla lamina foliari majore 2.5–5 cm longa, lobis majoribus latioribusque subrhombicis saepe 3-lobulatis, differt.*

Leaf blade 2.5–5 × 0.9–2 cm; lobes subrhombic, often 3-lobulate, 7–11 mm; lobules ovate or triangular.

• Shaanxi (Huanglong Xian).

65c. Clematis nannophylla var. **foliosa** Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 5. 1890.

多叶铁线莲 duo ye tie xian lian

Leaf blade 2.5–4.5 × 1.6–3 cm; lobes undivided and linear or 2- or 3-lobulate, 4–15 mm; lobules (if present) linear.

• Dry or gravelly slopes; 1200–1700 m. S Gansu.

66. Clematis tomentella (Maximowicz) W. T. Wang & L. Q. Li, **comb. et stat. nov.**

灰叶铁线莲 hui ye tie xian lian

Basionym: *Clematis fruticosa* Turczaninow var. *tomentella* Maximowicz, Fl. Tangut. 2. 1889; *Clematis fruticosa* f. *lanceifolia* Kozlova.

Shrubs small, erect. Stems 0.6–1 m; branches shallowly 4–6-grooved, densely puberulous. Leaves simple; petiole 2–5 mm, or absent; leaf blade gray-green, linear-lanceolate, 1–4.5 × 0.2–0.8 cm, leathery, both surfaces densely appressed puberulous, base cuneate, margin entire or proximally 1- or 2-dentate or 1- or 2-lobulate, apex acute; midvein abaxially flat, lateral basal veins inconspicuous. Cymes terminal, (1–)3–10-flowered, sometimes paniclelike; peduncle 0.7–3 cm; bracts linear-lanceolate or linear, 0.4–1.5 cm. Flowers 1.3–2.2 cm in diam.; pedicel 0.5–1.8 cm, densely puberulous. Sepals 4, yellow, ascending, broadly lanceolate, long elliptic, or oblong, 0.9–1.6 × 0.35–0.8 cm, abaxially puberulous, adaxially glabrous or puberulous, margin narrowly winglike, velutinous on inner line, apex shortly cuspidate. Stamens 7–9 mm, glabrous; filaments linear; anthers narrowly oblong, 2–3 mm, apex obtuse. Ovaries densely pubescent; style 6–11 mm, densely villous. Achenes compressed, long elliptic or narrowly ovate, ca. 4.5 × 2 mm, densely pubescent; persistent style ca. 2 mm, plumose. Fl. Jun–Aug.

• Deserts, dry slopes, sand dunes; 1100–2200 m. NW Gansu, SW Nei Mongol, N Ningxia, N Shaanxi.

67. Clematis viridis (W. T. Wang & M. C. Chang) W. T. Wang, **comb. et stat. nov.**

绿叶铁线莲 lu ye tie xian lian

Basionym: *Clematis canescens* subsp. *viridis* W. T. Wang & M. C. Chang in W. T. Wang, Fl. Reipubl.

Popularis Sin. 28: 356. 1980; *Clematis canescens* var. *viridis* (W. T. Wang & M. C. Chang) W. T. Wang.

Shrubs small, erect. Stems 60–120 cm, many branched; branches 4–6-angulate, shallowly 4–6-grooved, glabrous; axillary branchlets 0.2–4 cm, puberulous. Leaves simple; petiole 1–4 mm; leaf blade lanceolate-linear or linear, 1.4–3.5(–4.5) × 0.2–0.6(–0.8) cm, papery, both surfaces subglabrous or abaxially puberulous on midvein and adaxially sparsely puberulous; midvein abaxially slightly prominent, lateral basal veins obscure. Flowers solitary and terminal on short, axillary branchlets, 2–3.5 cm in diam.; pedicel slender, 1.4–4 cm, puberulous. Sepals 4, yellow, ascending, ovate or subelliptic, 1.4–2.7 × 0.7–1.3 cm, abaxially sparsely puberulous, adaxially glabrous, margin narrowly winglike, velutinous on inner line, apex apiculate. Stamens 6–13 mm, glabrous; filaments linear; anthers oblong or narrowly so, 2.5–4 mm, apex obtuse or acute. Ovaries densely pubescent; style 6–9 mm, densely villous. Achenes compressed, elliptic or narrowly obovate, 4–6 × 2.5–3.5 mm, densely pubescent; persistent style (2–)3–3.5 cm, plumose. Fl. Jun–Aug.

• Scrub in valleys, dry slopes, sand banks of rivers; 2700–3600 m. NW Sichuan, E Xizang.

68. *Clematis tangutica* (Maximowicz) Korshinsky, Izv. Imp. Akad. Nauk. 9: 399. 1898.

甘青铁线莲 gan qing tie xian lian

Vines woody, sometimes dwarf, erect shrublets when growing in dry, sandy, or gravelly regions. Branches shallowly 6–8-grooved, puberulous, glabrescent. Leaves 1- or 2-pinnate; petiole 2–6 cm; leaflet blades rhombic-ovate to narrowly ovate, 1–6 × 0.5–2.8 cm, papery, often 3-lobed near base or undivided, both surfaces sparsely puberulous on veins, base broadly cuneate, rounded, or subcordate, margin denticulate, apex acute to ± obtuse; basal veins abaxially flat. Flowers solitary, terminal, or sometimes also in axillary 1–3-flowered cymes, 2–6 cm in diam.; peduncle 0.3–3 cm; bracts short petiolate, similar to leaflets. Pedicel 3.5–16.5 cm, sericeous-puberulous to subglabrous. Sepals 4, yellow, sometimes tinged purple, ascending, narrowly ovate, lanceolate, or oblong, 1.5–4 × 0.6–1.4 cm, abaxially sparsely puberulous, adaxially glabrous or rarely puberulous, margin abaxially velutinous, apex cuspidate, acuminate, or acute. Stamens 5–11 mm; filaments puberulous; anthers narrowly oblong, 2–3 mm, glabrous, apex obscurely apiculate to subobtuse. Ovaries puberulous. Style 0.9–1.5 cm, densely villous. Achenes rhombic-obovate, ca. 4.5 × 2.2 mm, puberulous; persistent style to 5 cm, plumose. Fl. Jun–Sep, fr. Sep–Oct.

Forests, slopes, scrub, grassy areas, along river banks or streams; 300–4900 m. Gansu, Qinghai, S Shaanxi, W Sichuan, Xinjiang, Xizang [Kazakhstan].

1a. Sepals adaxially densely puberulous 68c. var. *pubescens*

1b. Sepals adaxially glabrous.

2a. Sepal apices ± cuspidate ... 68a. var. *tangutica*

2b. Sepal apices ± acute 68b. var. *obtusiuscula*

68a. *Clematis tangutica* var. *tangutica*

甘青铁线莲(原变种) gan qing tie xian lian (yuan bian zhong)

Clematis orientalis Linnaeus var. *tangutica* Maximowicz, Fl. Tangut. 3. 1889; *C. chrysantha* Ulbrich.

Sepals adaxially glabrous, apex ± cuspidate.

Scrub, grassy areas, gravelly river banks; 1300–4900 m. Gansu, Qinghai, S Shaanxi, W Sichuan, Xinjiang, Xizang [Kazakhstan].

68b. *Clematis tangutica* var. *obtusiuscula* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 343. 1913.

钝萼甘青铁线莲 dun e gan qing tie xian lian

Sepals adaxially glabrous, apex ± acute.

• Scrub, gravelly area along streams; 3000–4000 m. SW Gansu, S Qinghai, W Sichuan, E Xizang.

68c. *Clematis tangutica* var. *pubescens* M. C. Chang & P. P. Ling in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 356. 1980.

毛萼甘青铁线莲 mao e gan qing tie xian lian

Sepals adaxially densely puberulous, apex acute to short cuspidate.

• Forests, slopes, along rivers; 300–3600 m. SW Gansu, E Qinghai, W Sichuan, E Xizang.

69. *Clematis tibetana* Kuntze, Verh. Bot. Vereins Prov. Brandenburg. 26: 172. 1885.

中印铁线莲 zhong yin tie xian lian

Vines woody. Branches shallowly 8–10-grooved, sparsely puberulous, glabrescent. Leaves usually 2-pinnate, sometimes 1-pinnate; petiole 1.2–6 cm; leaflet blades broadly lanceolate, narrowly ovate, ovate, or elliptic, 1–4.2 × 0.5–2.4 cm, papery, often 2- or 3-lobed near base or undivided, abaxially appressed puberulous, adaxially glabrous or sparsely appressed puberulous, base broadly cuneate to rounded, margin usually entire or sometimes to 2-denticulate; basal veins abaxially nearly flat; terminal lobes largest, lanceolate to narrowly ovate. Flowers solitary and terminal or in axillary 1–3-flowered cymes, 2–4.5 cm in diam.; peduncle 1–4 cm; bracts foliaceous. Pedicel 2–13.5 cm, puberulous or glabrous. Sepals 4, yellow, yellow-brown, or brown-purple, ascending, broadly ovate, ovate, oblong, or lanceolate, 1.5–2.8 × 0.6–1.7 cm, abaxially glabrous or sparsely puberulous, adaxially appressed puberulous, apex acute, caudate-acuminate, or acuminate. Stamens 5–11 mm; filaments puberulous; anthers narrowly oblong to oblong, 1.6–4 mm, glabrous, apex obtuse or minutely apiculate. Ovaries pubescent. Style 0.6–1.5 cm, densely villous. Fl. May–Jul.

Slopes, scrub, grassy areas, gravelly river banks; 2200–4800 m. SW Sichuan, Xizang [N India, W Nepal].

1a. Sepals narrowly ovate to lanceolate, papery, apex caudate-acuminate to

- acuminate; anthers oblong, 1.6–2 mm, apex minutely apiculate 69a. var. *tibetana*
- 1b. Sepals broadly ovate, ovate, or oblong, leathery, apex acute to short acuminate; anthers narrowly oblong to oblong, 2.4–4 mm, apex obtuse.
- 2a. Leaflet terminal lobes lanceolate to narrowly ovate 69b. var. *vernayi*
- 2b. Leaflet terminal lobes lanceolate-linear to linear 69c. var. *lineariloba*

69a. *Clematis tibetana* var. *tibetana*

中印铁线莲(原变种) *zhong yin tie xian lian* (*yuan bian zhong*)

Sepals narrowly ovate to lanceolate, 2–2.8 × 0.6–1.1 cm, papery, abaxially glabrous, apex caudate-acuminate to acuminate. Anthers oblong, 1.6–2 mm, apex minutely apiculate.

W Xizang (Gè'gyai Xian) [N India].

69b. *Clematis tibetana* var. *vernayi* (C. E. C. Fischer) W. T. Wang, *Acta Phytotax. Sin.* 36: 164. 1998.

厚萼中印铁线莲 *hou e zhong yin tie xian lian*

Clematis vernayi C. E. C. Fischer, *Bull. Misc. Inform. Kew* 1937: 95. 1937; *C. tibetana* Kuntze subsp. *vernayi* (C. E. C. Fischer) Grey-Wilson.

Leaflet terminal lobes lanceolate to narrowly ovate. Sepals broadly ovate, ovate, or oblong, 1.5–2.7 × 0.8–1.7 cm, leathery, abaxially glabrous or sparsely puberulous, apex acute to short acuminate. Anthers narrowly oblong to oblong, 2.4–3.5 mm, apex obtuse.

Slopes, scrub, grassy areas, gravelly river banks; 2200–4800 m. E to S Xizang [W Nepal].

69c. *Clematis tibetana* var. *lineariloba* W. T. Wang, *Acta Phytotax. Sin.* 36: 164. 1998.

狭裂中印铁线莲 *xia lie zhong yin tie xian lian*

Leaflet terminal lobes lanceolate-linear to linear. Sepals ovate to oblong, 2–2.4 × 0.8–1.2 cm, leathery, abaxially glabrous or puberulous, apex acute. Anthers narrowly oblong, 3–4 mm, apex obtuse.

• Scrub, grassy slopes; 3000–4600 m. SW Sichuan, E to S Xizang.

70. *Clematis pamiralaica* Grey-Wilson, *Bull. Misc. Inform. Kew* 44: 54. 1989.

帕米尔铁线莲 *pa mi er tie xian lian*

Shrublets dwarf, 15–45 cm tall. Branches indistinctly 6-angulate, flat or shallowly 6-grooved, puberulous or glabrous. Leaves ternate or pinnate, sometimes simple; petiole 1–2 cm, appressed puberulous; leaflet blades narrowly ovate to broadly ovate, 1–2 × 0.5–2 cm, leathery, usually 2- or 3-lobed or parted basally from middle, both surfaces sparsely puberulous, base subcordate to broadly cuneate, margin entire or to 2-denticulate; basal veins abaxially flat or ± prominent; terminal lobe largest, lanceolate to narrowly ovate.

Flowers solitary, terminal, slightly nodding, 2.5–3.5 cm in diam. Pedicel 9–12.5 cm, puberulous. Sepals 4, yellow, ascending, papery, narrowly ovate, oblong-

ovate, or oblong, 1.7–2.8 × 0.7–1.2 cm, abaxially sparsely puberulous, adaxially ± densely puberulous, margin abaxially velutinous, apex acute. Stamens 7.5–10 mm; filaments margin puberulous; anthers narrowly oblong, 2.5–3 mm, glabrous, apex minutely apiculate. Ovaries pubescent. Style ca. 1 cm, densely villous. Fl. Jun–Jul.

Grassy areas on slopes, rocky cliffs; 3300–4300 m. SW Xinjiang [Tajikistan].

71. *Clematis caudigera* W. T. Wang, *Acta Phytotax. Sin.* 36: 165. 1998.

尾尖铁线莲 *wei jian tie xian lian*

Vines woody. Branches 4-grooved, glabrous. Leaves pinnate, 5-foliolate; petiole 2.2–4.5 cm, sparsely puberulous; leaflet blades triangular, 0.8–2 × 0.4–1.6 cm, thick papery to leathery, unequally 2-lobed, 3-parted, or 3-sect, abaxially sparsely appressed puberulous, adaxially glabrous, base cordate-truncate to subcordate, margin 1- or 2-denticulate on each side or rarely entire; basal veins nearly flat and inconspicuous; terminal lobe largest, narrowly rhombic-lanceolate to linear-lanceolate, 1–6 mm wide; lateral lobes smaller and obliquely cuneate. Flowers solitary, terminal, 3.5–6 cm in diam. Pedicel 9–21.5 cm, glabrous or very sparsely puberulous. Sepals 4, yellow, ascending, oblong-lanceolate, 2.3–4.2 × 0.8–1.1 cm, abaxially glabrous except for velutinous margin, adaxially densely appressed puberulous, apex attenuate into a 3–6 mm tail-like projection. Stamens 0.8–1.2 cm; filaments pilose near margin; anthers oblong to narrowly oblong, 2.4–3 mm, glabrous, apex obtuse. Ovaries pubescent. Style 1.1–1.3 cm, densely villous. Fl. Jun–Jul.

• Slopes in valleys; 3000–3700 m. S Xinjiang (Yutian Xian).

72. *Clematis corniculata* W. T. Wang, *Acta Phytotax. Sin.* 29: 466. 1991.

角萼铁线莲 *jiao e tie xian lian*

Vines woody. Branches shallowly 6-grooved, glabrous. Leaves 2-pinnate, glabrous; petiole ca. 7 cm; leaflet blades lanceolate, narrowly ovate, or narrowly lanceolate, 1.5–3 × 0.3–0.8 cm, leathery, undivided or 3-lobed or parted, base broadly cuneate to cuneate, margin usually entire or sometimes 1-denticulate; midvein abaxially ± prominent; central lobe larger, linear-lanceolate, 1.5–2.6 × 0.2–0.4 cm; lateral lobes narrowly ovate, 3–10 mm. Flowers solitary, terminal, ca. 4 cm in diam. Pedicel 14–20 cm, glabrous. Sepals 4, yellow, ascending, oblong, 2.3–2.6 × 0.7–0.9 cm, abaxially glabrous except for velutinous margin, adaxially glabrous, apex acute and abaxially with a ca. 2.5 mm projection. Stamens 8–9 mm; filaments pubescent; anthers oblong, ca. 2 mm, glabrous, apex minutely apiculate. Ovaries pubescent. Style ca. 1 cm, densely villous. Fl. Aug–Sep.

• Grassy slopes; 2800–2900 m. SW Xinjiang (Qira Xian, Yecheng Xian).

73. *Clematis zandaensis* W. T. Wang, *Acta Phytotax. Sin.* 36: 165. 1998.

扎达铁线莲 zha da tie xian lian

Vines woody. Branches shallowly 4–8-grooved, glabrous. Leaves 1- or 2-pinnate; petiole 3–5.5 cm; leaflet blades ovate to broadly ovate, 1.8–5 × 1.8–4 cm, papery, 2- or 3-lobed or parted, abaxially sparsely puberulous on basal veins and slightly glaucous, adaxially glabrous, base subcordate, rounded, or broadly cuneate, margin irregularly dentate; basal veins abaxially ± prominent; larger lobes ovate-oblong or with a lanceolate terminal lobe. Cymes axillary, 1–3-flowered; peduncle 4–9.5 cm, glabrous; bracts short petiolate, ternate. Flowers 1.4–2 cm in diam. Pedicel 1.5–4 cm, glabrous. Sepals 4, yellow, ascending, papery, ovate, 9–17 × 5–8 mm, abaxially glabrous except for velutinous margin, adaxially appressed puberulous, apex acute. Stamens 3.5–10 mm; filaments puberulous; anthers narrowly oblong, 1.4–3 mm, glabrous, apex obtuse. Ovaries pubescent. Style 7–10 mm, densely villous. Fl. Jun–Jul.

• Forests, slopes, along rivers; ca. 3500 m. W Xizang (Zanda Xian).

This species was misidentified in FRPS 28: 144. 1980 as *Clematis graveolens* Lindley.

74. *Clematis serratifolia* Rehder, Mitt. Deutsch. Dendrol. Ges. 1910: 248. 1910.

齿叶铁线莲 chi ye tie xian lian

Clematis intricata Bunge var. *serrata* (Maximowicz) Komarov; *C. intricata* var. *wilfordii* (Maximowicz) Komarov; *C. orientalis* Linnaeus var. *serrata* Maximowicz; *C. orientalis* var. *wilfordii* Maximowicz; *C. serrata* (Maximowicz) Komarov; *C. wilfordii* (Maximowicz) Komarov.

Vines woody. Branches shallowly 6–8-grooved, sparsely puberulous or glabrous. Leaves 2-ternate; petiole 3–7.5 cm; leaflet blades lanceolate, narrowly ovate, or ovate, 3–6(–8) × 1–2.5(–3) cm, papery, both surfaces sparsely puberulous, glabrescent, base broadly cuneate to rounded, margin irregularly serrate or denticulate, apex attenuate; basal veins abaxially nearly flat. Cymes axillary, 1–3-flowered; peduncle 0.5–1.5 cm; bracts petiolate or sessile, lanceolate to linear, 4–15 mm. Flowers 2–3.5 cm in diam. Pedicel 3–7 cm, sparsely puberulous. Sepals 4, yellow, ascending, oblong, elliptic-lanceolate, or narrowly ovate, 1.5–2.5 × 0.5–0.8 cm, abaxially glabrous except for velutinous margin, adaxially appressed puberulous, apex caudate-apiculate. Stamens 0.8–1.2 cm; filaments puberulous; anthers narrowly oblong, 1.2–2.6 mm, glabrous, apex minutely apiculate. Ovaries pubescent. Style 7–9 mm, densely villous. Achenes elliptic, ca. 3 × 2 mm, pubescent; persistent style ca. 3 cm, plumose. Fl. Aug, fr. Sep–Oct.

Dry forests, slopes, gravelly river banks; ca. 400 m. E Jilin, Liaoning [N Japan, Korea, Russia (Far East)].

75. *Clematis akebioides* (Maximowicz) Veitch, Hardy Pl. W. China 9. 1912.

甘川铁线莲 gan chuan tie xian lian

Clematis orientalis Linnaeus var. *akebioides* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 6. 1890; *C. glauca* Willdenow var. *akebioides* (Maximowicz) Rehder & E. H. Wilson.

Vines woody. Branches shallowly 6–10-grooved, sparsely puberulous to subglabrous. Leaves 1- or 2-pinnate; petiole 3–7.8 cm; leaflet blades ovate, elliptic, or oblong, 1.2–4 × 0.6–3 cm, thin papery to herbaceous, undivided or 3-lobed, abaxially sparsely puberulous on veins or glabrous, glaucous, adaxially glabrous, base broadly cuneate to rounded, margin crenate, apex obtuse, rounded, or ± acute; basal veins abaxially flat. Cymes axillary, 1–3-flowered; peduncle 0.2–2.4(–3.5) cm; bracts similar to leaflets, 1–1.5 cm, undivided or 3-lobed. Flowers 2–3.4 cm in diam. Pedicel 2.5–7 cm, sparsely puberulous to subglabrous. Sepals 4, yellow, greenish yellow, or sometimes tinged purple, narrowly ovate to ovate-oblong, 1.6–2.7 × 0.6–1.1 cm, abaxially glabrous except for velutinous margin, adaxially glabrous, apex sharp apiculate. Stamens 7–12 mm; filaments puberulous; anthers narrowly oblong to oblong, 2–3 mm, glabrous, apex obtuse or minutely apiculate. Ovaries pubescent. Style 7–12 mm, densely villous. Achenes obovate to elliptic, ca. 3 × 1.8 mm, pubescent; persistent style ca. 3 cm, plumose. Fl. Jul–Sep, fr. Sep–Oct.

• Scrub, grassy slopes, along streams; 1200–3600 m. Gansu, W Nei Mongol, Qinghai, W Sichuan, E to SE Xizang, NW Yunnan.

76. *Clematis glauca* Willdenow, Berlin Baumz. 65. 1796.

粉绿铁线莲 fen lu tie xian lian

Clematis orientalis Linnaeus var. *glauca* Maximowicz.

Vines suffruticose. Branches shallowly 4–8-grooved, sparsely puberulous to subglabrous. Leaves 1- or 2-pinnate; petiole 2.5–8.5 cm; leaflet blades narrowly elliptic, oblong, or ovate, 1.5–5 × 1–1.8 cm, papery, undivided or 3-lobed, both surfaces glabrous, abaxially sometimes very sparsely puberulous on basal veins, glabrescent, glaucous, base rounded to broadly cuneate, margin entire or to 2-dentate, apex obtuse to ± acute and mucronate; basal veins abaxially nearly flat, inconspicuous. Cymes axillary, (1–)3-flowered to rarely many flowered; peduncle 2–4.5(–8) cm; bracts narrowly oblong, lanceolate, or ovate, 0.4–2(–5) cm, undivided or 3-lobed. Flowers 1.6–3 cm in diam. Pedicel 2–7 cm, sparsely puberulous. Sepals 4, yellow, ascending, narrowly ovate to lanceolate, 1.3–2 × 0.4–0.8 cm, abaxially glabrous except for velutinous margin, adaxially glabrous or apically puberulous, apex acute. Stamens 7–9 mm; filaments puberulous; anthers narrowly oblong to linear, 2.2–4 mm, glabrous, apex obtuse. Ovaries puberulous. Style 6–10 mm, densely villous. Achenes narrowly ovate to obovate, ca. 3 × 1.6 mm, puberulous; persistent style to 5 cm, plumose. Fl. Jun–Aug, fr. Aug–Oct.

Slopes, scrub; 1000–2600 m. Gansu, E Qinghai, Shaanxi, Shanxi, Xinjiang [Kazakhstan, Mongolia, Russia (Siberia)].

77. *Clematis intricata* Bunge, Mém. Acad. Imp. Sci. St.-Pétersbourg Divers Savans 2: 75. 1833.

黄花铁线莲 *huang hua tie xian lian*

Vines woody. Branches shallowly 6–8-grooved, sparsely puberulous to subglabrous. Leaves mostly 2-pinnate, sometimes 1-pinnate; petiole 1.6–5.5 cm; leaflet blades lanceolate to linear-lanceolate when undivided or ovate when 2- or 3-parted, 1–4 × 0.2–2 cm, papery, both surfaces very sparsely puberulous, glabrescent, base cuneate, margin entire or to 2-denticulate, apex attenuate; midvein flat. Cymes axillary, (1–)3(–5)-flowered; peduncle 0.1–3 cm; bracts petiolate, lanceolate, undivided or 3-lobed. Flowers 2–4 cm in diam. Pedicel 2–3.8 cm, sparsely puberulous to subglabrous. Sepals 4, yellow, rarely purple, ascending, narrowly ovate to suboblong, 1.2–2.3(–2.5) × 0.5–0.8(–1) cm, abaxially glabrous or occasionally apically very sparsely puberulous, adaxially glabrous, margin abaxially velutinous, apex acuminate. Stamens 5–9.5 mm; filaments puberulous; anthers narrowly oblong to linear, 2.5–4 mm, glabrous, apex obtuse. Ovaries puberulous. Style 8–10 mm, densely villous. Achenes elliptic to rhombic-obovate, 2.5–3.2 × 2–2.5 mm, puberulous; persistent style 2.5–4 cm, plumose. Fl. Jun–Jul, fr. Aug–Sep.

Forests, slopes, scrub; 400–2600 m. Gansu, Hebei, Liaoning, Nei Mongol, E Qinghai, N Shaanxi, Shanxi [S Mongolia].

1a. Sepals yellow, 1.2–2.3 × 0.5–0.8 cm *77a. var. intricata*

1b. Sepals purple, ca. 2.5 × 1 cm *77b. var. purpurea*

77a. *Clematis intricata* var. *intricata*

黄花铁线莲(原变种) *huang hua tie xian lian* (*yuan bian zhong*)

Clematis glauca Willdenow var. *angustifolia* Ledebour; *C. orientalis* Linnaeus var. *intricata* (Bunge) Maximowicz.

Sepals yellow, 1.2–2.3 × 0.5–0.8 cm.

Slopes, scrub. Gansu, Hebei, Liaoning, S Nei Mongol, E Qinghai, N Shaanxi, Shanxi [S Mongolia].

77b. *Clematis intricata* var. *purpurea* Y. Z. Zhao, Fl. Intramongolica 2: 369. 1979.

紫萼铁线莲 *zi e tie xian lian*

Sepals purple, ca. 2.5 × 1 cm.

• Forests. Nei Mongol.

78. *Clematis orientalis* Linnaeus, Sp. Pl. 1: 543. 1753.

东方铁线莲 *dong fang tie xian lian*

Vines suffruticose. Branches flat or shallowly 6–10-grooved, glabrous or sparsely puberulous. Leaves 1- or 2-pinnate; petiole 2.5–5.5 cm; leaflet blades ovate-lanceolate, narrowly ovate, or linear-lanceolate, 1.2–4.5 × 0.5–1.6 cm, papery, undivided or 3-lobed near base,

both surfaces glaucous, glabrous or rarely abaxially appressed puberulous, base rounded to broadly cuneate, margin usually entire or sometimes to 2-denticulate, apex acute; basal veins abaxially nearly flat and inconspicuous; terminal lobes larger, lanceolate to linear-lanceolate. Cymes axillary, 3–15-flowered; peduncle 1.5–4.5 cm; bracts petiolate, lanceolate, 0.8–2 cm. Flowers 1.8–3 cm in diam. Pedicel 1.4–5.5(–7.6) cm, glabrous or rarely puberulous. Sepals 4, yellowish, ascending, lanceolate to elliptic, 1.2–2 × 0.3–0.6 cm, abaxially glabrous or puberulous, adaxially puberulous, margin abaxially velutinous, apex acute. Stamens 6–10 mm; filaments sparsely puberulous; anthers narrowly oblong to linear, 2.2–3.5 mm, glabrous, apex obtuse. Ovaries puberulous. Style 8–10 mm, densely villous. Achenes narrowly ovate, oblong, or narrowly obovate, 3–3.5 × 1.2–2 mm, puberulous; persistent style 2.5–4 cm, plumose. Fl. Jun–Aug, fr. Aug–Sep.

Slopes, along streams; 400–3800 m. NW Gansu, Xinjiang [Afghanistan, NW India, Kazakhstan, Kyrgyzstan, N Pakistan, Russia, Tajikistan; W and SW Asia].

1a. Pedicel 1.4–5.5 cm, ca. 1 mm in diam.

..... *78a. var. orientalis*

1b. Pedicel 3.7–7.6 cm, 1–2 mm in diam.

..... *78b. var. sinorobusta*

78a. *Clematis orientalis* var. *orientalis*

东方铁线莲(原变种) *dong fang tie xian lian* (*yuan bian zhong*)

Meclatis orientalis (Linnaeus) Spach.

Pedicel 1.4–5.5 cm, ca. 1 mm in diam. Fl. Jun–Jul, fr. Aug–Sep.

Slopes, along streams; 400–2000 m. NW Gansu, Xinjiang [Afghanistan, NW India, Kazakhstan, Kyrgyzstan, N Pakistan, Russia, Tajikistan; W Asia].

78b. *Clematis orientalis* var. *sinorobusta* W. T. Wang, Acta Phytotax. Sin. 36: 167. 1998.

粗梗东方铁线莲 *cu geng dong fang tie xian lian*
Clematis orientalis var. *robusta* W. T. Wang, Acta Phytotax. Sin. 29: 466. 1991, not Grey-Wilson (1989).

Pedicel 3.7–7.6 cm, 1–2 mm in diam. Fl. Aug, fr. Sep.

• Slopes; ca. 3800 m. SW Xinjiang (Yecheng Xian).

79. *Clematis smilacifolia* Wallich, Asiat. Res. 13: 402. 1820.

菝葜叶铁线莲 *ba qia ye tie xian lian*

Vines woody. Branches shallowly 8–20-grooved, glabrous. Leaves simple; petiole 3.5–6 cm; leaf blade ovate to deltoid-ovate, 8–16.5 × 6.5–11 cm, leathery, both surfaces glabrous, obscurely reticulate, base cordate to subcordate and sometimes slightly to conspicuously peltate, margin entire, apex ± obtuse to acute; basal veins 5–7, abaxially ± prominent. Cymes paniclelike, axillary, laxly flowered; peduncle 1–11 cm, sparsely puberulous; bracts small, linear. Flowers 3–3.6 cm in diam. Pedicel 4–7 cm, densely puberulous. Sepals 4 or 5, blue-purple, lanceolate-oblong, 1.6–1.8 × 0.5–0.7 cm, abaxially reddish brown velutinous,

adaxially glabrous, margin often revolute, apex ± obtuse. Stamens 0.8–1.4 cm, glabrous; anthers narrowly oblong, 2.5–3 mm, apex with a conspicuous 1–2 mm apicula. Ovaries pubescent. Style ca. 6 mm, densely villous. Achenes narrowly ovate, ca. 6 × 2 mm, puberulous; persistent style 5–8 cm, plumose. Fl. Nov–Dec, fr. Dec–Jan.

Forests, forest margins, scrub; 900–2300 m. W Guangxi, W Guizhou, Hainan, SE Xizang, S Yunnan [Bangladesh, Bhutan, Cambodia, India, Indonesia, Malaysia, Myanmar, W Nepal, N New Guinea, Philippines, Sikkim, Sri Lanka, Thailand, Vietnam].

This species was misidentified in FRPS 28: 228. 1980 as *Clematis loureiroana*.

- 1a. Leaf blade base cordate to subcordate, sometimes ± peltate 79a. var. *smilacifolia*
- 1b. Leaf blade base conspicuously peltate 79b. var. *peltata*

79a. *Clematis smilacifolia* var. *smilacifolia*

菝葜叶铁线莲(原变种) ba qia ye tie xian lian (yuan bian zhong)

Leaf blade base cordate to subcordate, sometimes ± peltate.

Forests, scrub; 900–2300 m. W Guangxi, W Guizhou, Hainan, SE Xizang, S Yunnan [Bangladesh, Bhutan, Cambodia, India, Indonesia, Malaysia, Myanmar, W Nepal, N New Guinea, Philippines, Sikkim, Sri Lanka, Thailand, Vietnam].

79b. *Clematis smilacifolia* var. *peltata* (W. T. Wang) W. T. Wang, Acta Phytotax. Sin. 38: 415. 2000.

盾叶铁线莲 dun ye tie xian lian

Clematis loureiroana de Candolle var. *peltata* W. T. Wang, Acta Phytotax. Sin. 6: 220. 1957.

Leaf blade base conspicuously peltate; petiole insertion 2–15 mm from leaf base.

Forests, forest margins; 1200–1600 m. W Guangxi, SE Yunnan [N Vietnam].

80. *Clematis metuoensis* M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 359. 1980.

墨脱铁线莲 mo tuo tie xian lian

Vines woody. Branches nearly smooth to indistinctly 10-grooved, glabrous. Leaves simple, glabrous; petiole 4–7 cm; leaf blade ovate to broadly ovate, 7–14.5 × 4–12.6 cm, leathery to papery, abaxially reticulate, base rounded to subcordate and inconspicuously peltate, margin entire, apex acuminate; basal veins abaxially prominent. Cymes axillary, often racemelike, 3–7-flowered; peduncle 0.5–5.5 cm, glabrous; bracts subulate, ca. 4 mm, sparsely pilose. Flowers 2.5–3 cm in diam. Pedicel 2–3 cm, glabrous. Sepals 4, yellow, spreading, linear-lanceolate to oblong-lanceolate, 10–15 × 3–5 mm, abaxially brown velutinous, adaxially glabrous, margin white velutinous, apex attenuate.

Stamens ± as long as sepals, glabrous; anthers narrowly oblong, ca. 2.2 mm, apex with a ca. 1.5 mm apicula.

Ovaries pubescent. Style ca. 6 mm, densely villous. Achenes narrowly ovate, 2–3 × 1.5 mm, pubescent; persistent style to 4.5 cm, plumose. Fl. Aug, fr. Aug–Sep.

• Mixed forests; ca. 800 m. SE Xizang (Mêdog Xian).

81. *Clematis fulvicoma* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 327. 1913.

滇南铁线莲 dian nan tie xian lian

Vines woody. Stems 4–5 m; branches shallowly 10–14-grooved, glabrescent. Leaves simple; petiole 6–11 cm; leaf blade ovate-orbicular, cordate, or ovate, 10–17 × 9–14.5 cm, subleathery, both surfaces glabrous and conspicuously reticulate, base broadly cuneate, rounded, or subcordate, margin entire, apex acuminate; basal veins 5–7, prominent. Cymes paniculate; peduncle densely reddish brown puberulous; bracts subulate, ca. 5 mm. Flowers ca. 4.5 cm in diam. Pedicel 2–3 cm, densely reddish brown puberulous. Sepals 6, spreading to revolute, oblanceolate-linear, ca. 2.4 × 0.5 cm, abaxially reddish brown velutinous, adaxially brown velutinous, apex obtuse. Stamens 0.9–1.4 cm, glabrous; anthers narrowly oblong, 2–3 mm, apex with a ligulate ca. 1.5 mm apicula. Ovaries pubescent. Style ca. 6 mm, densely villous. Achenes rhombic-elliptic, 6–7 × ca. 3 mm, pubescent; persistent style 4–5 cm, yellowish plumose. Fl. Oct–Dec, fr. Jan–Feb.

Forests, scrub, along streams; 1000–1600 m. S Yunnan [India, Laos, Myanmar, N Thailand, Vietnam].

82. *Clematis crassipes* Chun & F. C. How, Acta Phytotax. Sin. 7: 3. 1958.

粗柄铁线莲 cu bing tie xian lian

Vines woody. Branches shallowly 8-grooved, glabrous. Leaves ternate, glabrous; petiole 3–8 cm; leaflet blades oblong-ovate to ovate, 7–10 × 3.5–9 cm, leathery, base truncate to rounded, margin entire or remote crenulate, apex acute to acuminate; basal veins abaxially prominent. Cymes axillary, 3–10-flowered; peduncle 1.5–2.5 cm, densely rusty puberulous or glabrous; bracts subulate, ca. 1.5 mm. Flowers ca. 6 cm in diam. Pedicel 4–10 cm, densely rusty puberulous or glabrous. Sepals 4 or 6, purple, spreading, oblong-ovate, ca. 3 × 1.5 cm, abaxially puberulous, adaxially glabrous, margin abaxially velutinous, apex ± obtuse. Stamens 1.2–1.3 cm, glabrous; anthers linear, ca. 7 mm, apex with a 1–5 mm apicula. Ovaries pubescent. Style ca. 1 cm, densely villous. Achenes narrowly rhombic, ca. 6 × 3 mm, pubescent; persistent style ca. 5 cm, plumose. Fl. May, fr. Jul.

• Dense forests in valleys, scrub on slopes; 400–500 m. S Guangxi, Hainan.

- 1a. Peduncles and pedicels glabrous; sepals 6 82a. var. *crassipes*
- 1b. Peduncles and pedicels densely rusty puberulous; sepals 4 82b. var. *pubipes*

82a. *Clematis crassipes* var. *crassipes*

粗柄铁线莲(原变种) cu bing tie xian lian (yuan bian zhong)

Peduncles and pedicels glabrous. Sepals 6.

• Scrub on slopes. SW Guangxi, Hainan.

82b. Clematis crassipes var. **pubipes** W. T. Wang, Acta Bot. Yunnan. 4: 135. 1982.

毛序粗柄铁线莲 mao xu cu bing tie xian lian

Clematis pubipes (W. T. Wang) W. T. Wang.

Peduncles and pedicels densely rusty puberulous. Sepals 4.

• Dense forests in valleys; 400–500 m. S Guangxi (Shangsi Xian), Hainan (Luodong Xian).

83. Clematis menglaensis M. C. Chang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 360. 1980.

勐腊铁线莲 meng la tie xian lian

Vines woody. Branches shallowly 14-grooved, glabrous. Leaves 1- or 2-pinnate or 2-ternate, glabrous; petiole 6–10.5 cm; leaflet blades ovate to oblong-ovate, 2.5–7 × 1.2–4 cm, papery, base rounded, truncate, or subcordate, margin entire, apex acute to short acuminate; basal veins nearly flat. Cymes axillary, 7–14-flowered, often paniclelike, glabrous; peduncle 4–7.5 cm; bracts subulate, ca. 2 mm. Flowers 2–2.5 cm in diam. Pedicel 1.2–2 cm, glabrous. Sepals 4, white, spreading, oblong to obovate-oblong, ca. 8 × 4 mm, abaxially sparsely puberulous, adaxially glabrous, margin abaxially velutinous, apex acute. Stamens 6–7 mm, glabrous; anthers oblong, ca. 2 mm, apex with a conspicuous ca. 0.4 mm apicula. Ovaries glabrous. Style ca. 5 mm, densely villous. Fl. Oct–Nov.

Sparse forests, scrub; 800–1100 m. S Yunnan (Mengla Xian, Pingbian Miao Zu Zizhixian) [N Thailand].

84. Clematis pianmaensis W. T. Wang, Acta Bot. Yunnan. 6: 380. 1984.

片马铁线莲 pian ma tie xian lian

Vines woody. Branches shallowly 10-grooved, glabrous. Leaves pinnate, 5-foliolate, glabrous; petiole 4–8 cm; leaflet blades narrowly ovate to narrowly elliptic, 3–7.8 × 1.4–3.2 cm, papery, base broadly cuneate to rarely rounded, margin entire, apex acuminate to acute; basal veins flat. Cymes axillary or terminal, sparsely 5–9-flowered; peduncle ca. 10 cm, glabrous; bracts pinnate or simple. Flowers ca. 6 cm in diam. Pedicel 6.5–9 cm, glabrous. Sepals 4, yellow, spreading, lanceolate-oblong, 2.7–3.5 × 0.8–1 cm, abaxially densely yellowish velutinous, adaxially glabrous, apex ± acute. Stamens 1.1–2 cm, glabrous; anthers narrowly oblong, 1.6–2 mm, apex with a distinct, narrowly linear apicula 2.2–2.8 mm. Ovaries pubescent apically. Style 0.7–1.4 cm, densely villous. Fl. Sep.

• About 2200 m. NW Yunnan (Lushui Xian).

85. Clematis fengii W. T. Wang, Acta Phytotax. Sin. 38: 418. 2000.

国楣铁线莲 guo mei tie xian lian

Vines woody. Branches fistulose, shallowly 10–18-grooved, densely furfuraceous at nodes, elsewhere glabrous. Leaves pinnate, 7-foliolate; petiole ca. 7 cm, glabrous, base with stipulelike projections ca. 8 mm and abaxially densely furfuraceous; leaflet blades ovate, 4–6 × 2.2–4 cm, papery, both surfaces glabrous, base rounded, margin entire, apex acuminate; basal veins 5,

abaxially nearly flat, adaxially inconspicuous. Cymes axillary, 3-flowered; peduncle 7.8–14 cm, glabrous; bracts caducous. Flowers ca. 5 cm in diam.; pedicel robust, 6–11 cm, glabrous. Sepals 4, white, spreading, oblong-lanceolate, 2.7–3.2 × 0.6–0.9 cm, abaxially densely fulvous furfuraceous-velutinous, adaxially glabrous, margin whitish velutinous, apex acute. Stamens unequal, glabrous; outer stamens ca. 2 cm, filaments linear, ca. 1.8 cm, anthers oblong, ca. 1.5 mm, connective projections subulate, 0.5–0.7 mm; inner stamens 0.7–1.1 cm, filaments 3.6–6.5 mm, anthers narrowly oblong, ca. 2 mm, connective projections ca. 1 mm. Ovaries densely pubescent; style ca. 8 mm, densely villous. Fl. Sep.

• Mixed forests; ca. 1500 m. SE Yunnan (Xichou Xian).

86. Clematis tashiroi Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 32: 477. 1888.

长萼铁线莲 chang e tie xian lian

Clematis longisepala Hayata; *C. tozanensis* Hayata; *C. yingtzulinia* S. S. Ying.

Vines woody. Branches shallowly 8–15-grooved, glabrous. Leaves pinnate, 5-foliolate, or ternate, glabrous; petiole 3.5–9.4 cm, base strongly dilated and connate to basally widened part of opposite petiole; leaflet blades ovate to narrowly so, 3–22 × 1.6–12 cm, papery, base rounded to subcordate, margin entire, apex acute to acuminate; basal veins abaxially ± prominent to nearly flat. Cymes axillary, (1–)3–8-flowered, glabrous; peduncle 1.5–6 cm; bracts petiolate, narrowly ovate to elliptic, 1.8–5.5 cm. Flowers 3–6 cm in diam. Pedicel 5.5–12 cm, glabrous. Sepals 4–6, dark purple, spreading, narrowly oblong, linear, or lanceolate-oblong, 1.8–3 × 0.4–0.8 cm, abaxially brown velutinous, adaxially glabrous, apex acute. Stamens unequal in length, outer ones 1–2.2 cm, inner ones 6–12 mm, glabrous; anthers narrowly oblong to linear, 2–3.5 mm, apex with a 0.5–1 mm apicula. Ovaries pubescent. Style 6–9 mm, densely villous. Achenes narrowly elliptic, 4–5 × 2–2.8 mm, sparsely appressed pubescent; persistent style 4–6 cm, plumose. Fl. Aug–Oct, fr. Oct–Jan.

Forest margins, slopes, along streams, beaches; below 100–2800 m. Taiwan [Japan (Ryukyu Islands), N Vietnam].

87. Clematis loureiroana de Candolle, Syst. Nat. 1: 144. 1817.

丝铁线莲 si tie xian lian

Clematis filamentosa Dunn.

Vines woody. Branches shallowly ca. 10-grooved, glabrous. Leaves ternate, glabrous; petiole 4–13 cm; leaflet blades ovate, broadly ovate, or lanceolate, 5–11 × 3.8–8 cm, papery, base subcordate, broadly cuneate, or rounded, margin entire, apex obtuse; basal veins abaxially ± prominent. Cymes axillary, usually sparsely 7–12-flowered; peduncle 0.5–5 cm, sparsely glabrous; bracts linear to subulate, 4–6 mm. Flowers 2–4 cm in

diam. Pedicel 3–8 cm, densely puberulous. Sepals 4, white, spreading, narrowly ovate to ovate-lanceolate, 1–2 × 0.4–0.8 cm, abaxially densely appressed puberulous to velutinous, adaxially glabrous, apex ± acute. Outer stamens abortive, becoming staminodes, narrowly linear, 1–1.5 cm, glabrous; inner stamens fertile, 5–8 mm, glabrous; anthers narrowly oblong, 2–2.8 mm, apex with a lanceolate-linear 1.5–3 mm apicula. Ovaries pubescent. Style ca. 6.5 mm, densely villous. Achenes narrowly ovate to subfusiform, 6–10 × 1–2 mm, pubescent; persistent style 3–5 cm, plumose. Fl. Nov–Dec, fr. Jan–Feb.

Forests, scrub, along streams; 100–1600 m. Guangdong, Guangxi, Hainan [Vietnam].

88. *Clematis liboensis* Z. R. Xu, Acta Phytotax. Sin. 26: 150. 1988.

荔波铁线莲 *li bo tie xian lian*

Vines woody. Stems to 5 m, glabrous. Leaves simple, glabrous; petiole 3.7–7 cm; leaf blade broadly ovate, 4.5–10 × 3.5–6 cm, thick papery, base subcordate, margin denticulate, apex ± obtuse; basal veins prominent on both surfaces. Cymes racemelike, 5-flowered, glabrous; peduncle 3.5–5.5 cm; bracts foliaceous. Flowers ca. 7 cm in diam. Pedicel 5–10 cm. Sepals 6, white, spreading, narrowly oblong, 2.5–3.5 × 0.3–0.5 cm, abaxially reddish brown velutinous, adaxially glabrous, margin gray velutinous, apex obtuse. Outer stamens becoming staminodes, glabrous; outermost staminodes narrowly linear, slightly longer than sepals, 1–2 mm wide; inner staminodes linear, 1.2–1.5 cm; inner stamens fertile, ca. 1 cm, puberulous; anthers narrowly oblong, ca. 5 mm, apex apiculate. Ovaries puberulous. Style ca. 8 mm, densely villous. Fl. Apr.

• Forests on limestone hills; ca. 800 m. SE Guizhou (Libo Xian).

89. *Clematis pinnata* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 22: 216. 1877.

羽叶铁线莲 *yu ye tie xian lian*

Vines woody. Branches shallowly 4–6-grooved, appressed puberulous, often glabrescent. Leaves pinnate and 5-foliolate, or ternate; petiole 3–11 cm; leaflet blades ovate to broadly ovate, (2.5–)5–12 × (1.5–)3–7.5 cm, papery, 2- or 3-lobed or undivided, abaxially sparsely puberulous on veins and often laxly reticulate, adaxially sparsely appressed puberulous, base rounded to subcordate, margin dentate, apex acuminate; basal veins prominent. Cymes axillary or terminal, (5- to) many flowered, often paniclelike; peduncle 3–8 cm, puberulous; bracts triangular to elliptic, 3–10 mm, sometimes ternate and ca. 3 cm. Flowers 1.5–2 cm in diam. Pedicel 0.5–1.8(–3) cm, densely puberulous. Sepals 4, white, ascending, narrowly obovate-oblong, 12–19 × 3–5 mm, abaxially densely appressed puberulous, adaxially glabrous,

margin abaxially velutinous, apex ± acute to obtuse. Stamens 7–9 mm; filaments glabrous or apically pilose; anthers linear, 2.5–3 mm, glabrous, apex minutely apiculate. Ovaries puberulous. Style 5 mm, densely villous. Fl. Jun–Aug.

• Scrub, slopes, montane regions; 700–1200 m. Beijing Shi, W Hebei.

1a. Leaves pinnate, 5-foliolate; filament apex pilose or glabrous 89a. var. *pinnata*

1b. Leaves ternate; filament apex pilose 89b. var. *ternatifolia*

89a. *Clematis pinnata* var. *pinnata*

羽叶铁线莲(原变种) *yu ye tie xian lian* (yuan bian zhong)

Leaves pinnate, 5-foliolate. Filament apex pilose or glabrous. Fl. Jul–Aug.

• Scrub, slopes; 700–1200 m. Beijing Shi, W Hebei.

89b. *Clematis pinnata* var. *ternatifolia* W. T. Wang, Acta Phytotax. Sin. 39: 331. 2001.

平谷铁线莲 *ping gu tie xian lian*

Leaves ternate. Filament apex pilose. Fl. Jun.

• Montane regions. Beijing Shi (Pinggu Xian).

90. *Clematis tatarinowii* Maximowicz, Mélanges Biol. Bull. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 9: 590. 1876.

细花铁线莲 *xi hua tie xian lian*

Clematis pinnata Maximowicz var. *tatarinowii* (Maximowicz) Kuntze.

Subshrubs erect. Branches shallowly 6-grooved, sparsely puberulous. Leaves 2-ternate or pinnate; petiole 4–6.5 cm; leaflet blades rhombic-ovate, rhombic, or ovate, 3.5–10 × 2–7.8 cm, herbaceous, undivided or 3-lobed, abaxially sparsely puberulous on midvein, adaxially sparsely appressed puberulous, base broadly cuneate, margin sparsely dentate, apex acuminate; basal veins abaxially prominent. Cymes axillary or terminal, 5–7-flowered; peduncle 3–4.8 cm; bracts linear-lanceolate to narrowly rhombic, 3–4 mm, undivided or 3-lobed. Flowers 0.9–1.1 cm in diam. Pedicel 1.2–3 cm, puberulous. Sepals 4, erect, obovate-oblong, 11–16 × 4–5 mm, abaxially densely appressed puberulous, adaxially glabrous, margin abaxially velutinous, apex ± obtuse. Stamens 8–10 mm; filaments with a few short hairs near apex; anthers narrowly oblong, 2–3 mm, abaxially with a few hairs on connective, apex obtuse or obscurely minutely apiculate. Ovaries pubescent. Style ca. 4 mm, densely villous.

• Mountains. Beijing Shi.

91. *Clematis heracleifolia* de Candolle, Syst. Nat. 1: 138. 1817.

大叶铁线莲 *da ye tie xian lian*

Clematis davidiana Decaisne ex Verlot; *C.*

heracleifolia var. *davidiana* (Decaisne ex Verlot)

Kuntze; *C. heracleifolia* var. *ichangensis* Rehder & E.

H. Wilson; *C. tubulosa* Turczaninov; *C. tubulosa* var.

davidiana (Decaisne ex Verlot) Franchet.

Subshrubs or perennial herbs, 30–100 cm tall. Stems usually branched; branches 6–10-grooved, appressed

puberulous, glabrescent. Leaves ternate; petiole 2.5–14 cm, puberulous; leaflet blades broadly ovate, pentagonal, suborbicular, elliptic, or ovate, 2.5–16 × 2.5–14 cm, papery, often 3-lobed, both surfaces appressed puberulous, glabrescent, abaxially often reticulate, base truncate, rounded, or broadly cuneate, margin incised to dentate, apex short acuminate to acute; basal veins abaxially prominent. Compound cymes terminal or axillary, 7- to many flowered, often paniclelike; peduncle 4–8 cm, densely puberulous; bracts petiolate, pentagonal to broadly ovate, 1–3.5 cm, 3-parted or -sect. Flowers polygamous, ca. 1.5 cm in diam. Pedicel 0.8–3.5 cm, densely puberulous to velutinous. Sepals 4, blue to purple, erect, narrowly oblong to spatulate-oblong, 1.5–2.4 × 0.3–0.7 cm, slightly widened toward apex, abaxially densely appressed sericeous-puberulous to velutinous, adaxially glabrous, apex obtuse and recurved. Stamens 0.9–1.1 cm; filaments apically with a few short hairs; anthers linear, 3.2–5 mm, abaxially pilose on connective, apex with a 0.2–0.5 mm apicula. Ovaries puberulous. Style 3–4 mm, densely villous. Achenes elliptic, 3–5 × 2–2.8 mm, puberulous; persistent style ca. 2.5 cm, plumose. Fl. Aug–Sep, fr. Oct.

Forest margins, scrub; 300–2000 m. Anhui, NE Guizhou, Hebei, Henan, Hubei, NW Hunan, Jiangsu, E Jilin, Liaoning, S Nei Mongol, Shaanxi, Shandong, Shanxi, NW Zhejiang [Korea].

92. *Clematis psilandra* Kitagawa, J. Jap. Bot. 13: 352. 1937.

光蕊铁线莲 *guang rui tie xian lian*

Clematis heracleifolia de Candolle var. *taiwanica* S. Suzuki & Hosokawa.

Shrubs small, erect, 50–120 cm tall. Branches finely grooved, puberulous, glabrescent. Leaves ternate; petiole 5.2–10 cm, velutinous, glabrescent; leaflet blades orbicular-ovate, ovate, or rhombic, 5–10 × 4–8 cm, thick papery, often 3-lobed, abaxially sparsely puberulous on veins and ± reticulate, adaxially glabrous, base subtruncate to broadly cuneate, margin dentate to denticulate, apex acuminate; basal veins abaxially prominent. Compound cymes terminal or axillary, often paniclelike, 7- to many flowered; peduncle 3.5–8.5 cm, velutinous; bracts narrowly ovate, 3–6 mm. Flowers polygamous dioecious, ca. 1 cm in diam. Pedicel 7–10 mm, velutinous. Sepals 4, pinkish, erect, narrowly oblong, 1.4–2 × 0.4–1 cm, slightly widened toward apex, abaxially velutinous, adaxially glabrous, apex mucronate and recurved. Stamens 4–10 mm; filaments with a few short hairs near apex; anthers narrowly oblong, ca. 2.8 mm, glabrous or abaxially with a few hairs on connective, apex minutely apiculate. Ovaries pubescent. Style ca. 8 mm, densely villous. Achenes elliptic to ovate, ca. 3.5 × 2 mm, pubescent; persistent style ca. 2 cm, plumose. Fl. Jul–Sep, fr. Aug–Oct.

• Open slopes; 1000–2500 m. Taiwan.

93. *Clematis tsugetorum* Ohwi, Acta Phytotax. Geobot. 2: 153. 1933.

高山铁线莲 *gao shan tie xian lian*

Shrublets erect, 30–60 cm tall. Branches terete, shallowly 6-grooved, pubescent. Leaves pinnate, 5-foliolate, ternate, or sometimes simple; petiole 1–5 cm; leaflet blades broadly ovate, orbicular-ovate, or ovate, 1–3(–3.8) × 1–3 cm, thick papery, often 3-lobed, abaxially puberulous on veins, adaxially sparsely puberulous, base truncate, rounded, or broadly cuneate, margin denticulate, apex acute to short acuminate; basal veins abaxially prominent. Flowers polygamous, solitary, terminal, ca. 1 cm in diam. Pedicel 2–4 cm, densely puberulous. Sepals 4, bluish to purple, erect, narrowly oblong, 1–2 × 0.3–0.7 cm, slightly widened toward apex, abaxially densely puberulous, adaxially glabrous, apex mucronate and recurved. Stamens 5–10 mm; filaments pilose near apex; anthers narrowly oblong, ca. 2.5 mm, abaxially with a few hairs on connective, apex minutely apiculate. Ovaries pubescent. Style ca. 6 mm, densely villous, apically glabrous. Achenes elliptic, 4–5 × ca. 2 mm, pubescent; persistent style ca. 2.5 cm, plumose. Fl. Jul–Sep, fr. Aug–Oct.

• Limestone areas; 3400–3600 m. Taiwan.

94. *Clematis lanuginosa* Lindley, Paxton's Fl. Gard. 3: 107. 1853.

毛叶铁线莲 *mao ye tie xian lian*

Clematis florida Thunberg var. *lanuginosa* (Lindley) Kuntze.

Vines woody. Branches indistinctly 6-angulate, appressed pubescent. Leaves usually simple, rarely ternate; petiole 4–8 cm, pubescent; leaf blade narrowly ovate to cordate, 6–12 × 3–7.5 cm, papery, abaxially densely gray pubescent, adaxially sparsely pubescent, base cordate to rounded, margin entire, apex acuminate; basal veins abaxially prominent. Flowers solitary, terminal, 7–15 cm in diam. Pedicel 5–10 cm, densely pubescent. Sepals (5 or) 6, purplish, spreading, rhombic-elliptic to obovate-elliptic, 4–7 × 2–3.5(–4.5) cm, abaxially densely appressed pubescent along central longitudinal veins, adaxially glabrous, apex acuminate. Stamens 1.3–2 cm, glabrous; anthers linear, 6–10 mm, apex minutely apiculate. Ovaries pubescent. Style 7–10 mm, densely villous but apically glabrous. Achenes obdeltoid to rhombic, 4–5(–8) × 4(–6) mm, appressed pubescent; persistent style 4–6 cm, yellow plumose. Fl. Jun–Jul, fr. Jul–Aug.

• Scrub, along streams in valleys; 100–400 m. E Zhejiang.

95. *Clematis patens* C. Morren & Decaisne, Bull. Acad. Roy. Sci. Bruxelles 3: 173. 1836.

转子莲 *zhuan zi lian*

Vines perennial, herbaceous. Stems to 1 m, shallowly longitudinally 5- or 6-grooved, sparsely pubescent. Leaves usually ternate, sometimes pinnate, 5-foliolate or simple; petiole 4–8 cm; leaflet blades ovate, narrowly ovate, or broadly lanceolate, 3–7 × 1.5–5 cm, papery, both surfaces sparsely pubescent on veins or adaxially glabrous, base rounded, truncate, broadly

cuneate, or subcordate, margin entire, apex acuminate to acute; basal veins abaxially \pm prominent. Flowers solitary, terminal, 7–12 cm in diam. Pedicel robust, 3.5–10 cm, pubescent. Sepals 5, 6, or 8, white, obovate to elliptic, 3.5–6 \times 1.5–3.5 cm, abaxially appressed pubescent to puberulous along central basal veins and velutinous along lateral basal veins, adaxially glabrous, margin glabrous. Stamens 1.2–2 cm, glabrous; anthers linear, 6–8 mm, apex obtuse or apiculate. Ovaries pubescent. Style ca. 9 mm, densely villous from base to middle. Achenes broadly ovate, 3.5–5 \times 3–4.5 mm, appressed pubescent; persistent style 3–3.8 cm, yellow plumose. Fl. May–Jun, fr. Jun–Jul.

Forests, slopes, scrub; 200–1000 m. Liaoning, E Shandong, E Zhejiang [Japan, Korea].

1a. Leaflet blades adaxially sparsely puberulous on veins; pedicel 4.6–10 cm; sepals 8 95a. var. *patens*

1b. Leaflet blades adaxially glabrous; pedicel 3.5–4 cm; sepals 5 or 6 95b. var. *tientaiensis*

95a. *Clematis patens* var. *patens*

转子莲(原变种) zhuan zi lian (yuan bian zhong)

Leaves ternate or pinnate, 5-foliolate; leaflet blades ovate to narrowly ovate, 3–7 \times 1.5–5 cm, surfaces sparsely pubescent on veins. Flowers 7–12 cm in diam. Pedicel 4.6–10 cm. Sepals 8, obovate to narrowly obovate, 3.5–6 \times 1.5–3 cm, abaxially appressed pubescent along central vein. Fl. May–Jun, fr. Jun–Jul.

Grassy slopes, scrub; 200–1000 m. Liaoning, E Shandong [Japan, Korea].

95b. *Clematis patens* var. *tientaiensis* (M. Y. Fang) W. T. Wang, Acta Phytotax. Sin. 36: 163. 1998.

天台铁线莲 tian tai tie xian lian

Clematis patens subsp. *tientaiensis* M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 358. 1980.

Leaves ternate or simple; leaflet narrowly ovate, broadly lanceolate, or ovate, 4.5–7 \times 2–4 cm, adaxially glabrous. Flowers ca. 10 cm in diam. Pedicel 3.5–4 cm. Sepals 5 or 6, elliptic to narrowly elliptic, ca. 5 \times 2–3.5 cm, abaxially appressed puberulous along central vein. Fl. Jun.

• Forests, scrub; ca. 1000 m. E Zhejiang.

96. *Clematis hancockiana* Maximowicz, Bull. Soc. Imp. Naturalistes Moscou 54(1): 1. 1879.

毛萼铁线莲 mao e tie xian lian

Clematis florida Thunberg var. *hancockiana* (Maximowicz) Courtois; *C. tsengiana* Metcalf.

Vines perennial, herbaceous. Stems shallowly longitudinally 4–6-grooved, sparsely pubescent, glabrescent; nodes swollen. Leaves usually pinnate, 5-foliolate, sometimes 1- or 2-ternate; petiole 4–7.5 cm, base \pm dilated; leaflet blades narrowly ovate to ovate, 3–4.5 \times 1.4–2.4 cm, papery, both surfaces sparsely pubescent

on midvein, base broadly cuneate to rounded, margin entire, apex acute and apiculate; basal veins abaxially \pm prominent to nearly flat. Cymes axillary, 1-flowered; peduncle 2–5 cm; bracts sessile, broadly ovate, 2.5–4 cm, undivided or 3-lobed, margin entire. Flowers 3–5 cm in diam. Pedicel 5–6.6 cm, pubescent. Sepals 4, purple-red to blue-purple, spreading, oblong to narrowly oblong, 1.5–2.5 \times 0.5–0.7 cm, abaxially densely appressed pubescent, adaxially glabrous, margin abaxially velutinous, apex \pm acute. Stamens 1–1.6 cm, glabrous; anthers linear, 6–7.2 mm, apex minutely apiculate. Ovaries pubescent. Style 8–10 mm, densely villous but puberulous near apex. Achenes rhombic-obovate, ca. 5 \times 3.2 mm, pubescent; persistent style 3.5–5 cm, yellowish plumose. Fl. May, fr. Jun.

• Slopes, scrub; 100–500 m. SE Anhui, S Henan, E Hubei, S Jiangsu, N Jiangxi, E to N Zhejiang.

97. *Clematis longistyla* Handel-Mazzetti, Acta Horti Gothob. 13: 201. 1939–1940.

光柱铁线莲 guang zhu tie xian lian

Vines perennial, herbaceous. Stems shallowly 4–6-grooved, sparsely puberulous, glabrescent. Leaves 1- or 2-ternate or pinnate; petiole 1.8–4 cm; leaflet blades ovate, broadly ovate, or ovate-elliptic, 0.8–6 \times 0.5–1.8(–3.2) cm, papery, abaxially sparsely puberulous, adaxially sparsely puberulous on veins, both surfaces \pm reticulate, base rounded, cuneate, or subcordate, margin entire or to 3-denticulate on each side, apex acute to acuminate; basal veins abaxially prominent. Cymes axillary, 1-flowered; peduncle 2–8.5 cm; bracts shortly petiolate, ternate or simple, 3-parted or undivided. Flowers 3–9 cm in diam. Pedicel 3.5–11 cm, apically puberulous to subglabrous. Sepals (4 or)5 or 6, white, spreading, elliptic to narrowly elliptic, 2.7–4.8 \times 0.8–2.8 cm, abaxially densely velutinous along midvein, adaxially glabrous, margin glabrous, apex acute. Stamens 0.6–1.8 cm, glabrous; anthers linear, 3–4.8(–6) mm, apex minutely apiculate. Ovaries pubescent. Style 5–7.5 mm, basally densely brownish villous, apically glabrous. Fl. May.

• Slopes, along streams; ca. 500 m. S Henan, NW Hubei.

98. *Clematis courtoisii* Handel-Mazzetti, Acta Horti Gothob. 13: 200. 1939–1940.

大花威灵仙 da hua wei ling xian

Vines perennial, herbaceous. Stems shallowly longitudinally 5-grooved, sparsely pubescent, often glabrescent; nodes swollen. Leaves 1- or 2-ternate, or pinnate; petiole 3–7 cm, base \pm dilated; leaflet blades elliptic, narrowly ovate, or ovate, 3–6.5 \times 1.4–2 cm, papery, undivided or sometimes 3-lobed, both surfaces sparsely pubescent on veins, abaxially \pm reticulate, base broadly cuneate, rounded, or truncate, margin entire, apex acuminate to acute; basal veins abaxially prominent. Cyme axillary, 1-flowered; peduncle 2.5–7 cm; bracts shortly petiolate, ovate to broadly ovate, 3.4–6.2 cm, margin entire. Flowers 5–9.5 cm in diam. Pedicel 3.4–6.8 cm, densely puberulous. Sepals 6, white

or tinged purplish, long elliptic to elliptic, 2.7–5 × 1–2.3 cm, abaxially sparsely pubescent along central vein and velutinous along lateral veins, adaxially glabrous, margin glabrous, apex acute. Stamens 0.8–1.7 cm, glabrous; anthers linear, 4.5–6 mm, apex minutely apiculate or ± obtuse. Ovaries pubescent. Style ca. 4 mm, densely yellowish villous. Achenes obovate, 3.5–4.5 × 2–4 mm, sparsely pubescent; persistent style 1.2–3 cm, yellow plumose. Fl. May–Jun, fr. Jun–Jul.

• Forests, slopes, along streams; 200–500 m. Anhui, SE Henan, E Hubei, E Hunan, S Jiangsu, N Zhejiang.

99. *Clematis florida* Thunberg in Murray, Syst. Veg., ed. 14, 512. 1784.

铁线莲 tie xian lian

Vines perennial, herbaceous. Stems to 1 m, shallowly 4–6-grooved, puberulous; nodes swollen. Leaves 1- or 2-ternate; petiole 2–4 cm; leaflet blades narrowly ovate to lanceolate, 1–6 × 0.4–2 cm, papery, both surfaces very sparsely puberulous to subglabrous, base rounded to broadly cuneate, margin entire, apex acute; basal veins abaxially nearly flat. Cymes axillary, 1-flowered; peduncle 1–4 cm; bracts sessile or subsessile, broadly ovate to ovate-triangular, 1.4–3 cm. Flowers 3.6–5 cm in diam. Pedicel 3.7–8.5 cm, densely puberulous. Sepals 6, white, obovate to rhombic-obovate, 2–3 × 1–1.5 cm, abaxially densely velutinous along midvein, adaxially glabrous, margin glabrous, apex acute. Stamens if fertile 4–8 mm, glabrous; anthers oblong to linear, 2.5–3.5 mm, apex obtuse. Stamens if becoming staminodes 1–1.2 cm, glabrous, apex attenuate. Ovaries puberulous. Style ca. 3.5 mm, densely pubescent from base to middle, glabrous apically from middle; stigma dilated. Achenes broadly obovate to rhombic-orbicular, ca. 3.5 × 3 mm, puberulous; persistent style ca. 8 mm, basally spreading puberulous, apically glabrous. Fl. Apr–Jun.

• Scrub, thickets, along streams; ca. 1700 m. Guangdong, N Guangxi, Hubei, Hunan, W Jiangxi, SW Yunnan, Zhejiang.

1a. Stamens normally developed 99a. var. *florida*

1b. Stamens all becoming petaloid staminodes 99b. var. *plena*

99a. *Clematis florida* var. *florida*

铁线莲(原变种) tie xian lian (yuan bian zhong)

Atragene florida Persoon; *Clematis bracteata* (Roxburgh) Kurz var. *leptomera* (Hance) Kuntze; *C. japonica* Thunberg var. *simsii* Makino; *C. leptomera* Hance.

Stamens normally developed, differentiated into filaments and anthers. Fl. Apr–Jun.

• Scrub, along streams in hilly areas. Guangdong, N Guangxi, Hubei, Hunan, W Jiangxi.

99b. *Clematis florida* var. *plena* D. Don in Sweet, Brit. Fl. Gard. 7: t. 396. 1838.

重瓣铁线莲 chong ban tie xian lian

Stamens all becoming petaloid staminodes, white or greenish, narrowly lanceolate, 1–1.2 cm, glabrous, apex attenuate. Fl. May–Jun.

• Thickets, along streams; ca. 1700 m. SW Yunnan, Zhejiang.

100. *Clematis cadmia* Buchanan-Hamilton ex J. D. Hooker & Thomson, Fl. Ind. 1: 5. 1855.

短柱铁线莲 duan zhu tie xian lian

Clematis bracteata (Roxburgh) Kurz; *C. stronachii* Hance; *Thalictrum bracteatum* Roxburgh.

Vines perennial, herbaceous. Branches shallowly 5-grooved, sparsely puberulous or glabrous. Leaves 2-ternate or pinnate; petiole 2–5.5 cm, puberulous to subglabrous; leaflet blades narrowly ovate, ovate, or lanceolate, 1.5–5 × 0.6–2 cm, papery, undivided or sometimes 3-lobed, both surfaces sparsely puberulous only on midvein, base broadly cuneate to rounded, margin entire, apex attenuate, acuminate, or acute; basal veins nearly flat on both surfaces. Cymes axillary, 1-flowered; peduncle 1.2–1.8 cm, apically puberulous; bracts ovate to broadly ovate, 0.7–4.5 cm. Flowers 3.5–6 cm in diam. Pedicel 3.5–7 cm, sparsely puberulous to subglabrous. Sepals 5 or 6, white or purplish, spreading, obovate to narrowly obovate, 2–3 × 1–1.6 cm, abaxially puberulous, adaxially glabrous, apex ± acute. Stamens 5–10 mm, glabrous; anthers linear, 4–5 mm, apex minutely apiculate. Ovaries appressed puberulous. Style 1–2 mm, puberulous, apex often circinnate. Achenes rhombic to narrowly elliptic, 5–7 × 3–4 mm, sparsely appressed puberulous; persistent style 1–3 mm, densely appressed puberulous. Fl. Apr–May, fr. Jun–Jul.

Grassy areas, along streams; ca. 100 m. Anhui, Guangdong, Hubei, S Jiangsu, N Jiangxi, N Zhejiang [India, Vietnam].

101. *Clematis huchouensis* Tamura, Acta Phytotax. Geobot. 23: 36. 1968.

吴兴铁线莲 wu xing tie xian lian

Vines perennial, herbaceous. Stems shallowly 5- or 6-grooved, appressed puberulous to subglabrous, branched. Leaves pinnate, sometimes ternate; petiole 1.7–3 cm; leaflet blades ovate, ovate-elliptic, or elliptic-lanceolate, 1–5 × 0.2–3 cm, thin papery to herbaceous, 2- or 3-lobed or undivided, abaxially densely appressed puberulous, adaxially sparsely puberulous on veins, base broadly cuneate, rounded, or subcordate, margin entire, apex obtuse, ± acute, or rounded; basal veins abaxially nearly flat and inconspicuous. Cymes axillary, 1–3-flowered; peduncle 2–6.5 cm; bracts ovate to broadly ovate, 2–3 cm, undivided or 3-lobed. Flowers 2–3 cm in diam. Pedicel 1.2–3 cm, puberulous. Sepals 4, white, ascending, oblong to oblong-lanceolate, 1.4–2.2 × 0.3–0.6 cm, ± widened near apex, abaxially densely appressed puberulous, adaxially glabrous, apex obtuse and reflexed. Stamens 4.5–5.5 mm, glabrous; anthers linear to narrowly oblong, 2.5–3.2 mm, apex with a 0.3–0.5 mm apicula. Ovaries puberulous. Style 6–7 mm, densely appressed pubescent. Achenes broadly elliptic to broadly ovate, 4–6 × 4–5.5 mm, appressed puberulous; persistent style subulate, 0.8–1.3 cm, appressed yellowish pubescent. Fl. Jun–Aug, fr. Oct.

• Grassy areas, along lake banks; ca. 100 m. N Hunan (Huarong Xian), S Jiangsu, N Jiangxi (Xingzi Xian), N Zhejiang.

102. Clematis chiupehensis M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 353. 1980.

丘北铁线莲 *qiu bei tie xian lian*

Vines woody. Branches shallowly 8-grooved, yellowish puberulous. Leaves simple; petiole 4–9 cm; leaf blade broadly ovate to suborbicular, 9–14 × 8–11.8 cm, papery, abaxially densely puberulous, adaxially sparsely pubescent to subglabrous, base rounded-cuneate to truncate, margin unequally dentate, apex caudate-acuminate; basal veins abaxially ± prominent. Cymes axillary or terminal, 1–11-flowered; peduncle 1–4.3 cm, spreading puberulous; bracts linear-lanceolate, 2–3 cm. Flowers ca. 8 mm in diam. Pedicel 1.5–4 cm, puberulous. Sepals 4, greenish, erect, long elliptic to ovate-lanceolate, ca. 12 × 3–4 mm, abaxially densely appressed puberulous, adaxially sparsely puberulous only near apex, apex ± acute. Stamens ca. 9 mm; filaments densely pubescent; anthers narrowly oblong, ca. 2 mm, glabrous, apex obtuse. Ovaries puberulous. Style ca. 9 mm, densely villous. Achenes narrowly ovate, ca. 3 × 1.4 mm, puberulous; persistent style 2–2.5 cm, plumose. Fl. Dec, fr. Apr.

• Sparse forests; 1500–2000 m. Yunnan (Qiubei Xian, Shuangbai Xian).

103. Clematis henryi Oliver, Hooker's Icon. Pl. 19: t. 1819. 1889.

单叶铁线莲 *dan ye tie xian lian*

Vines woody. Branches shallowly 4–10-grooved, sparsely puberulous. Leaves simple, occasionally some 2- or 3-sect; petiole 2–6.5 cm; leaf blade ovate-lanceolate, narrowly ovate, or lanceolate, 5.5–16 × (1–)3–7.5 cm, thick papery, abaxially sparsely appressed puberulous only on veins or ± densely appressed puberulous on entire surface, adaxially subglabrous to sparsely short strigose, margin denticulate, apex acuminate to caudate-acuminate; basal veins abaxially prominent. Cymes axillary, 1(–5)-flowered; peduncle 4–15 mm; bracts subulate and 1.2–3 mm, rarely lanceolate and ca. 8 mm. Flowers 1–2 cm in diam. Pedicel 2–4 cm, glabrous, rarely puberulous. Sepals 4, white or yellowish, erect, ovate-oblong to ovate, 1.4–1.9(–2.5) × 0.4–0.8(–1.2) cm, abaxially puberulous only near apex, adaxially sparsely puberulous to subglabrous near margin, apex acute. Stamens 0.9–1.5 cm; filaments densely villous; anthers narrowly oblong to oblong, 1.8–3 mm, glabrous, apex obtuse. Ovaries puberulous. Style 0.8–1.2 cm, densely villous. Achenes narrowly ovate, ca. 3 × 1.2 mm, puberulous; persistent style ca. 4 cm, plumose. Fl. Oct–Feb, fr. Mar–Apr.

• Forests, forest margins, shady slopes, scrub, along streams; 200–2500 m. S Anhui, Fujian, N Guangdong, Guangxi, Guizhou, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang.

1a. Leaves undivided or 2- or 3-sect 103c. var. *ternata*

1b. Leaves all undivided.

2a. Leaf blade abaxially sparsely appressed puberulous only on veins 103a. var. *henryi*

2b. Leaf blade abaxially ± densely appressed puberulous on entire surface 103b. var. *mollis*

103a. Clematis henryi var. *henryi*

单叶铁线莲(原变种) *dan ye tie xian lian (yuan bian zhong)*

Clematis hayatae Kudo & Masamune; *C. henryi* var. *leptophylla* Hayata.

Leaves simple, occasionally some leaves ternate; leaf blade abaxially sparsely appressed puberulous only on veins.

• Forests, forest margins, shady slopes, scrub, along streams; 200–2500 m. S Anhui, Fujian, N Guangdong, Guangxi, Guizhou, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang.

103b. Clematis henryi var. *mollis* W. T. Wang, Bull. Bot. Res., Harbin 7(2): 99. 1987.

毛单叶铁线莲 *mao dan ye tie xian lian*

Leaves all simple; leaf blade abaxially ± densely appressed puberulous on entire surface.

• Forests and scrub in valleys; 400–500 m. Guizhou, SW Hubei, NW Hunan.

103c. Clematis henryi var. *ternata* M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 353. 1980.

陕南单叶铁线莲 *shan nan dan ye tie xian lian*

Leaves simple, undivided or 2- or 3-sect; terminal leaf blade segment short petiolate, ovate-oblong to oblong-lanceolate; lateral leaf blade segments sessile or subsessile, obliquely narrowly ovate, smaller than terminal segment, abaxially subglabrous. Fl. Nov.

• Slopes; ca. 1500 m. S Shaanxi (Chenggu Xian).

104. Clematis jingdunensis W. T. Wang, Acta Bot. Yunnan. 4: 133. 1982.

多花铁线莲 *duo hua tie xian lian*

Vines woody. Branches shallowly 8-grooved, puberulous. Leaves ternate, rarely simple; petiole 0.8–6.8 cm, densely puberulous; leaf blades thick papery, abaxially ± densely puberulous, adaxially sparsely puberulous only on veins, both surfaces conspicuously reticulate; basal veins abaxially prominent; leaflet blades of ternate leaves elliptic to elliptic-ovate, (3–)6–10.8 × (1.7–)3.5–7.2 cm, base rounded, subcordate, or broadly cuneate, margin entire or sparsely denticulate, apex acuminate; leaf blade of simple leaves cordate-ovate, 10.5–12.5 × 7.8–8.8 cm, base cordate, margin entire, apex short acuminate. Cymes axillary, (3–)6–25-flowered; peduncle 1–8.2 cm, densely puberulous; bracts narrowly ovate to elliptic and 1.1–3.3 cm or linear to subulate and 2.5–8 mm. Flowers ca. 1 cm in diam. Pedicel 0.5–2.5 cm, densely puberulous. Sepals 4, white, erect, lanceolate-oblong, 10–18 × 2–5 mm, abaxially densely appressed puberulous, adaxially sparsely puberulous near apex, margin abaxially velutinous, apex acute. Stamens as long as sepals;

filaments densely villous; anthers narrowly oblong, 3.8–4 mm, glabrous, apex obtuse. Ovaries puberulous. Style ca. 9 mm, densely villous. Fl. Jan–Jun, fr. Feb.

• Forest margins, scrub; 1700–2200 m. CW to S Yunnan.

105. *Clematis siamensis* J. R. Drummond & Craib, Bull. Misc. Inform. Kew 1915: 420. 1915.

锡金铁线莲 xi jin tie xian lian

Vines woody. Branches shallowly 8-grooved, glabrous or sparsely puberulous. Leaves all ternate or distal ones simple; petiole 5–7 cm, base sparsely puberulous; leaflet blades ovate to narrowly ovate, 5.5–13 × 2.2–6.5 cm, papery, abaxially glabrous, adaxially sparsely puberulous near base, both surfaces reticulate, base rounded, margin entire, apex acuminate; basal veins abaxially prominent. Cymes axillary, often paniclelike, 1- to many flowered, glabrous; peduncle 4–5.5 cm; bracts linear, 4–7 mm. Flowers ca. 1 cm in diam. Pedicel 1.5–3.2 cm, glabrous or puberulous. Sepals 4, white, erect, oblong-lanceolate, ca. 15 × 4–5 mm, abaxially puberulous or densely so, or glabrous except for velutinous margin, adaxially puberulous only near obtuse and recurved apex. Stamens ca. 1.4 cm; filaments densely villous; anthers narrowly oblong, 2.5–3 mm, glabrous, apex obtuse. Ovaries pubescent. Style ca. 1 cm, densely villous. Fl. Oct–Dec, fr. Mar.

Forests, along streams; 1000–2400 m. SE Xizang, C and W Yunnan [Bhutan, NE India, N Myanmar, E Nepal, Sikkim, N Thailand].

1a. Proximal leaves ternate, distal ones

simple; cymes 1-flowered 105c. var. *monantha*

1b. All leaves ternate; cymes 3- to many flowered.

2a. Sepals abaxially glabrous except for velutinous margin; cymes (3–)7- to many flowered . 105a. var. *siamensis*

2b. Sepals abaxially densely puberulous; cymes 3–9-flowered ... 105b. var. *clarkei*

105a. *Clematis siamensis* var. *siamensis*

锡金铁线莲(原变种) xi jin tie xian lian (yuan bian zhong)

Clematis acuminata de Candolle subsp. *sikkimensis* (J. D. Hooker & Thomson) Brühl; *C. acuminata* var. *hirtella* Handel-Mazzetti; *C. acuminata* var. *multiflora* H. F. Comber; *C. acuminata* de Candolle var. *sikkimensis* J. D. Hooker & Thomson; *C. minggangiana* W. T. Wang; *C. multiflora* (H. F. Comber) W. T. Wang; *C. sikkimensis* (J. D. Hooker & Thomson) J. R. Drummond ex Burkill.

All leaves ternate. Cymes (3–)7- to many flowered. Sepals abaxially glabrous except for velutinous margin. Fl. Dec, fr. Mar.

Along streams; ca. 2400 m. SE Xizang (Mêdog Xian), C and W Yunnan [Bhutan, NE India, N Myanmar, E Nepal, Sikkim, N Thailand].

105b. *Clematis siamensis* var. *clarkei* (Kuntze) W. T. Wang, Acta Phytotax. Sin. 39: 11. 2001.

毛萼锡金铁线莲 mao e xi jin tie xian lian

Clematis acuminata de Candolle var. *clarkei* Kuntze, Verh. Bot. Vereins Prov. Brandenburg. 26: 167. 1885; *C. sikkimensis* var. *clarkei* (Kuntze) W. T. Wang. All leaves ternate. Cymes 3–9-flowered. Sepals abaxially densely puberulous. Fl. Oct.

Forests; ca. 1000 m. SE Xizang, NW Yunnan [N Myanmar, Sikkim, N Thailand].

105c. *Clematis siamensis* var. *monantha* (W. T. Wang & L. Q. Li) W. T. Wang & L. Q. Li in W. T. Wang, Acta Phytotax. Sin. 39: 11. 2001.

单花锡金铁线莲 dan hua xi jin tie xian lian

Clematis sikkimensis var. *monantha* W. T. Wang & L. Q. Li in W. T. Wang et al., Acta Phytotax. Sin. 37: 218. 1999.

Proximal leaves ternate, distal ones simple. Cymes 1-flowered. Sepals abaxially puberulous. Fl. Nov.

• Along streams in forests. NW Yunnan (Weixi Lisu Zu Zizhixian).

106. *Clematis urophylla* Franchet, Bull. Mens. Soc. Linn. Paris 1: 433. 1884.

尾叶铁线莲 wei ye tie xian lian

Clematis japonica Thunberg var. *urophylla* (Franchet) Kuntze; *C. urophylla* var. *obtusiuscula* C. K. Schneider. Vines woody. Branches shallowly 4–8-grooved, puberulous. Leaves ternate; petiole 2.5–6 cm; leaflet blades ovate to ovate-lanceolate, 5–10 × 2–5 cm, papery, both surfaces sparsely appressed puberulous, base broadly cuneate, rounded, or subcordate, margin denticulate to sometimes subentire, apex acuminate; basal veins abaxially ± prominent. Cymes axillary, 1–3(–5)-flowered; peduncle 0.3–3.5 cm, sometimes nearly absent, glabrous or puberulous; bracts short petiolate, ovate, and 1.4–3 cm or subulate and ca. 2 mm. Flowers 1.6–3 cm in diam. Pedicel 1.8–4 cm, densely puberulous. Sepals 4, white, suberect, oblong to ovate-oblong, 2–2.8 × 0.6–0.9 cm, abaxially appressed puberulous, adaxially puberulous only near apex, margin abaxially velutinous, apex ± acute. Stamens 0.9–1.6 cm; filaments villous; anthers narrowly oblong to oblong, 1.5–3 mm, glabrous, apex obtuse. Ovaries pubescent. Style 0.8–1.2 cm, densely villous. Achenes fusiform, 3–4 × ca. 2 mm, puberulous; persistent style 4.5–5 cm, plumose. Fl. Nov–Dec, fr. Mar–Apr.

• Forests, slopes, scrub; 400–2000 m. N Guangdong, N Guangxi, Guizhou, SW Hubei, Hunan, Sichuan.

107. *Clematis kockiana* C. K. Schneider, Bot. Gaz. 63: 518. 1917.

滇川铁线莲 dian chuan tie xian lian

Clematis yunnanensis Franchet var. *brevipedunculata* W. T. Wang; *C. yunnanensis* var. *chingtungensis* M. Y. Fang.

Vines woody. Branches shallowly 6–8-grooved, puberulous, often glabrescent. Leaves ternate; petiole 2–6 cm; leaflet blades narrowly ovate to broadly lanceolate, 5–12 × 1.5–5 cm, papery, both surfaces sparsely puberulous, base rounded, margin denticulate, apex acuminate; basal veins abaxially ± prominent. Cymes axillary, 1–7-flowered; peduncle 0.2–3.5 cm,

appressed puberulous; bracts narrowly triangular to linear, 3–8 mm. Flowers 1.2–1.5 cm in diam. Pedicel 1–3 cm, densely appressed puberulous. Sepals 4, white or yellowish, erect, ovate-oblong, 12–17 × 4–6 mm, abaxially densely puberulous, adaxially glabrous, margin abaxially velutinous, apex acute. Stamens as long as sepals; filaments densely villous; anthers oblong, 1.5–2 mm, glabrous, apex obtuse. Ovaries puberulous. Style 7–10 mm, densely villous. Achenes elliptic, ca. 3 × 1.4 mm, puberulous; persistent style to 3 cm, plumose. Fl. Oct–Nov, fr. Apr–May.

• Forests, slopes, along streams; 1600–3000 m. W Guangxi, W Guizhou, SW Sichuan, E Xizang, Yunnan.

108. *Clematis teretipes* W. T. Wang, Acta Phytotax. Sin. 39: 331. 2001.

柱梗铁线莲 zhu geng tie xian lian

Vines woody. Stems to 8 m; branches indistinctly 8-angulate, sparsely puberulous near nodes, elsewhere glabrous. Leaves ternate; petiole 6–6.8 cm, adaxially sparsely puberulous; leaflet blades oblong-elliptic, 8.5(–11) × 3(–5.8) cm, papery, both surfaces sparsely puberulous on basal veins, base obtuse or rounded, margin minutely 3–5-denticulate on each side, apex attenuate or acuminate; basal veins abaxially slightly prominent. Cymes axillary, ca. 5-flowered; peduncle robust, 1–9 cm × ca. 2 mm, usually densely appressed puberulous; bracts triangular, ca. 3 mm, densely puberulous. Flowers 1.5–2 cm in diam.; pedicel robust, 8–18 mm × ca. 2 mm, yellowish velutinous, apex thickened. Sepals 4, white, erect, oblong or ovate-oblong, 17–19 × 7–8 mm, abaxially densely appressed puberulous, adaxially glabrous, margin velutinous, apex acute. Stamens ca. 15 mm; filaments narrowly linear, slightly dilated above base, villous; anthers narrowly oblong, 3–3.6 mm, glabrous, apex obtuse. Ovaries densely puberulous; style ca. 11 mm, densely villous. Achenes compressed, narrowly ovate or long elliptic, 3–4 × 1.2–1.5 mm, puberulous, indistinctly narrowly marginate, apex attenuate; persistent style 2.5–3.9 cm, plumose. Fl. Mar–Apr, fr. Apr.

• Mountain slopes; ca. 2100 m. S Sichuan (Leibo Xian).

109. *Clematis jinzhaiensis* Z. W. Xue & X. W. Wang, Acta Phytotax. Sin. 24: 406. 1986.

金寨铁线莲 jin zhai tie xian lian

Vines woody. Branches shallowly grooved, sparsely puberulous at nodes, elsewhere glabrous. Leaves ternate; petiole 3–5 cm, adaxially puberulous; leaflet blades ovate, 3.6–10 × 2–5 cm, papery, both surfaces sparsely puberulous, base rounded or subcordate, margin irregularly dentate, apex acuminate; basal veins abaxially slightly prominent. Cymes axillary, 1–3-flowered; peduncle 0.9–1.6 cm, subglabrous; bracts linear, 6–12 mm. Flowers ca. 1 cm in diam.; pedicel 2–3 cm, subglabrous. Sepals 4, purple, erect, oblong or lanceolate, ca. 16 × 5 mm, abaxially sparsely puberulous near base and apex, adaxially glabrous, margin

velutinous, apex obtuse. Stamens slightly shorter than or equaling sepals; filaments densely villous; anthers narrowly oblong, ca. 2.2 mm, abaxially villous on connective, apex obtuse. Ovaries puberulous; style ca. 8 mm, densely villous. Fl. Sep.

• Forests; ca. 800 m. W Anhui (Jinzhai Xian).

110. *Clematis clarkeana* H. Léveillé & Vaniot, Bull. Acad. Int. Géogr. Bot. 11: 170. 1902.

平坝铁线莲 ping ba tie xian lian

Clematis anshunensis M. Y. Fang.

Vines woody. Branches terete, smooth, glabrous or only sparsely puberulous on nodes. Leaves ternate; petiole 2–5 cm; leaflet blades ovate, elliptic, or narrowly ovate, 5–10 × 2–4 cm, papery, both surfaces glabrous or only midvein sparsely puberulous on one or both surfaces, base rounded to broadly cuneate, margin denticulate, apex caudate-acuminate to acuminate; basal veins abaxially ± prominent. Cymes axillary, 1–3-flowered; peduncle 0.9–1.3 cm, glabrous; bracts lanceolate-linear to narrowly triangular, 2–2.8 mm, glabrous. Flowers ca. 1 cm in diam. Pedicel 2–3.8 cm, glabrous. Sepals 4, white, erect, oblong, 12–15(–18) × 4–5 mm, both surfaces glabrous except for velutinous abaxial margin. Stamens 0.9–1.1 cm; filaments villous; anthers narrowly oblong, 2.2–2.5 mm, glabrous, apex obtuse. Ovaries pubescent. Style ca. 5.5 mm, densely villous. Fl. Oct–Nov.

• Forests, open slopes; ca. 2000 m. S Guizhou.

111. *Clematis qingchengshanica* W. T. Wang, Acta Bot. Yunnan. 6: 379. 1984.

青城山铁线莲 qing cheng shan tie xian lian

Vines woody. Branches shallowly ca. 8-grooved, sparsely appressed puberulous. Leaves ternate; petiole 4.5–7 cm, subglabrous; leaflet blades oblong-ovate to oblong, 6–12 × 2.6–4.5 cm, papery, both surfaces glabrous, abaxially reticulate, base rounded to broadly cuneate, margin entire, apex acuminate to caudate; basal veins abaxially prominent. Cymes axillary, 1-flowered; peduncle 3–4 mm; bracts linear-triangular, ca. 2 mm. Flowers 1.6–2 cm in diam. Pedicel 1–2 cm, densely puberulous. Sepals 4, greenish white, erect, ovate-oblong, 1.5–1.7 × 0.6–0.8 cm, abaxially very densely yellowish puberulous, adaxially glabrous, apex ± acute. Stamens ca. 1 cm; filaments densely villous; anthers oblong, 2.8–3 mm, glabrous, apex obtuse. Ovaries pubescent. Style ca. 9 mm, densely villous. Fl. Nov–Dec.

• Forests; 700–1400 m. W Sichuan (Qingcheng Shan, Guan Xian).

112. *Clematis nukiangensis* M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 353. 1980.

怒江铁线莲 nu jiang tie xian lian

Vines woody. Branches glabrous. Leaves ternate; petiole 4–8 cm; leaflet blades elliptic, narrowly obovate-elliptic, or ovate-oblong, 5–8 × 2–4 cm, leathery, abaxially sparsely pubescent only on midvein, adaxially glabrous, base broadly cuneate, margin entire, apex short acuminate; basal veins abaxially prominent.

Cymes axillary, 1-flowered; peduncle nearly absent; bracts ovate, ca. 2 mm. Flowers ca. 1.2 cm in diam. Pedicel 2–3 cm, glabrous. Sepals 4, white, tinged purplish red at base, erect, ovate-oblong, ca. 1.5 × 0.5 cm, both surfaces sparsely puberulous to subglabrous, margin abaxially velutinous, apex ± acute. Stamens nearly as long as sepals; filaments densely villous; anthers narrowly oblong, 2–3 mm, glabrous, apex obtuse. Ovaries pubescent. Style ca. 1 cm, densely villous. Fl. Dec.

• Scrub on shady slopes; ca. 2700 m. NW Yunnan (Bijiang Xian).

113. *Clematis acuminata* de Candolle var. ***longicaudata*** W. T. Wang, Bull. Bot. Res., Harbin 9(2): 7. 1989.

长尾尖铁线莲 chang wei jian tie xian lian

Vines woody. Branches sparsely puberulous. Leaves ternate; petiole 4–6 cm; leaflet blades ovate-lanceolate to narrowly ovate, 7–12 × 2–5 cm, subleathery, both surfaces subglabrous and conspicuously reticulate, base rounded, margin entire, apex caudate; basal veins abaxially prominent. Cymes axillary, ca. 3-flowered; peduncle 1–2 cm, glabrous; bracts small, subulate. Flowers ca. 7 mm in diam. Pedicel 1–2 cm. Sepals 4, yellow, erect, ovate-oblong, 1.4–1.7 × 0.5 cm, abaxially appressed puberulous, adaxially sparsely puberulous only near apex, margin abaxially velutinous, apex attenuate. Stamens 1–1.4 cm; filaments densely pubescent; anthers narrowly oblong, 2.2–3 mm, glabrous, apex obtuse. Ovaries puberulous. Style ca. 1 cm, densely villous. Fl. Dec.

• Yunnan (Binchuan Xian).

Clematis acuminata var. *acuminata* occurs in the Himalayas.

114. *Clematis yunnanensis* Franchet, Bull. Soc. Bot. France 33: 361. 1886.

云南铁线莲 yun nan tie xian lian

Clematis angustifoliola W. T. Wang; *C. clarkeana* H. Léveillé & Vaniot var. *stenophylla* Handel-Mazzetti; *C. subfalcata* C. Pei ex M. Y. Fang; *C. subfalcata* var. *pubipes* W. T. Wang; *C. subfalcata* var. *stenophylla* (Handel-Mazzetti) W. T. Wang.

Vines woody. Branches shallowly 6–8-grooved, subglabrous or puberulous. Leaves ternate; petiole 3.5–7 cm; leaflet blades linear-lanceolate or lanceolate, 4.5–14 × 0.6–2.5 cm, papery, both surfaces glabrous or sparsely puberulous, base rounded or broadly cuneate, margin entire or minutely denticulate, apex attenuate or caudate-acuminate; basal veins abaxially prominent. Cymes axillary, 1–8-flowered; peduncle 1–4 cm, or absent; bracts lanceolate or subulate, 2–3 mm. Flowers 0.7–2 cm in diam.; pedicel 1.5–3.4 cm, glabrous or puberulous. Sepals 4, white, erect, oblong, ovate-oblong, or lanceolate-oblong, 1–2 × 0.36–0.6 cm, abaxially subglabrous or puberulous, adaxially glabrous or sparsely puberulous, margin velutinous, apex acute or acuminate. Stamens 1–1.3 cm; filaments densely villous; anthers oblong or narrowly so, 1.5–2.5 mm, glabrous, apex obtuse. Ovaries puberulous; style 0.7–1.2 cm, densely villous. Fl. Oct–Dec.

• Forests, scrub, slopes, by streams; 2200–3100 m. SW Sichuan, Yunnan.

115. *Clematis morii* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25(19): 42. 1908.

森氏铁线莲 sen shi tie xian lian

Clematis henryi Oliver var. *morii* (Hayata) T. Y. Yang & T. C. Huang.

Vines woody. Branches inconspicuously 4–6-grooved, sparsely puberulous, glabrescent. Leaves ternate; petiole 2.6–5.5 cm, glabrous; leaflet blades broadly lanceolate, narrowly lanceolate, or narrowly ovate, 2.6–11 × 0.9–3.5 cm, subleathery to papery, undivided or sometimes terminal leaflet 3-lobed to near base, both surfaces glabrous or sparsely puberulous, base rounded, margin entire or sparsely denticulate, apex caudate-acuminate to attenuate; basal veins abaxially prominent. Cymes axillary, 1-flowered; peduncle 4–10 mm; bracts linear to subulate, 2–3 mm. Flowers 1.5–2.5 cm in diam. Pedicel 1.6–2.5 cm, glabrous. Sepals 4, white, erect, ovate-oblong to ovate, 1.5–2.5 × 0.5–1.2 cm, abaxially densely appressed puberulous, adaxially glabrous, apex acute. Stamens 0.7–1.7 cm; filaments densely villous; anthers oblong, 1.8–2 mm, abaxially with a few hairs on connective, apex obtuse. Ovaries pubescent. Style ca. 8 mm, densely villous. Achenes narrowly elliptic to narrowly ovate, 3–5 × ca. 2.5 mm, pubescent; persistent style ca. 3 cm, plumose. Fl. Nov–Feb, fr. Jan–Apr.

• Forest margins, open areas; 1000–2500 m. C Taiwan.

116. *Clematis hainanensis* W. T. Wang, Acta Bot. Yunnan. 4: 134. 1982.

海南铁线莲 hai nan tie xian lian

Vines woody. Branches shallowly ca. 6-grooved, densely puberulous. Leaves ternate; petiole ca. 7.5 cm, densely puberulous; leaflet blades elliptic-ovate to ovate, 5.6–10.5 × 3–5.7 cm, papery, abaxially puberulous on veins, adaxially sparsely puberulous, base broadly cuneate, margin apically obscurely denticulate, apex short acuminate; basal veins abaxially prominent. Cymes axillary, 1-flowered; peduncle ca. 1.4 cm; bracts linear, ca. 5.5 mm. Flowers ca. 2.5 cm in diam. Pedicel ca. 4 cm, densely puberulous. Sepals 4, yellowish white, erect, narrowly ovate, ca. 2.3 × 0.8 cm, both surfaces densely puberulous, margin abaxially velutinous, apex acuminate and recurved. Stamens 1.5–2 cm; filaments sparsely villous; anthers narrowly oblong to linear, 3–4.5 mm, glabrous, apex minutely apiculate. Ovaries pubescent. Style ca. 1 cm, densely villous. Fl. Feb.

• Forests. Hainan (Baisha Xian).

117. *Clematis leschenaultiana* de Candolle, Syst. Nat. 1: 151. 1817.

绣毛铁线莲 xiu mao tie xian lian

Clematis acuminata de Candolle subsp. *leschenaultiana* (de Candolle) Brühl; *C. acuminata* var. *leschenaultiana*

(de Candolle) Kuntze; *C. angustifolia* Hayata (1913), not Jacquin (1786); *C. caesariata* Hance; *C. leschenaultiana* var. *angustifolia* Hayata; *C. leschenaultiana* var. *denticulata* Merrill.

Vines woody. Branches, petioles, peduncles, and pedicels densely pubescent. Branches shallowly 8–10-grooved. Leaves ternate; petiole 3.5–11 cm; leaflet blades ovate, narrowly ovate, or ovate-elliptic, 5–11 × 2.2–6 cm, papery, abaxially ± densely pubescent, adaxially sparsely appressed pubescent, base rounded to broadly cuneate, margin denticulate, apex acuminate; basal veins abaxially prominent. Cymes axillary, 3–10-flowered; peduncle 0.8–7 cm; bracts simple, lanceolate to linear, 1–2 cm, sometimes foliaceous and ternate. Flowers 1.5–2 cm in diam. Pedicel 2–5 cm. Sepals 4, yellowish, erect, lanceolate-oblong to oblong-ovate, 1.6–2.2 × 0.5–0.8 cm, papery, abaxially densely yellowish brown velutinous, adaxially sparsely puberulous only near apex, apex ± acute and often recurved. Stamens 1–1.7 cm; filaments basally pubescent, apically villous; anthers narrowly oblong, 2.5–3.5 mm, glabrous, apex obtuse. Ovaries puberulous. Style ca. 1 cm, densely villous. Achenes subfusiform, 4.5–6 × 1–1.2 mm, puberulous; persistent style 3–4 cm, plumose. Fl. Jan–Feb, fr. Mar–Apr.

Scrub on slopes; 500–1200 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan [Indonesia, Philippines, Vietnam].

118. *Clematis rubifolia* C. H. Wright, Bull. Misc. Inform. Kew 1896: 21. 1896.

莓叶铁线莲 mei ye tie xian lian

Clematis leschenaultiana de Candolle var. *rubifolia* (C. H. Wright) W. T. Wang; *C. splendens* H. Léveillé & Vaniot.

Vines woody. Branches, petioles, peduncles, and pedicels densely pubescent. Branches shallowly 8–10-grooved. Leaves ternate; petiole 6–8 cm; leaflet blades ovate, elliptic, or suborbicular, 5–10 × 3–6 cm, papery, abaxially densely pubescent, adaxially sparsely appressed pubescent, base rounded to cordate, margin dentate to denticulate, apex acute; basal veins abaxially prominent. Cymes axillary, 6- to many flowered, often paniclelike; peduncle 2–4.5 cm; bracts short petiolate, foliaceous. Flowers ca. 1.5 cm in diam. Pedicel 1.5–2.2 cm. Sepals 4, yellowish white, erect, narrowly oblong, 12–15 × 4–7 mm, abaxially ± densely appressed pubescent, adaxially appressed puberulous only near apex, margin abaxially velutinous, apex ± acute and recurved. Stamens ca. 1.2 cm; filaments basally pubescent, apically villous; anthers narrowly oblong, 2.8–3 mm, abaxially sparsely puberulous on connective, apex obtuse. Ovaries puberulous. Style ca. 1 cm, densely villous. Fl. Nov–Jan, fr. Feb–Mar.

• Forest margins, slopes, along streams; 800–2000 m. W Guangxi, S Guizhou, Yunnan.

119. *Clematis buchananiana* de Candolle, Syst. Nat. 1: 140. 1817.

毛木通 mao mu tong

Vines woody. Branches shallowly 8–10-grooved, densely yellowish pubescent. Leaves pinnate; petiole 4.5–9 cm; leaflet blades broadly ovate, ovate, or elliptic, (2.5–)4–11 × (2.5–)4–10 cm, papery, undivided or 3-lobed, abaxially densely or rarely sparsely pubescent, adaxially sparsely appressed pubescent, base subcordate to rounded, margin denticulate to dentate, apex acute to acuminate; basal veins abaxially ± prominent. Cymes axillary, usually many flowered, paniclelike; peduncle 2–20 cm; bracts foliaceous or simple, ovate to lanceolate. Flowers 1.5–2.5 cm in diam. Pedicel 1–3.5 cm, densely yellowish puberulous. Sepals 4, yellow, erect, lanceolate-oblong to narrowly oblong, 2–3 × 0.5–0.9 cm, abaxially densely appressed puberulous and apically sometimes slightly emarginate, adaxially sparsely pubescent apically from middle, apex acute to rounded and often recurved. Stamens ca. 1 cm; filaments pubescent; anthers narrowly oblong to linear, 2.6–5 mm, glabrous, apex obtuse. Ovaries puberulous. Style 1.3–1.5 cm, densely villous. Achenes rhombic-elliptic, 3–5 × 2–2.5 mm, pubescent; persistent style 3.5–5 cm, plumose. Fl. Aug–Dec, fr. Feb–Mar.

Forest margins, scrub, along streams; 1200–2800 m. SW Sichuan, S Xizang, Yunnan [Bhutan, India, Kashmir, N Myanmar, Nepal].

120. *Clematis grewiiflora* de Candolle, Syst. Nat. 1: 140. 1817.

黄毛铁线莲 huang mao tie xian lian

Vines woody. Petioles, peduncles, bracts, and pedicels yellowish velutinous. Branches smooth. Leaves pinnate, 3–5-foliolate; petiole 4–4.5 cm; leaflet blades broadly ovate to cordate, 4.5–6 × 4.5–6 cm, thick papery, undivided or 3–5-lobed, abaxially yellowish velutinous, adaxially densely yellowish strigose, base cordate, margin denticulate, apex acuminate; basal veins abaxially prominent. Cymes axillary, usually 3-flowered; peduncle ca. 1.5 cm; bracts narrowly triangular, ca. 8 mm. Flowers ca. 2 cm in diam. Pedicel ca. 1 cm. Sepal 4, brownish yellow, erect, oblong-ovate, ca. 2.2 × 1 cm, abaxially brownish yellow velutinous, adaxially appressed puberulous near apex, apex acute. Stamens ca. 1.2 cm; filaments apically pubescent; anthers narrowly oblong, 3–4 mm, glabrous, apex obtuse. Ovaries pubescent. Style ca. 1.1 cm, densely villous. Fl. Nov.

Scrub in dry valleys; ca. 1800 m. S Xizang [Bhutan, N India, Nepal].

121. *Clematis yui* W. T. Wang, Acta Phytotax. Sin. 29: 465. 1991.

俞氏铁线莲 yu shi tie xian lian

Vines woody. Branches terete, smooth, glabrous. Leaves simple, glabrous; petiole 1–6 cm; leaf blade elliptic, broadly elliptic, or ovate, 4.9–18 × 1.9–8.8 cm, papery, base rounded to broadly cuneate, margin entire, apex acuminate; basal veins abaxially nearly flat. Flowers solitary, terminal or axillary; peduncle ca. 0.5 mm; bracts narrowly triangular, ca. 2.5 mm. Flowers campanulate, 2–3.5 cm in diam.; pedicel 3–8.5 cm. Sepals 4, greenish yellow to yellow, erect, lanceolate, 1.2–4 × 0.5–1.3 cm, abaxially glabrous except for velutinous margin, adaxially apically appressed puberulous, apex attenuate to short cuspidate. Stamens 1.2–1.9 cm; filaments pubescent; anthers narrowly oblong, 2.6–4 mm, abaxially pubescent on connective, apex minutely apiculate. Ovaries pubescent. Style ca. 1.3 cm, densely villous. Fl. Oct–Nov.

Forests; 1600–2200 m. SE Xizang (Nyingchi Xian), NW Yunnan (Gongshan Drung-Nu Zu Zizhixian), SW Xizang [Myanmar].

122. *Clematis kweichowensis* C. Pei, Contr. Biol. Lab. Chin. Assoc. Advancem. Sci., Sect. Bot. 9: 305. 1934.

贵州铁线莲 *gui zhou tie xian lian*

Vines woody. Branches terete, subglabrous. Leaves simple; petiole 0.8–3.5 cm; leaf blade elliptic, oblong, or narrowly ovate, 5.5–16 × 2–8.4 cm, papery to subleathery, both surfaces glabrous, base broadly cuneate to cuneate, margin entire or rarely minutely denticulate, apex acuminate; basal veins abaxially ± prominent. Cymes axillary, 1-flowered; peduncle 0.4–3.5 cm; bracts narrowly triangular, ca. 3.5 mm. Flowers ca. 2 cm in diam. Pedicel 3.5–8 cm, glabrous. Sepals 4, greenish yellow, erect, oblong to ovate-oblong, 1.8–3.1 × 0.6–1 cm, abaxially glabrous except for velutinous margin, adaxially densely puberulous or glabrous, apex ± acute. Stamens 1.5–2.3 cm; filaments densely pubescent; anthers oblong to narrowly oblong, 3–5 mm, abaxially densely pubescent, apex obtuse or minutely apiculate. Ovaries pubescent. Style 8–11 mm, densely villous. Fl. Sep, fr. Oct.

•Forests; 800–2100 m. W Guizhou, W Hubei, S Sichuan, NE Yunnan.

123. *Clematis repens* Finet & Gagnepain, Bull. Soc. Bot. France 50: 548. 1903.

曲柄铁线莲 *qu bing tie xian lian*

Vines suffruticose. Branches slender, shallowly 4–6-grooved, glabrous or sparsely puberulous. Leaves simple, sometimes ternate, glabrous; petiole 1–5.5 cm; leaf blade ovate, ovate-oblong, or narrowly elliptic, 3–10 × 1.5–5 cm, papery, undivided or 3-lobed or -sect, sometimes ternate then leaflets subsessile, base subcordate, rounded, or broadly cuneate, margin sparsely dentate, apex acuminate; basal veins abaxially ± prominent. Cymes axillary, 1-flowered, glabrous; peduncle 0.7–3.2 cm; bracts linear to subulate, rarely

elliptic, 2–6(–10) mm. Flowers 1.5–2.5 cm in diam. Pedicel slender, 2.5–8 cm. Sepals 4, yellowish, erect, ovate-oblong, narrowly oblong, or ovate, 1.2–2.5 × 0.5–0.8 cm, abaxially glabrous except for velutinous margin, adaxially appressed puberulous near apex, apex acute to ± obtuse. Stamens 1–1.4 cm; filaments densely pubescent; anthers narrowly oblong to oblong, 2–4 mm, abaxially pubescent, apex minutely apiculate. Ovaries puberulous. Style ca. 7 mm, densely villous. Achenes narrowly elliptic to narrowly ovate, 2.5–4 × 1.2–2 mm, puberulous; persistent style 3–5.5 cm, plumose. Fl. Jul–Aug, fr. Sep–Oct.

•Forests, on boulders, along streams; 1300–2500 m. N Guangdong, N Guangxi, Guizhou, Hubei, Hunan, Sichuan, Yunnan.

124. *Clematis pseudootophora* M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 355. 1980.

华中铁线莲 *hua zhong tie xian lian*

Clematis honanensis S. Y. Wang & C. L. Chang; *C. pseudootophora* var. *integra* W. T. Wang.

Vines suffruticose. Branches slender, shallowly 4–6-grooved, glabrous. Leaves ternate, glabrous; petiole 4–7.8 cm; leaflet blades oblong-lanceolate, ovate-lanceolate, or narrowly ovate, 4–11 × 1.6–3(–5) cm, papery, base rounded to broadly cuneate, margin entire or sparsely denticulate, apex attenuate to acuminate; basal veins abaxially prominent to nearly flat. Cymes axillary, 1–3-flowered, glabrous; peduncle 2–7(–15) cm; bracts short petiolate, lanceolate to elliptic, 1–9 cm. Flowers 2–3.5 cm in diam. Pedicel 1–4 cm, glabrous. Sepals 4, yellowish, erect, ovate-oblong to oblong, 2.5–3 × 1–1.2 cm, abaxially glabrous except for velutinous margin, adaxially sparsely appressed puberulous, apex acute. Stamens 1.5–1.8 cm; filaments densely pubescent; anthers linear, 3.5–4.2 mm, abaxially densely pubescent on connective, apex with a 0.4–0.6 mm apicula. Ovaries pubescent. Style ca. 1.2 cm, densely villous. Achenes narrowly obovate, ca. 5 × 2 mm, puberulous; persistent style 4–5 cm, plumose. Fl. Aug–Sep, fr. Sep–Oct.

•Forests, scrub, along streams; 1300–1800 m. N Fujian, N Guangxi, NE Guizhou, S Henan, SW Hubei, Hunan, W Jiangxi, NW Zhejiang.

125. *Clematis otophora* Franchet ex Finet & Gagnepain, Bull. Soc. Bot. France 50: 548. 1903.

宽柄铁线莲 *kuan bing tie xian lian*

Clematis otophora var. *nanensis* K. Sun & M. S. Yan.

Vines suffruticose. Branches shallowly 4–6-grooved, glabrous. Leaves ternate; petiole 7–12 cm, glabrous, basally strongly dilated and connate to opposite petiole; leaflet blades lanceolate, broadly lanceolate, or narrowly ovate, 3–11 × 1–3.2 cm, papery, abaxially glabrous, adaxially sparsely appressed puberulous, base rounded, subcordate, or broadly cuneate, margin sparsely denticulate or entire, apex attenuate to acuminate; basal veins abaxially nearly flat to ±

prominent. Cymes axillary, 1–3-flowered, glabrous; peduncle 1.2–6.5 cm; bracts linear, 3–6 mm. Flowers 2.5–3 cm in diam. Pedicel 1–4 cm, glabrous. Sepals 4, yellowish, erect, oblong to oblong-ovate, 1.8–2.7 × 0.9–1.2 cm, abaxially glabrous except for velutinous margin, adaxially sparsely appressed puberulous near apex, apex ± acute. Stamens 1.2–1.9 cm; filaments densely pubescent; anthers narrowly oblong, 3–3.2 mm, abaxially densely yellowish pubescent on connective, apex with a 0.1–0.2 mm apicula. Ovaries pubescent. Style ca. 9 mm, densely villous. Achenes narrowly obovate to narrowly rhombic, ca. 5 × 2 mm, pubescent; persistent style 3.5–4 cm, plumose. Fl. Jul–Aug, fr. Sep–Oct.

• Forests, forest margins, scrub; 1200–2000 m. S Gansu, W Hubei, E Sichuan.

126. *Clematis hupehensis* Hemsley & E. H. Wilson, Bull. Misc. Inform. Kew 1906: 148. 1906.

湖北铁线莲 hu bei tie xian lian

Vines suffruticose. Branches slender, shallowly ca. 8-grooved, glabrous. Leaves pinnate, 7-foliolate, glabrous; petiole slender, ca. 2.7 cm; leaflet blades ovate, 2.5–5 × 0.5–2.5 cm, papery, base rounded, margin entire, apex ± acute; basal veins inconspicuous. Cymes axillary, 1(–3)-flowered; peduncle 1.5–2.2 cm; bracts short petiolate, elliptic, 0.1–2.6 cm. Flowers ca. 2.5 cm in diam. Pedicel slender, 2.5–4.5 cm, glabrous. Sepals 4, yellow, erect, ovate-oblong, ca. 2.5 × 0.8 cm, abaxially glabrous except for velutinous margin, adaxially puberulous, apex acute. Stamens ca. 1.3 cm; filaments densely villous; anthers linear, 3.8–4.5 mm, glabrous, apex obtuse or minutely apiculate. Ovaries pubescent. Style ca. 1 cm, densely villous.

• Woods, scrub; 1500–2100 m. W Hubei.

127. *Clematis dasyandra* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 7. 1890.

毛花铁线莲 mao hua tie xian lian

Clematis dasyandra var. *polyantha* Finet & Gagnepain.

Vines woody. Branches shallowly 4–6-grooved, subglabrous or only sparsely puberulous on nodes. Leaves pinnate, 5-foliolate; petiole 2–5 cm; leaflet blades ovate, broadly ovate, or ovate-elliptic, 3–6.8 × 1.5–4.5 cm, herbaceous to thinly papery, undivided or 3-lobed, abaxially sparsely puberulous on basal veins, adaxially sparsely appressed puberulous, base rounded, subtruncate, or broadly cuneate, margin sparsely dentate, apex acuminate to caudate-acuminate; basal veins abaxially flat or ± prominent. Cymes axillary, 1- or 3–9-flowered; peduncle 0.9–3.3 cm, puberulous near apex; bracts ovate to oblanceolate, ca. 1 cm. Flowers 1.2–1.5 cm in diam. Pedicel 2.2–3.5 cm, glabrous. Sepals 4, purple, erect, ovate-oblong to oblong, 1.2–1.7 × 0.5–0.7 cm, abaxially densely to sparsely appressed puberulous, adaxially densely appressed puberulous,

margin abaxially velutinous, apex ± acute. Stamens 0.9–1.3 cm; filaments puberulous near apex; anthers oblong, ca. 2 mm, abaxially sparsely puberulous on connective, apex obtuse. Ovaries glabrous. Style ca. 8 mm, densely villous. Fl. Sep.

• Forests, scrub, slopes, by streams; 1700–2400 m. S Gansu, S Shaanxi, N Sichuan.

128. *Clematis rehderiana* Craib, Bull. Misc. Inform. Kew 1914: 150. 1914.

长花铁线莲 chang hua tie xian lian

Clematis nutans Royle var. *thyrsoidea* Rehder & E. H. Wilson; *C. veitchiana* Craib.

Vines woody. Branches shallowly 5–8-grooved, sparsely puberulous. Leaves usually 2-pinnate, sometimes 1-pinnate; petiole 2.8–6 cm; leaflet blades ovate to pentagonal-ovate, (2–)3.5–7 × (1.6–)3–5.8 cm, papery, 3-lobed or parted, both surfaces appressed sericeous-puberulous, base cordate, truncate, or broadly cuneate, margin dentate, apex acuminate to caudate-acuminate; basal veins abaxially ± prominent. Cymes axillary, 4- to many flowered, often paniclelike; peduncle 7–13 cm; bracts ovate to rhombic, 0.5–3.5 cm, often 3-lobed. Flowers 1.4–1.8 cm in diam. Pedicel 0.3–2.8 cm, densely puberulous. Sepals 4, yellowish, erect, oblong to narrowly oblong, 1.4–1.9 × 0.5–0.7 cm, abaxially densely appressed sericeous-puberulous, adaxially glabrous or sparsely puberulous, margin abaxially velutinous, apex ± acute and recurved. Stamens 1–1.3 cm; filaments pubescent; anthers narrowly oblong to oblong, 1.8–3 mm, glabrous or only abaxially puberulous on connective, apex obtuse. Ovaries puberulous. Style 1–1.3 cm, densely villous. Achenes ovate to suborbicular, 3–4 × 2.5–3 mm, puberulous; persistent style 2–2.5 cm, plumose. Fl. Jul–Aug, fr. Sep.

Slopes, scrub, along streams; 2000–2500 m. E Qinghai, W Sichuan, Xizang, NW Yunnan [Nepal].

129. *Clematis connata* de Candolle, Prodr. 1: 4. 1824.

合柄铁线莲 he bing tie xian lian

Vines woody. Branches shallowly 8–10-grooved, glabrous, ± glaucous. Leaves 1-pinnate, rarely 2-pinnate; petiole 3–8 cm, base ± dilated and connate to opposite petiole forming a disclike glaucous structure, glabrous or sparsely puberulous; leaflet blades ovate, broadly ovate, or narrowly ovate, 4–12 × 3.5–7.5 cm, papery, undivided or 3-lobed, abaxially glabrous, sparsely puberulous, densely puberulous, or sericeous-puberulous, often glaucous, adaxially glabrous or sparsely puberulous, base cordate or rarely truncate, rounded, or broadly cuneate, margin dentate, apex caudate-acuminate to acuminate; basal veins abaxially ± prominent. Cymes axillary, (5–)11- to many flowered, often paniclelike; peduncle 2.5–14 cm, glabrous or sparsely puberulous; bracts narrowly ovate to lanceolate, 1–4 cm. Flowers 1.2–1.8 cm in diam. Pedicel 1.5–4 cm, puberulous. Sepals 4, yellowish, erect, oblong, oblong-lanceolate, or narrowly oblong, (1.2–)1.6–2.2 × 0.3–0.6

cm, abaxially ± densely appressed puberulous or rarely glabrous, adaxially appressed puberulous near apex, margin abaxially velutinous, apex ± acute and recurved. Stamens 1–1.3 cm; filaments densely pubescent; anthers narrowly oblong to linear, 2.8–4.2 mm, glabrous or only abaxially puberulous on connective, apex obtuse. Ovaries puberulous. Style 0.8–1.3 cm, densely villous. Achenes ovate, ca. 4 × 2 mm, puberulous; persistent style ca. 4 cm, plumose. Fl. Aug–Oct, fr. Sep–Nov.

Forests, scrub, along streams or rivers; 2000–3400 m. W Guizhou, SW to W Sichuan, S Xizang, N to NW Yunnan [Bhutan, N India, Kashmir, Nepal, N Pakistan, Sikkim].

1a. Leaves 2-pinnate 129c. var. *pseudoconnata*

1b. Leaves 1-pinnate.

2a. Leaflet blades abaxially sparsely puberulous on veins, undivided; anthers glabrous 129a. var. *connata*

2b. Leaflet blades abaxially often ± densely appressed sericeous-puberulous, often 3-lobed; anthers abaxially puberulous on connective 129b. var. *trullifera*

129a. *Clematis connata* var. *connata*

合柄铁线莲(原变种) he bing tie xian lian (yuan bian zhong)

Clematis buchaniana de Candolle subsp. *connata* Kuntze.

Leaves pinnate; leaflet blades ovate to broadly ovate, undivided, abaxially sparsely puberulous on veins, adaxially subglabrous, base cordate. Anthers glabrous. Fl. Aug–Sep, fr. Sep–Oct.

Forests, along streams or rivers; 2000–3400 m. W Sichuan, S Xizang, NW Yunnan [Bhutan, N India, Kashmir, Nepal, N Pakistan, Sikkim].

129b. *Clematis connata* var. *trullifera* (Franchet) W. T. Wang, Acta Phytotax. Sin. 36: 170. 1998.

杯柄铁线莲 bei bing tie xian lian

Clematis buchaniana de Candolle var. *trullifera* Franchet, Pl. Delavay. 3. 1889; *C. connata* var. *sublanata* W. T. Wang; *C. coriigera* H. Léveillé.

Leaves pinnate; leaflet blades ovate to broadly ovate, often 3-lobed, abaxially often ± densely appressed sericeous-puberulous, adaxially sparsely appressed puberulous, base cordate. Anthers abaxially puberulous on connective. Fl. Oct, fr. Nov.

• Forests, scrub, along streams; 2000–2800 m. W Guizhou, W Sichuan, N Yunnan.

129c. *Clematis connata* var. *pseudoconnata* (Kuntze) W. T. Wang, Acta Phytotax. Sin. 39: 15. 2001.

川藏铁线莲 chuan zang tie xian lian

Clematis nutans Royle var. *pseudoconnata* Kuntze, Verh. Bot. Vereins Prov. Brandenburg. 26: 130. 1885; *C. connata* var. *bipinnata* M. Y. Fang.

Leaves 2-pinnate; leaflet blades narrowly ovate, undivided or unequally 2-lobed, both surfaces subglabrous to abaxially sparsely puberulous, base

truncate, rounded, or broadly cuneate. Anthers abaxially puberulous on connective. Fl. Sep.

Forests; 2900–3000 m. SW Sichuan, S Xizang [Nepal].

130. *Clematis lasiandra* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 22: 213. 1877.

毛蕊铁线莲 mao rui tie xian lian

Vines perennial, herbaceous. Branches deeply to sometimes shallowly 4–6-grooved, often 4–6-angulate, glabrous or sometimes sparsely puberulous, nodes swollen. Leaves usually 2-pinnate or 2-ternate, sometimes 1-pinnate or 1-ternate; petiole 2–6(–9) cm, base dilated and connate to opposite petiole, basally often with a few hairs but elsewhere glabrous or sparsely puberulous; leaflet blades narrowly ovate, ovate-lanceolate, ovate, or ovate-elliptic, 2–6.5(–8) × 1.4–3(–4.5) cm, herbaceous to thinly papery, undivided or 3-lobed, abaxially usually glabrous, sometimes sparsely puberulous, adaxially usually sparsely appressed puberulous, base broadly cuneate to rounded, margin serrate, denticulate, or dentate, apex acuminate to long acuminate; basal veins abaxially ± prominent. Cymes axillary or terminal, 1–9-flowered; peduncle (0.3–)1–6 cm; bracts ternate or simple, lanceolate to narrowly ovate, to 4 cm. Flowers 1–2 cm in diam. Pedicel 1.5–3.5 cm, sparsely puberulous or glabrous. Sepals 4, purple red, erect, oblong to ovate-oblong, 1–1.7 × 0.5–0.8 cm, papery, abaxially glabrous except for velutinous margin, adaxially sparsely puberulous only near apex or also near base, apex ± acute and recurved. Stamens 0.9–1.8 cm; filaments basally pubescent, apically densely villous; anthers narrowly oblong, 2–3 mm, glabrous, apex obtuse. Ovaries puberulous. Style 5–6 mm, densely villous. Achenes narrowly elliptic to narrowly rhombic-obovate, ca. 3 × 1.8 mm, puberulous; persistent style 2–3 cm, plumose. Fl. Aug–Oct, fr. Nov.

Slopes, scrub, along streams; 500–2800 m. S Anhui, S Gansu, N Guangdong, N Guangxi, Guizhou, SW Henan, Hubei, Hunan, W Jiangxi, S Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan].

131. *Clematis aethusifolia* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 5: 181. 1832.

芹叶铁线莲 qin ye tie xian lian

Vines perennial, herbaceous. Branches shallowly 4–8-grooved, sparsely puberulous to subglabrous. Leaves 2–4 × pinnatisect; petiole 0.6–2.4 cm; pinnae 4 or 5 pairs, opposite or subopposite, triangular; ultimate lobes linear, narrowly oblong, or narrowly triangular, 1–11 × 0.6–4 mm, papery, sometimes sparsely ciliate, both surfaces glabrous, or abaxially sparsely puberulous, glabrescent, margin entire or 1-denticulate, apex obtuse to rounded and often mucronate, midvein abaxially ± prominent. Cymes axillary or terminal, 1–5-flowered; peduncle 1–9.5 cm; bracts foliaceous. Flowers 1–1.8 cm in diam. Pedicel 3–9 cm, usually sparsely to rarely densely puberulous. Sepals 4, yellowish, erect,

lanceolate-oblong to oblanceolate-oblong, 1.2–2 × (0.3–)0.4–0.8 cm, both surfaces subglabrous, abaxially margin velutinous, apex ± acute and often recurved. Stamens 6–9 mm; filaments sparsely puberulous; anthers oblong, 1.8–2.2 mm, glabrous, apex obtuse. Ovaries puberulous. Style 5–8 mm, densely villous. Achenes broadly elliptic to broadly ovate, 3–4 × 2–3 mm, puberulous; persistent style 1.6–2.7 cm, plumose. Fl. Jul–Aug, fr. Sep.

Scrub, slopes, along streams; 300–3000 m. Gansu, Hebei, Nei Mongol, Ningxia, E and N Qinghai, N Shaanxi, Shanxi [Mongolia, Russia (Siberia)].

- 1a. Leaf ultimate lobes 1–5 × 0.6–2 mm 131a. var. *aethusifolia*
- 1b. Leaf ultimate lobes 2–11 × 1–4 mm 131b. var. *latisecta*

131a. *Clematis aethusifolia* var. *aethusifolia*
芹叶铁线莲(原变种) qin ye tie xian lian (yuan bian zhong)

Clematis nutans Royle var. *aethusifolia* (Turczaninow) Kuntze.

Leaf ultimate lobes 1–5 × 0.6–2 mm.

Scrub, slopes, along streams; 300–3000 m. Gansu, Hebei, Nei Mongol, Ningxia, E and N Qinghai, N Shaanxi, Shanxi [Mongolia, Russia (Siberia)].

131b. *Clematis aethusifolia* var. *latisecta* Maximowicz, Prim. Fl. Amur. 12. 1859.

宽芹叶铁线莲 kuan qin ye tie xian lian

Leaf ultimate lobes 2–11 × 1–4 mm.

Scrub on slopes; 1500–2000 m. N Hebei, Nei Mongol, N Shaanxi, N Shanxi [Mongolia, Russia (Siberia)].

132. *Clematis pinchuanensis* W. T. Wang & M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 354. 1980.

宾川铁线莲 bin chuan tie xian lian

Subshrubs small, erect, to 35 cm tall. Branches shallowly ca. 6-grooved, velutinous. Leaves simple or ternate; petiole 2–3 cm; leaf or leaflet blades deltoid-ovate to ovate, 3–6 × 3–6 cm, papery, often 3-lobed, reticulate, abaxially densely puberulous to velutinous, adaxially densely appressed puberulous, base subcordate to subtruncate, margin dentate, apex ± acute; basal veins abaxially prominent. Cymes terminal or axillary, few flowered; peduncle short; bracts triangular-ovate, ca. 1.5 cm. Flowers ca. 1.2 cm in diam. Pedicel 1–2 cm, velutinous. Sepals 4, erect, ovate-oblong, ca. 10 × 6 mm, abaxially narrowly winged and velutinous, adaxially appressed puberulous near apex, apex ± acute. Stamens ca. 6.5 mm; filaments densely villous; anthers narrowly oblong, ca. 2.5 mm, abaxially villous on connective, apex obtuse. Ovaries pubescent. Style ca. 5 mm, densely villous. Achenes subfusiform,

ca. 3 × 1.2 mm, pubescent; persistent style ca. 1 cm, plumose. Fl. Dec.

•NW Yunnan.

- 1a. Leaves simple 132a. var. *pinchuanensis*
- 1b. Leaves ternate 132b. var. *tomentosa*

132a. *Clematis pinchuanensis* var. *pinchuanensis*

宾川铁线莲(原变种) bin chuan tie xian lian (yuan bian zhong)

Leaves simple.

•NW Yunnan (Binchuan Xian).

132b. *Clematis pinchuanensis* var. *tomentosa* (Finet & Gagnepain) W. T. Wang, Acta Phytotax. Sin. 39: 15. 2001.

三出宾川铁线莲 san chu bin chuan tie xian lian

Clematis ranunculoides Franchet var. *tomentosa* Finet & Gagnepain, Bull. Soc. Bot. France 50: 544. 1903.

Leaves ternate.

•NW Yunnan (Dali Xian, Heqing Xian).

133. *Clematis ranunculoides* Franchet, Bull. Soc. Bot. France 33: 360. 1886.

毛茛铁线莲 mao gen tie xian lian

Vines perennial, herbaceous or when young sometimes stems erect. Stems and branches 4–6-grooved, acutely 4–6-angulate, pubescent to puberulous, sometimes glabrescent. Basal leaves petiolate, ternate or simple; lower stem leaves 1-ternate or pinnate, rarely simple; upper leaves 1-pinnate or 2-ternate, rarely 1-ternate; petiole 4–11 cm; blades of simple leaves mostly pentagonal; leaflet blades variable in shape, broadly ovate, pentagonal, ovate, or rhombic, occasionally cordate, 1.5–7 × 1–6 cm, papery, often 3-lobed, both surfaces sparsely and occasionally abaxially appressed pubescent, base broadly cuneate to subcordate, margin irregularly dentate to denticulate or rarely entire; basal veins abaxially prominent. Cymes axillary, usually 1–3-flowered, terminal cymes 3–7-flowered; peduncle 1–10(–35) mm, sometimes absent, puberulous; bracts sessile or petiolate, spatulate, lanceolate, ovate, or linear, 0.5–1.5 cm, 3-lobed or undivided. Flowers 0.7–1.5 cm in diam. Pedicel 0.6–5 cm, puberulous. Sepals 4, purple-red, erect, oblong to oblong-ovate, 7–14 × 4–6 mm, abaxially with 2 or 3 narrow longitudinal wings and sparsely pubescent to subglabrous, adaxially glabrous or appressed puberulous, apex obtuse and slightly recurved. Stamens 0.7–1.3 cm; filaments villous; anthers narrowly oblong, ca. 1.2 mm, glabrous, apex obtuse. Ovaries puberulous. Style 6–10 mm, densely villous. Achenes fusiform to narrowly elliptic, ca. 3 × 1.5–2 mm, puberulous; persistent style l. 5–2.5 cm, plumose. Fl. Sep–Oct, fr. Oct–Nov.

•Forests, slopes, scrub, along streams; 500–3000 m. NW Guangxi, W Guizhou, SW Sichuan, C to NW Yunnan.

- 1a. Leaves simple, 1- or 2-ternate, or pinnate; leaf or leaflet blades broadly ovate, pentagonal, ovate, or rhombic, often 3-lobed, base broadly cuneate to subcordate, margin irregularly dentate to denticulate 133a. var. *ranunculoides*
1b. Leaves 1-ternate; leaflet blades cordate, entire, base cordate, margin entire or sparsely crenate 133b. var. *cordata*

133a. *Clematis ranunculoides* var. *ranunculoides*

毛茛铁线莲(原变种) mao gen tie xian lian (yuan bian zhong)

Clematis acutangula J. D. Hooker & Thomson f. *major* W. T. Wang; *C. acutangula* subsp. *ranunculoides* (Franchet) W. T. Wang; *C. philippiana* H. Léveillé; *C. pterantha* Dunn var. *grossedentata* Rehder & E. H. Wilson; *C. ranunculoides* var. *grossedentata* (Rehder & E. H. Wilson) Handel-Mazzetti; *C. urophylla* Franchet var. *heterophylla* H. Léveillé.

Leaves simple, 1- or 2-ternate, or pinnate; leaf or leaflet blades broadly ovate, pentagonal, ovate, or rhombic, often 3-lobed, base broadly cuneate to subcordate, margin irregularly dentate to denticulate.

• Forests, slopes, scrub, along streams; 500–3000 m. NW Guangxi, W Guizhou, SW Sichuan, C to NW Yunnan.

133b. *Clematis ranunculoides* var. *cordata* M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 354. 1980.

心叶铁线莲 xin ye tie xian lian

Leaves 1-ternate; leaflet blades cordate, unlobed, base cordate, margin entire or sparsely crenate.

• SW Sichuan.

134. *Clematis pterantha* Dunn, Hooker's Icon. Pl. 28: t. 2713. 1901.

思茅铁线莲 si mao tie xian lian

Clematis ranunculoides Franchet var. *pterantha* (Dunn) M. Y. Fang.

Vines. Branches deeply grooved, glabrous. Leaves ternate, glabrous; petiole ca. 8 cm; leaflet blades narrowly ovate to triangular-ovate, 9.5–13 × 4.5–6 cm, papery, base broadly cuneate to rounded-truncate, margin dentate at middle part, apex acuminate to attenuate; basal veins abaxially nearly flat. Cymes axillary, 7–14-flowered; peduncle 2–3.6 cm; bracts lanceolate-linear, 1.4–2.2 cm, margin denticulate. Flowers ca. 1 cm in diam. Pedicel 0.6–1.5 cm, sparsely puberulous. Sepals 4, white, erect, oblong-ovate, ca. 9 × 5 mm, abaxially with 3 narrow longitudinal wings and glabrous except for velutinous margin, adaxially puberulous, apex ± acute. Stamens nearly as long as sepals; filaments densely pubescent; anthers oblong, glabrous, apex obtuse. Ovaries pubescent. Style ca. 7 mm, densely villous. Fl. Nov–Dec.

• Forests; ca. 1600 m. S Yunnan (Pu'er Xian).

135. *Clematis yuanjiangensis* W. T. Wang, Acta Phytotax. Sin. 31: 224. 1993.

元江铁线莲 yuan jiang tie xian lian

Vines herbaceous. Branches ca. 4-grooved, appressed puberulous. Leaves ternate; petiole 5.5–6.4 cm; leaflet blades oblong-lanceolate, narrowly ovate, or narrowly elliptic, 2.7–8 × 1–2.8 cm, leathery, abaxially sparsely short strigose, adaxially sparsely strigose, base broadly cuneate, margin 1-denticulate on each side but entire apically from middle, apex acute; basal veins abaxially ± prominent. Cymes axillary, 1–3-flowered; peduncle 2.5–13 mm, densely puberulous; bracts narrowly elliptic, 0.6–2 cm. Flowers ca. 1.8 cm in diam. Pedicel 2.5–7 cm, densely puberulous. Sepals 4, pinkish, erect, suboblong, ca. 1.8 × 0.4 cm, abaxially with 3 narrow longitudinal wings and appressed puberulous, adaxially only apex puberulous, margin abaxially velutinous, apex ± obtuse. Stamens ca. 7.5 mm; filaments densely villous; anthers narrowly oblong, 1.8–2 mm, glabrous, apex obtuse. Ovaries pubescent. Style ca. 7 mm, densely villous. Fl. Sep–Oct, fr. Oct–Nov.

• Mountainous areas; ca. 1600 m. S Yunnan.

136. *Clematis pogonandra* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 8. 1890.

须蕊铁线莲 xu rui tie xian lian

Vines suffruticose. Branches shallowly 4–6-grooved, subglabrous or only sparsely puberulous on nodes. Leaves ternate; petiole 2–6 cm; leaflet blades ovate-lanceolate, oblong, or ovate, 3.5–10 × 1–4.2 cm, papery, both surfaces glabrous or subglabrous or adaxially puberulous on midvein, abaxially pilose on basal veins, glaucous, base rounded to subcordate, margin entire or 1- to few dentate, apex acuminate to narrowly acuminate; basal veins abaxially ± prominent. Flowers axillary, solitary, 2–3 cm in diam. Pedicel 3–10 cm, glabrous or puberulous. Sepals 4, yellowish, erect, ovate-oblong to oblong-lanceolate, (1.5–)2.2–2.9 × 0.5–1 cm, abaxially occasionally with a narrow longitudinal wing on midvein and glabrous except for velutinous margin, adaxially densely puberulous near apex, apex acuminate. Stamens 1.4–2.2 cm; filaments apically pubescent; anthers narrowly oblong, ca. 4 mm, abaxially densely pubescent on connective, apex with a 1–1.5 mm apicula. Ovaries puberulous. Style (5–)9 mm, densely villous. Achenes narrowly obovate, 4–5 × ca. 2 mm, puberulous; persistent style ca. 2.5 cm, plumose. Fl. Jun–Jul, fr. Jul–Aug.

• Forests, forest margins, slopes, scrub; 2200–3700 m. S Gansu, W Hubei, S Shaanxi, SW to W Sichuan.

1a. Leaflet blades and pedicel glabrous or subglabrous 136a. var. *pogonandra*

- 1b. Leaflet blades abaxially pilose basally on veins and adaxially puberulous basally on midvein, pedicel puberulous.
2a. Sepals abaxially not winged 136b. var. *pilosula*
2b. Sepals abaxially with a narrowly longitudinal wing on midvein. 136c. var. *alata*

136a. Clematis pogonandra var. **pogonandra**

须蕊铁线莲(原变种) xu rui tie xian lian (yuan bian zhong)

Clematis faberi Hemsley & E. H. Wilson; *C. prattii* Hemsley.

Leaflet blades glabrous or subglabrous, margin entire or rarely 1- or few dentate. Pedicel glabrous. Sepals abaxially not winged.

• Forest margins, scrub; 2200–3400 m. S Gansu, W Hubei, S Shaanxi, W Sichuan.

136b. Clematis pogonandra var. **pilosula** Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 320. 1931.

多毛须蕊铁线莲 duo mao xu rui tie xian lian

Leaflet blades abaxially pilose basally on veins, adaxially puberulous basally on midvein, margin entire or 2-dentate. Pedicel puberulous. Sepals abaxially not winged.

• Slopes in forests; 2500–3400 m. W Sichuan.

136c. Clematis pogonandra var. **alata** W. T. Wang & M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 355. 1980.

雷波铁线莲 lei bo tie xian lian

Leaflet blades abaxially pilose on basal veins, adaxially puberulous on basal midvein, margin sparsely dentate. Pedicel puberulous. Sepals abaxially with a ca. 1 mm wide longitudinal wing on midvein.

• Forests, scrub; 2400–3700 m. SW Sichuan.

137. Clematis shenlungchiaensis M. Y. Fang in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 355. 1980.

神农架铁线莲 shen nong jia tie xian lian

Vines woody. Branches shallowly ca. 6-grooved, puberulous. Leaves ternate; petiole 3–5 cm; leaflet blades broadly ovate to ovate-elliptic, 2.5–5.4 × 1–2.8 cm, thin papery, both surfaces sparsely appressed puberulous, abaxially slightly glaucous, base rounded to broadly cuneate, margin to 2-dentate on each side or entire, apex acuminate; basal veins abaxially flat. Flowers axillary, solitary, 2–3 cm in diam., nodding. Pedicel 4–7.5 cm, appressed puberulous. Sepals 4, erect, oblong, ca. 2.5 × 0.9 cm, abaxially glabrous except for velutinous margin, adaxially densely puberulous, apex acuminate. Stamens ca. 1.3 cm; filaments puberulous; anthers narrowly oblong, 2.8–3 mm, abaxially densely yellowish puberulous on connective, apex with a ca. 0.2 mm apicula. Ovaries pubescent. Style ca. 7 mm, densely villous. Fl. Jul.

• Rocky areas on slopes; ca. 2900 m. W Hubei (Shennongjia Linqu).

138. Clematis barbellata Edgeworth var. **obtusata** Kitamura & Tamura in Kihara, Fauna Fl. Nepal 1: 127. 1955.

吉隆铁线莲 ji long tie xian lian

Clematis kilungensis W. T. Wang & M. Y. Fang.

Vines woody. Branches terete, flat, or ca. 4-grooved, sparsely puberulous, glabrescent; bud scales narrowly ovate to triangular, ca. 6 mm, ciliate. Leaves ternate; petiole 1.5–4 cm; leaflet blades ovate, rhombic, or ovate-lanceolate, 2.5–6 × 1.4–2.6 cm, papery, often 3-lobed, abaxially sparsely pilose only on midvein, adaxially glabrous, base rounded to broadly cuneate, margin to 2-dentate on each side, apex acuminate to narrowly acuminate; basal veins abaxially ± prominent. Flowers 1 or 2 borne together with 2 leaves arising from axillary buds of old branches, ca. 5 cm in diam. Pedicel 5–7.5 cm, puberulous near apex. Sepals 4, yellow, erect, ovate-oblong, 2–3 × 1–1.7 cm, both surfaces sparsely puberulous, margin abaxially velutinous, apex ± acute. Stamens ca. 1.2 cm; filaments pubescent; anthers narrowly oblong, ca. 3 mm, abaxially densely pubescent on connective, apex with a ca. 0.3 mm apicula. Ovaries puberulous. Style ca. 1 cm, densely villous. Fl. Jun.

Forests; ca. 3700 m. S Xizang (Gyirong Xian) [Nepal].

Clematis barbellata var. *barbellata* occurs in N India, Nepal, Kashmir, and N Pakistan.

139. Clematis pseudopogonandra Finet & Gagnepain, Bull. Soc. Bot. France 50: 549. 1903.

西南铁线莲 xi nan tie xian lian

Clematis pseudopogonandra var. *paucidentata* Finet & Gagnepain.

Vines woody. Branches 4–6-grooved, sparsely puberulous, glabrescent; bud scales ovate, 3–5 mm, glabrous. Leaves 2-ternate; petiole 1.4–6.5 cm; leaflet blades narrowly ovate, broadly ovate, or rhombic, 1.2–4 × 0.6–3 cm, papery, 3-lobed or undivided, both surfaces sparsely puberulous, glabrescent, base rounded to broadly cuneate, margin sparsely denticulate or entire, apex acute to acuminate; basal veins abaxially ± prominent. Flowers 1–3 borne together with 2 leaves arising from axillary buds of old branches or solitary in leaf axils of current year's branches, 3–3.5 cm in diam. Pedicel 3.5–6.5 cm, puberulous near apex. Sepals 4, reddish purple to dark purple, erect-ascending, broadly lanceolate to oblong, 2.2–4 × 0.8–1.5 cm, leathery, abaxially sparsely puberulous, adaxially appressed puberulous, margin abaxially velutinous, apex acuminate. Stamens 1.1–1.6 cm; filaments apically densely villous; anthers oblong, 2.5–3 mm, abaxially densely villous, apex obtuse. Ovaries pubescent. Style ca. 7 mm, densely villous. Achenes broadly ovate to subrhombic, 3–5 × 3–3.5 mm, pubescent; persistent style ca. 3.5 cm, brownish to yellowish plumose. Fl. Jun–Jul, fr. Aug–Sep.

• Forests, scrub, along streams; 2700–4300 m. W Sichuan, E and SE Xizang, NW Yunnan.

140. Clematis integrifolia Linnaeus, Sp. Pl. 1: 544. 1753.

全缘铁线莲 *quan yuan tie xian lian*

Clematis integrifolia var. *normalis* Kuntze.

Subshrubs erect or perennial herbs, (0.6–)1–1.5 m tall. Branches shallowly 6–10-grooved, puberulous, glabrescent, often simple. Leaves simple, sessile; leaf blade broadly ovate to ovate, 4–14 × 2.5–11 cm, papery, both surfaces glabrous, base rounded to broadly cuneate, margin entire and abaxially crisped pubescent, apex acuminate to acute; basal veins abaxially prominent. Flowers solitary, terminal, ca. 4 cm in diam., nodding. Pedicel 5–16 cm, densely puberulous but velutinous near apex. Sepals 4, purple, blue, or white, erect, oblong-lanceolate, 3–4.5 × 0.7–1.2 cm, often widened apically, both surfaces glabrous, margin abaxially velutinous, apex acuminate and recurved. Stamens ca. 1/2 as long as sepals; filaments apically pubescent; anthers linear, 4.2–5 mm, abaxially densely pubescent on connective, apex minutely apiculate. Ovaries puberulous. Style as long as stamens, densely villous. Achenes narrowly obovate, 6–10 × 4–5 mm, puberulous; persistent style 4–5 cm, plumose. Fl. Jun–Jul, fr. Aug.

Grassy slopes, scrub, river banks; 1200–2000 m. N Xinjiang [Kazakhstan, Russia; W Asia, Europe].

141. *Clematis fusca* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 14: 60. 1840.

褐毛铁线莲 *he mao tie xian lian*

Vines perennial, herbaceous or erect herbs. Stems to 2 m when scandent or to 35 cm tall when erect, shallowly 4–8-grooved, puberulous. Leaves pinnate, (5–)7(–9)-foliolate; petiole 2.5–4.5 cm; leaflet blades broadly to narrowly ovate, 2–9 × 1–5 cm, papery, undivided or 3-lobed, both surfaces sparsely puberulous to subglabrous, abaxially ± reticulate, base rounded to subcordate, margin entire, apex acuminate to acute; basal veins abaxially prominent. Flowers usually solitary and terminal or in axillary usually 1-flowered cymes, nodding, 1.5–2.5 cm in diam.; peduncle 0.2–4 cm, sometimes absent; bracts ovate to narrowly ovate, 0.7–4 cm, undivided or 3-lobed. Pedicel 0.6–1.5 cm, densely pubescent or glabrous. Sepals 4, purple, erect, ovate to ovate-oblong, 1.4–3 × 0.7–1.2 cm, abaxially appressed brownish pubescent, subglabrous, or glabrous, adaxially glabrous, margin abaxially velutinous, apex acute to attenuate. Stamens 1–1.4 cm; filaments brownish villous; anthers linear, 4–5 mm, abaxially densely pubescent on connective, apex with a 0.3–0.6 mm apicula. Ovaries puberulous. Style 0.8–1.2 cm, densely villous. Achenes broadly obovate to elliptic, 5–7 × 4–5 mm, appressed pubescent; persistent style 3–4 cm, brown plumose. Fl. Jun–Jul, fr. Aug–Sep.

Forests, forest margins, slopes, scrub, thickets; 500–1000 m. NE Hebei, Heilongjiang, Jilin, Liaoning, NE Nei Mongol, E Shandong [Japan, Korea, Russia (Far East)].

1a. Pedicel densely pubescent; sepals abaxially brownish pubescent 141a. var. *fusca*

1b. Pedicel glabrous or subglabrous; sepals abaxially glabrous or subglabrous 141b. var. *violacea*

141a. *Clematis fusca* var. *fusca*

褐毛铁线莲(原变种) *he mao tie xian lian* (yuan bian zhong)

Clematis fusca var. *amurensis* Kuntze; *C. fusca* var. *mandshurica* Regel; *C. ianthina* Koehne var. *mandshurica* (Regel) Nakai; *C. kamtschatica* Bongard. Pedicel densely pubescent. Sepals abaxially appressed brownish pubescent.

Forests, forest margins, slopes, scrub. NE Hebei, Heilongjiang, Jilin, Liaoning, E Shandong [Japan, Korea, Russia (Far East)].

141b. *Clematis fusca* var. *violacea* Maximowicz, Prim. Fl. Amur. II. 1859.

紫花铁线莲 *zi hua tie xian lian*

Clematis fusca subsp. *violacea* (Maximowicz) Kitagawa; *C. ianthina* Koehne var. *violacea* (Maximowicz) Nakai.

Pedicel glabrous or subglabrous. Sepals abaxially glabrous or subglabrous.

Scrub, thickets. Heilongjiang, SE Jilin [Korea, Russia (Far East)].

142. *Clematis koreana* Komarov, Trudy Imp. S.-Peterburgsk. Bot. Sada 18: 438. 1901.

朝鲜铁线莲 *chao xian tie xian lian*

Atragene koreana (Komarov) Komarov; *Clematis alpina* (Linnaeus) Miller var. *koreana* (Komarov) Nakai; *C. komarovii* Koidzumi.

Vines woody. Branches terete or inconspicuously 6-angulate, glabrous; bud scales lanceolate to narrowly ovate, 1–2 cm, papery, puberulous. Leaves ternate; petiole 4–7 cm; leaflet blades broadly ovate, ovate, or suborbicular, 5–9 × 3–8.5 cm, papery, 2- or 3-lobed or parted or undivided, both surfaces sparsely appressed puberulous, glabrescent, base subcordate, margin dentate, apex acuminate; basal veins abaxially nearly flat. Flowers solitary, ca. 3.5 cm in diam. Pedicel 5–11 cm, sparsely puberulous to glabrous. Sepals 4, yellowish to reddish, oblong, narrowly elliptic, or ovate, 1.7–2 × 0.5–0.8 cm, abaxially sparsely puberulous, adaxially appressed puberulous, margin abaxially velutinous, apex ± acute. Staminodes linear-spatulate, 1.5–1.8 cm, puberulous. Stamens 1–1.4 cm; filaments pubescent; anthers narrowly oblong, ca. 2.5 mm, abaxially densely pubescent on connective, apex obtuse. Ovaries pubescent. Style ca. 8 mm, densely villous. Achenes narrowly obovate, 4–5 × 2–3 mm, puberulous; persistent style ca. 4.5 cm, plumose. Fl. May–Jun, fr. Jul.

Forests, scrub; 1000–1900 m. S Heilongjiang, E Jilin, E Liaoning [Korea].

143. *Clematis iliensis* Y. S. Hou & W. H. Hou, Bull. Bot. Res., Harbin 6(2): 131. 1986.

伊犁铁线莲 *yi li tie xian lian*

Clematis sibirica Miller var. *iliensis* (Y. S. Hou & W. H. Hou) J. G. Liu.

Vines woody. Branches shallowly 4–6-grooved or terete, sparsely pubescent; bud scales triangular, 3–7 mm, abaxially pubescent. Leaves ternate; petiole 3–10 cm; leaflet blades narrowly ovate to broadly ovate, 4–10 × 2–8 cm, herbaceous to papery, undivided or 3-parted, both surfaces sparsely pubescent, often glabrescent, base truncate, rounded, or subcordate, margin denticulate to dentate, apex acuminate; basal veins abaxially ± prominent. Flowers 1–3 borne together with a pair of leaves arising from axillary buds of old branches, 4–7 cm in diam. Pedicel 8–14 cm, sparsely pubescent. Sepals 4, yellowish, ascending, obovate-oblong to elliptic, 3.6–4.5(–5) × 1.1–1.8(–3) cm, abaxially densely puberulous, adaxially puberulous, apex ± obtuse. Stamines linear-spatulate, ca. 2 cm, abaxially densely puberulous, adaxially glabrous, apex ± acute. Stamens slightly shorter than stamines; filaments densely pubescent; anthers linear, ca. 3 mm, abaxially pubescent on connective, apex ± obtuse. Ovaries puberulous. Style ca. 1.4 cm, densely villous. Achenes narrowly obovate to narrowly elliptic, ca. 4 × 2.2–2.8 mm, puberulous; persistent style 3–3.8(–5) cm, plumose. Fl. Jun–Jul, fr. Jul–Aug.

• *Picea* forests, forest margins, along streams; 1600–3000 m. CN to SW Xinjiang.

144. *Clematis moisseenkoi* (Serov) W. T. Wang, **comb. nov.**
绒萼铁线莲 *rong e tie xian lian*

Basionym: *Atragene moisseenkoi* Serov, Bot. Zhurn. 71: 1128. 1986.

Vines woody. Branches subterete, indistinctly 6-angulate, sparsely puberulous near nodes, elsewhere glabrous. Leaves ternate or pinnate and 5-foliolate; petiole 1.5–4 cm; leaflet blades ovate or narrowly so, undivided, rarely 2-parted or 2-lobed, 1.6–4 × 1–2.8 cm, herbaceous, abaxially sparsely pubescent, adaxially subglabrous or very sparsely puberulous on veins, base broadly cuneate, subcordate, or cordate, margin serrate, apex acute or shortly acuminate; basal veins abaxially slightly prominent or flat. Flowers 1–3, arising with 2 leaves from axillary buds of old branches, 3–5 cm in diam.; pedicel 6–7.4 cm, pubescent. Sepals 4, ascending, linear-lanceolate, 2.5–3.3 × 0.5–0.75 cm, abaxially white velutinous, adaxially puberulous, apex recurved, long acuminate. Stamines spatulate or oblanceolate-linear, 16–25 × 1.5–3.5 mm, puberulous; claw linear, 1–1.5 mm wide. Stamens 14–16 mm; filaments linear, densely puberulous; anthers linear or narrowly oblong, 2–2.8 mm, abaxially pubescent. Ovaries densely pubescent; style ca. 10 mm, densely villous. Fl. Jun.

• About 1600 m. W Xinjiang (Borohoro Shan).

145. *Clematis sibirica* Miller, Gard. Dict., ed. 8, *Clematis* no. 12. 1768.

西伯利亚铁线莲 *xi bo li ya tie xian lian*

Vines woody. Branches inconspicuously 4–6-angulate to subterete, glabrous; bud scales deltoid, triangular, or

oblong, 0.4–1.8 cm, abaxially apically puberulous. Leaves 2-ternate; petiole 3–6.5 cm; leaflet blades elliptic-ovate, ovate, or lanceolate, 2–7 × 1.1–3 cm, herbaceous to thin papery, both surfaces sparsely puberulous or adaxially glabrous, base broadly cuneate to rounded, margin serrate to denticulate, apex acute to acuminate; basal veins nearly flat. Flowers solitary, 3–6 cm in diam. Pedicel 7–10(–14) cm, sparsely puberulous. Sepals 4, yellow, yellowish, white, purple, or blue, ascending, narrowly oblong, oblong, narrowly ovate, or oblong-obovate, 2.2–4.5 × 1–2 cm, both surfaces puberulous or adaxially glabrous, abaxially margin densely puberulous, apex acute to acuminate. Stamines linear-spatulate, ca. 1/2 as long as sepals, 2–5 mm wide, abaxially puberulous, adaxially glabrous. Stamens 1–1.4 cm; filaments puberulous; anthers narrowly oblong, 2–3.2 mm, abaxially puberulous on connective. Ovaries puberulous. Style 8–9 mm, densely villous. Achenes obovate, 4–5 × 3–4 mm, puberulous; persistent style 2.5–4.5 cm, plumose. Fl. May–Jul, fr. Jul–Aug.

Forests, forest margins, scrub; 600–2000 m. C Gansu, N Hebei, Heilongjiang, Jilin, Nei Mongol, Ningxia, E Qinghai, N Shanxi, Xinjiang [Japan, Mongolia, Russia; NW Europe].

1a. Sepals yellow, yellowish, or white, narrowly oblong, oblong, or narrowly ovate, 3–4.5 × 1–1.6 cm 145a. var. *sibirica*

1b. Sepals purple to blue, narrowly oblong to oblong-obovate, 2.2–4 × 1–2 cm 145b. var. *ochotensis*

145a. *Clematis sibirica* var. *sibirica*

西伯利亚铁线莲(原变种) *xi bo li ya tie xian lian*
(yuan bian zhong)

Clematis sibirica var. *tianzhuensis* M. S. Yan & K. Sun.

Sepals yellow, yellowish, or white, narrowly oblong, oblong, or narrowly obovate, 3–4.5 × 1–1.6 cm. Fl. Jun–Jul, fr. Jul–Aug.

Forests, forest margins; 1200–2000 m. C Gansu, Heilongjiang, Nei Mongol, Ningxia, E Qinghai, Xinjiang [Mongolia, Russia; NW Europe].

145b. *Clematis sibirica* var. *ochotensis* (Pallas) S. H. Li & Y. H. Huang, Fl. Pl. Herb. Chinae Bor.-Or. 3: 179. 1975.
半钟铁线莲 *ban zhong tie xian lian*

Atragene ochotensis Pallas, Fl. Ross. 1: 69. 1784; *A. alpina* Linnaeus var. *ochotensis* (Pallas) Regel & Tiling; *A. platysepala* Trautvetter & C. A. Meyer; *Clematis alpina* (Linnaeus) Miller var. *chinensis* Maximowicz; *C. alpina* var. *ochotensis* (Pallas) Kuntze; *C. nobilis* Nakai; *C. ochotensis* (Pallas) Poiret; *C. platysepala* (Trautvetter & C. A. Meyer) Handel-Mazzetti.

Sepals purple to blue, narrowly oblong to oblong-obovate, 2.2–4 × 1–2 cm. Fl. May–Jun, fr. Jul–Aug.

Forests, forest margins, scrub; 600–1200 m. N Hebei, Heilongjiang, Jilin, Nei Mongol, N Shanxi [Japan, Russia (Far East, Siberia)].

146. Clematis macropetala Ledebour, Icon. Pl. 1: 5. 1829.
 长瓣铁线莲 chang ban tie xian lian
 Vines woody. Branches 4–6-angulate, sometimes shallowly 4-grooved, glabrous or only puberulous on nodes; bud scales deltoid to triangular, 0.2–1.8 cm, abaxially appressed puberulous. Leaves 2-ternate; petiole 3–5.5 cm; leaflet blades lanceolate, narrowly ovate, or ovate, 2–5 × 1–4.5 cm, papery, undivided or 3-parted, both surfaces sparsely puberulous or only subglabrous on basal veins, base broadly cuneate to rounded, margin serrate, apex acuminate; basal veins abaxially nearly flat. Flowers solitary, 3–6 cm in diam. Pedicel 8–13 cm, sparsely puberulous. Sepals 4, blue, purple, or white, ascending, narrowly ovate to ovate-lanceolate, 3–4(–4.8) × 1–1.5(–2.1) cm, abaxially densely puberulous, adaxially glabrous or sparsely puberulous, apex acute. Staminodes narrowly lanceolate to linear-lanceolate, slightly shorter than or equaling sepals, sometimes inner ones linear-spatulate to oblanceolate-linear, abaxially densely puberulous, adaxially glabrous or puberulous. Stamens 1–1.4 cm; filaments pubescent; anthers narrowly oblong to linear, 2.5–4 mm, abaxially puberulous on connective, apex obtuse. Ovaries pubescent. Style 0.8–1.2 cm, densely villous. Achenes obovate, ca. 4 × 2.5 mm, sparsely pubescent; persistent style 3.5–4 cm, plumose. Fl. Jul, fr. Aug.

Forests; 1700–2000 m, Gansu, Hebei, Liaoning, Nei Mongol, Ningxia, E Qinghai, S Shaanxi, Shanxi [E Mongolia, Russia (Far East, Siberia)].

1a. Sepals blue to purple 146a. var. *macropetala*
 1b. Sepals white 146b. var. *albiflora*

146a. Clematis macropetala var. *macropetala*
 长瓣铁线莲(原变种) chang ban tie xian lian (yuan bian zhong)
Atragene macropetala (Ledebour) Ledebour; *Clematis alpina* (Linnaeus) Miller subsp. *macropetala* (Ledebour) Kuntze var. *rupestris* Turczaninow ex Kuntze; *C. alpina* var. *macropetala* Maximowicz; *C. alpina* var. *macropetala* subvar. *rupestris* (Turczaninow ex Kuntze)

Maximowicz; *C. macropetala* var. *rupestris* (Turczaninow ex Kuntze) Handel-Mazzetti.
 Leaflet blades 2–5 × 1–4.5 cm. Sepals blue to purple. Gansu, Hebei, Liaoning, Nei Mongol, Ningxia, E Qinghai, S Shaanxi, Shanxi [E Mongolia, Russia (Far East, Siberia)].

146b. Clematis macropetala var. *albiflora* (Maximowicz ex Kuntze) Handel-Mazzetti, Acta Horti Gothob. 13: 197. 1939–1940.

白花长瓣铁线莲 bai hua chang ban tie xian lian
Clematis alpina subsp. *macropetala* var. *albiflora* Maximowicz ex Kuntze, Verh. Bot. Vereins Prov. Brandenburg. 26: 163. 1885; *Atragene diana* Serov; *C. alpina* var. *macropetala* subvar. *albiflora* (Maximowicz ex Kuntze) Maximowicz.

Leaflet blades 3–5 × 1.5–2 cm. Sepals white.

• Forests. Ningxia (Helan Shan), Shanxi (Guandi Shan).

147. Clematis alternata Kitamura & Tamura, Acta Phytotax. Geobot. 15: 129. 1954.

互叶铁线莲 hu ye tie xian lian
Archiclematis alternata (Kitamura & Tamura) Tamura.
 Shrublets scandent. Branches slender, appressed puberulous. Leaves alternate, simple; petiole 2.5–6 cm; leaf blade ovate, cordate, or pentagonal, 3–7 × 3–7.5 cm, papery, abaxially densely puberulous to velutinous, adaxially densely appressed puberulous, base cordate, margin denticulate, apex acute to short acuminate; basal veins abaxially ± prominent. Cymes axillary, 1–3-flowered; peduncle 3.4–7 cm, puberulous; bracts short petiolate, ovate to broadly rhombic, 1–1.8 cm, 3-lobed. Flowers campanulate, nodding, 1.5–2 cm in diam. Pedicel 2.5–3.8 cm, densely puberulous. Sepals 4, red, erect, ovate-oblong, 1.8–2.2 × 0.6–1.2 cm, abaxially densely appressed puberulous, adaxially sparsely puberulous, apex ± obtuse. Stamens 1.5–2 cm; filaments pubescent; anthers linear to narrowly oblong, ca. 4 mm, glabrous, apex obtuse. Ovaries pubescent. Style ca. 1.3 cm, densely villous. Fl. Jul, fr. Aug.

Forest margins, scrub; 2200–2500 m. S Xizang (Gyirong Xian) [Nepal].

Clematis alternata differs from all other species of *Clematis* in having alternate leaves. It has been treated as the separate genus *Archiclematis*.

30. NARAVELIA Adanson, Fam. Pl. 2: 460, 581. 1763, nom. et orth. cons.

锡兰莲属 xi lan lian shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Vines woody. Stem terete. Leaves pinnately compound, margin entire, apex obtuse; basal 2 leaflets developed normally, apical 3 leaflets developed into tendrils. Inflorescences paniculate, terminal or axillary; bractlets 2. Pedicel 1–1.5 cm, basally pilose. Flowers spreading. Sepals 4. Petals 8–12, narrow, linear to clavate. Stamens numerous. Pistils hairy; ovule 1 per ovary, pendulous. Styles persistent, plumose. Achenes slender, shortly stipitate. About nine species: S and SE Asia; two species (one endemic) in China.

1a. Lateral leaflets broadly ovate to subrounded; petal limbs orbicular 1. *N. pilulifera*
 1b. Lateral leaflets usually cordate; petals clavate to spatulate 2. *N. zeylanica*

1. Naravelia pilulifera Hance, J. Bot. 6: 111. 1868.

两广锡兰莲 liang guang xi lan lian

Stem 2–3 m tall, conspicuously striate, pubescent to subglabrous. Lateral leaflet petiolules 2–3 cm; central leaflet petiolule 5–7 cm, subglabrous; leaflet blade

broadly ovate to subrounded, 7–11 × 6–8 cm, papery, sparsely pubescent or subglabrous, base rounded to slightly cordate; 5–(7)-veined from base. Inflorescences axillary, to 16 cm, pubescent; bractlets scaly. Flowers ca. 1.5 cm in diam. Sepals narrowly ovate to elliptic, 6–7 × 3–4 mm, slightly pubescent to subglabrous, margin densely villous. Petals 8–12, pale green, limb orbicular, obovate, or spatulate, ca. 8 mm, glabrous; claw linear. Stamens ca. 4 mm, glabrous; filaments basally slightly thickened, apex obtuse; anthers ventrally curved. Pistils as long as stamens, lanate. Persistent styles ca. 2 cm. Achenes ca. 5 × 1 mm. Fl. Sep, fr. Oct.

• Forests, scrub, slopes; 300–1000 m. Guangdong, Guangxi, Hainan, S Yunnan.

2. *Naravelia zeylanica* (Linnaeus) de Candolle, Syst. Nat. 1: 167. 1817.

锡兰莲 xi lan lian

Atragene zeylanica Linnaeus, Sp. Pl. 1: 542. 1753;
Naravelia pilulifera var. *yunnanensis* Y. Fei.

Stem striate, subglabrous. Lateral leaflet petiolules 1.5–2.5 cm; central leaflet petiolule 3–7 cm, shallowly striate; leaflet blade ovate, 6–11 × 6–10 cm, abaxially sparsely curved hairy to subglabrous, adaxially glabrous, base rounded to cordate; 5-veined from base. Inflorescences terminal or axillary, to 40 cm, velutinous; bractlets borne at middle of pedicel, scaly. Flowers ca. 1 cm in diam. Sepals pale yellow, narrowly obovate to elliptic, 5–7 × ca. 3 mm, sparsely pubescent. Petals 8–10, clavate, obovate, or spatulate, 5–7 × 1–1.5 mm. Stamens linear, 2.5–3.5 mm; anthers yellow, linear, glabrous, apex rounded. Pistils linear, lanate-villous. Persistent styles ca. 3 cm. Achenes fusiform, ca. 4 mm, pilose. Fl. Oct, fr. Nov. *2n* = 16.

Forests; ca. 1000 m. S Yunnan [Bhutan, India, Nepal, Sikkim].

31. KINGDONIA I. B. Balfour & W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 8: 191. 1914.

独叶草属 du ye cao shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial, small. Rhizome slender. Leaf usually 1, basal, long petiolate, palmate, veins dichotomous. Flowers terminal, solitary, bisexual. Sepals (4 or)5 or 6(or 7). Petals absent. Stamens (3–)5–8. Staminodes 8–11(–13), terete, apex capitate. Pistils 3–7(–9); ovules pendulous. Styles subulate. Achenes narrowly oblanceolate.

• One species.

1. *Kingdonia uniflora* I. B. Balfour & W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 8: 191. 1914.

独叶草 du ye cao

Plants glabrous. Bud scales ca. 3, membranous, ovate, 4–7 mm. Petiole 5–11 cm; leaf blade abaxially pinkish green, cordate-orbicular, 3.5–7 cm wide, 5-sect; segments apically 3-lobed, lowest one unequally 2-parted, margin apically small toothed. Flowering stem 7–12 cm tall. Flowers ca. 8 mm in diam. Sepals pale

green, ovate, 5–7.5 mm, apex acuminate. Stamens 2–3 mm; filaments linear, 1-veined; anthers ellipsoid, ca. 0.3 mm. Staminodes 1.6–2.1 mm. Pistils ca. 1.4 mm; ovary nearly as long as style. Achenes narrowly oblanceolate, 10–13 × ca. 2.2 mm; persistent styles 3.5–4 mm. Seeds narrowly ellipsoid, ca. 3 mm. Fl. May–Jun. *2n* = 18*.

• Forests; 2700–3900 m. S Gansu, S Shaanxi (Taibai Shan), W Sichuan, NW Yunnan (Dêqên Xian).

32. CALLIANTHEMUM C. A. Meyer in Ledebour, Fl. Altaic. 2: 336. 1830.

美花草属 mei hua cao shu

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs perennial, glabrous. Rhizome present. Stems unbranched or branched. Leaves basal, subbasal, or cauline. Inflorescences terminal on stems or branches, 1-flowered. Flowers bisexual. Sepals 5. Petals 5–13, glandular striate, clawed. Stamens numerous; filaments lanceolate-linear; anthers ellipsoid to narrowly oblong. Pistils numerous; ovule 1 per ovary, pendulous. Fruit aggregate. Achenes ovoid to obovoid.

Twelve species: Asia, Europe; five species (two endemic) in China.

1a. Leaves basal or subbasal.

2a. Sepals 8–11 mm; petals 5–6 mm wide 4. *C. farreri*

2b. Sepals 3–6 mm; petals 1–2.5 mm wide 5. *C. pimpinelloides*

1b. Leaves basal and cauline.

3a. Stems 17–30 cm tall; basal leaves fully expanded at anthesis 2. *C. angustifolium*

3b. Stems 4–18 cm tall; basal leaves not fully expanded at anthesis.

- 4a. Flowers 1.1–1.4 cm in diam. 5. *C. pimpinelloides*
4b. Flowers 1.7–2.8 cm in diam.
5a. Basal leaves 3.7–8.8 × 2.2–4.5 cm; petals 5–7 1. *C. alatavicum*
5b. Basal leaves 1.8–2.5 × 1–2.2 cm; petals 9–13 3. *C. taipaicum*

1. *Callianthemum alatavicum* Freyn, Bull. Herb. Boissier 6: 882. 1898.

厚叶美花草 *hou ye mei hua cao*

Rhizome 3–4 mm in diam. Stems suberect, 8–18 cm, unbranched or branched once. Basal leaves 3–4, not fully expanded at anthesis; petiole 3.5–10 cm, basally sheathed; leaf blade narrowly ovate to ovate-oblong, 3.7–8.8 × 2.2–4.5 cm, subleathery when dry, with 4 or 5 pairs of lateral leaflets, basal ones with slender petiole, others shortly petiolate; leaflets 2 × pinnately divided; segments sessile, margin 1-toothed or entire, apically cuneiform-obovate. Stem leaves 2 or 3, similar to basal leaves but smaller. Flowers 1.7–2.5 cm in diam. Sepals subelliptic, 7–10 × 4–5 mm. Petals 5–7, white but basally brown, obovate, 0.9–1.4 × 0.8–1.1 cm, apex rounded. Stamens ca. 1/2 as long as petal; anthers narrowly oblong. Aggregate fruit ovoid, 3.5–4 × 2–3 mm, slightly rugose. Fl. May–Jun.

Grassy slopes, mountain valleys; 2600–3400 m. Xinjiang [Kashmir, Mongolia, Pakistan, Russia].

2. *Callianthemum angustifolium* Witasek, Verh. K.K. Zool.-Bot. Ges. Wien. 49: 336. 1899.

薄叶美花草 *bao ye mei hua cao*

Stems 17–30 cm tall, unbranched. Basal leaves 2–4, fully expanded at anthesis; petiole 8.5–22 cm; leaf blade narrowly ovate to oblong, 6–13 × 2.5–4 cm, leathery, with 3 or 4 pairs of lateral leaflets, shortly petiolate; leaflets 2 × pinnately divided; segments lanceolate-linear. Stem leaves 2 or 3; lower ones shortly petiolate, 2.5–5 cm, margin with 1 or 2 pairs of lobes; upper ones subsessile, 1.2–1.5 cm, plumate. Flowers 2.6–3 cm in diam. Sepals elliptic, ca. 8 × 4.5–6.5 mm. Petals ca. 11, white, obovate-oblong, 1.4–1.6 × 0.5–0.8 cm, apex rounded to retuse. Stamens ca. 1/2 as long as petal; anthers narrowly oblong. Achenes ovoid, ca. 2 mm, rugose. Fl. Jun.

Pine forests; ca. 2200 m. N Xinjiang [Mongolia, Russia].

3. *Callianthemum taipaicum* W. T. Wang, Fl. Tsinling 1(2): 604. 1974.

太白美花草 *tai bai mei hua cao*

Rhizome ca. 4 mm in diam. Stems 1–4, 8–9 cm at anthesis, unbranched or branched once. Basal leaves 3–6, not fully expanded at anthesis; petiole 2–10 cm, basally sheathed; leaf blade narrowly ovate, 1.8–2.5 × 1–2.2 cm, to 6 cm in fruit, deeply parted; leaflets 2 or 3 pairs, 2-parted, apically abaxially glaucous, basal segments

sessile, apical ones petiolulate. Stem leaves 1 or 2, 1–2.5 cm. Flowers 2.2–2.8 cm in diam. Sepals bluish purple, subelliptic to lanceolate, 6–9 × 2–3 mm, apex obtuse to acute. Petals 9–13, basally brown, oblanceolate to narrowly obovate, 11–14 × 3.5–6 mm, apex truncate. Stamens 4–5 mm; filaments narrowly linear; anthers narrowly oblong, ca. 0.8 mm. Pistils 18–22. Fl. Jun.

• Grassy slopes; 3400–3600 m. S Shaanxi (Taibai Shan).

This species is used medicinally.

4. *Callianthemum farreri* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 9: 90. 1916.

川甘美花草 *chuan gan mei hua cao*

Callianthemum cuneilobum Handel-Mazzetti

Stem 1, 4–5 cm at anthesis, to 8 cm in fruit, unbranched or basally branched. Leaves few, basal or subbasal, not fully expanded at anthesis; petiole to 10 cm; leaf blade ovate, ca. 1 × 1 cm at anthesis, 2.2–5.5 × 1.6–3 cm in fruit, with 2 or 3 pairs of lateral leaflets; leaflets flabellate, unequally undulate, apically cuneiform to bladderform, apex truncate. Flowers 2.5–3 cm in diam. Sepals pale green or white when dry, 8–11 × 5–6 mm, obovate to rhombic-elliptic. Petals 8 or 9, white with purple spots, narrowly obovate to oblanceolate, 9–12(–15) × 5–6 mm, apex rounded. Pistils ca. 12. Fl. May.

• Forests, grassy slopes; 3500–4000 m. S Gansu, NW Sichuan.

5. *Callianthemum pimpinelloides* (D. Don) J. D. Hooker & Thomson, Fl. Ind. 1: 26. 1855.

美花草 *mei hua cao*

Ranunculus pimpinelloides D. Don in Royle, Ill. Bot. Himal. Mts. 1: 53. 1839; *Callianthemum cashmirianum* Cambessèdes; *C. imbricatum* Handel-Mazzetti; *C. tibeticum* Witasek.

Rhizome short. Stems 2 or 3, 3–7 cm tall, erect or ascending, unbranched or 1- or 2-branched. Basal leaves as long as stems, not fully expanded at anthesis; petiole 1.5–6 cm, basally sheathed; leaf blade ovate to narrowly ovate, 1.5–2.5 × 1.4–1.8 cm, with (1 or)2(or)3 pairs of lateral leaflets; leaflets subsessile, obliquely ovate to rhombic, deeply undulate, margin with obtuse teeth, apically flabellate to rhombic. Stem leaves absent or 1 or 2. Flowers 1.1–1.4 cm in diam. Sepals elliptic, 3–6 × 1.8–3.5 mm, base scrotiform, apex obtuse to acute. Petals 5–7(–9), white, pink or pale purple, obovate-oblong to broadly linear, 5–10 × 1–2.5 mm,

apex rounded. Stamens ca. 1/2 as long as petal; filaments lanceolate-linear; anthers ellipsoid. Pistils 8–14. Aggregate fruit ca. 6 mm in diam. Achenes ovoid, ca. 2.8 mm, rugose. Fl. Apr–Jun. $2n = 16^*$, 32^* .

Grassland on high mountains. 3200–5600 m. Qinghai, Sichuan, Xizang, Yunnan [Afghanistan, Bhutan, India, Kashmir, Nepal, Pakistan, Sikkim].

33. ADONIS Linnaeus, Sp. Pl. 1: 547. 1753.

侧金盏花属 *ce jin zhan hua shu*

Fu Dezhi (傅德志); Orbélia R. Robinson

Herbs annual or perennial. Basal and lower stem leaves usually scaly. Upper stem leaves alternate, palmately or pinnately divided. Inflorescences terminal on branches or branchlets, 1-flowered; bracts absent. Flowers radially symmetric, bisexual. Sepals 5–8. Petals 5–24. Stamens numerous; filaments linear. Pistils numerous, spirally arranged; ovary 1-ovuled. Styles persistent; stigma small. Achenes usually with raised veins.

About 30 species: Asia, Europe; ten species (three endemic) in China.

1a. Plants annual with roots; petals orange; achenes glabrous; persistent styles straight 10. *A. aestivalis*

1b. Plants perennial with rhizome; petals white, blue, or yellow; achenes usually pubescent; persistent styles bent.

2a. Leaves sessile to subsessile (occasionally shortly petiolate on *A. bobroviana*).

3a. Leaves glabrous.

4a. Stems ca. 40 cm tall, 3–5 mm in diam.; stem leaves ca. 15; flowers 4–5.5 cm in diam.; sepals glabrous 8. *A. sibirica*

4b. Stems 4–20 cm tall, 1.2–2 mm in diam.; stem leaves ca. 4; flowers 2.5–4 cm in diam.; sepals shortly ciliate 6. *A. ramosa*

3b. Leaves hairy.

5a. Stems and leaves hairs glandular 7. *A. bobroviana*

5b. Stems and leaves hairs eglandular 9. *A. tianschanica*

2b. Leaves basally on stem petiolate, sometimes shortly petiolate apically on stem.

6a. Petals white, pale blue, or pale purple.

7a. Leaf blade pentagonal or triangular-ovate; petals white 1. *A. davidii*

7b. Leaf blade oblong to narrowly oblong-ovate, rarely triangular; petals pale blue to pale purple 2. *A. coerulea*

6b. Petals yellow.

8a. Leaves abaxially pubescent when young 4. *A. chrysocyathus*

8b. Leaves glabrous.

9a. Stems 25–40 cm; sepals ca. 6, pale green, 0.7–1.2 cm 3. *A. sutchuenensis*

9b. Stems 5–15 cm; sepals ca. 9, pale grayish purple, 1.4–1.8 cm 5. *A. amurensis*

1. *Adonis davidii* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 188. 1886.

短柱侧金盏花 *duan zhu ce jin zhan hua*

Adonis brevistyla Franchet; *A. delavayi* Franchet.

Plants perennial. Rhizome ca. 8 mm in diam. Stems (10–) 20–40(–58) cm tall, usually branched from base, glabrous, basally with membranous scales. Stem leaves with petiole to 7 cm basally on stem, shortly petiolate or sessile toward stem apex; leaf blade pentagonal to triangular-ovate, 3.5–9 × 3.5–10 cm, 3-sect, glabrous; leaflets 2 × pinnately divided; ultimate segments narrowly ovate to lanceolate, margin toothed and teeth acute. Flowers (1.5–)1.8–2.8 cm in diam. Sepals 5–7, elliptic, 5–8 mm, glabrous, rarely ciliate. Petals 7–14, white, sometimes tinged with purple, obovate-oblong to oblong, 1–1.4 cm, apex rounded to ± acute. Stamens as long as sepals. Ovary sparsely puberulous. Styles very short; stigma globose. Achenes obovoid, 3–4 mm, sparsely pubescent. Fl. Apr–Aug.

Forests, forest margins, grassy slopes, river banks; 1900–3500 m. S Gansu, S Guizhou, W Hubei, S Shaanxi, S Shanxi, N Sichuan, SE Xizang, NW Yunnan [Bhutan].

2. *Adonis coerulea* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 23: 306. 1877.

蓝侧金盏花 *lan ce jin zhan hua*

Adonis coerulea f. *integra* W. T. Wang; *A. coerulea* f. *puberula* W. T. Wang.

Plants perennial, glabrous except pistils. Rhizome robust. Stems 3–15 cm tall, usually branched near base, basally and lower stem with sheathlike scales. Stem leaves with petiole to 3.2 cm basally on stem, shortly petiolate or sessile toward stem apex; leaf blade oblong, narrowly oblong-ovate, or rarely triangular, 1–4.8 × 1–2 cm, 2 or 3 × finely pinnately divided; ultimate segments narrowly lanceolate to lanceolate-linear, apex mucronate. Flowers 1–1.8 cm in diam. Sepals 5–7, obovate-elliptic to ovate, 4–6 mm, apex rounded. Petals ca. 8, pale purple to pale blue, narrowly obovate, 5.5–11 mm, apically with few small teeth. Anthers ellipsoid.

Styles very short. Achenes obovoid, ca. 2 mm, basally pubescent. Fl. Apr–Jul. $2n = 16^*$.

• Scrub, grassy slopes; 2300–5000 m. Gansu, C Qinghai, W Sichuan, NE Xizang.

3. *Adonis sutchuenensis* Franchet, Bull. Soc. Philom. Paris 6: 89. 1894.

蜀侧金盏花 shu ce jin zhan hua

Plants perennial. Stems (15–)25–40 cm tall, branched or unbranched, basally and lower stem with membranous sheath; sheath leaflike, apically parted. Leaves with petiole to 5 cm; leaf blade ovate-pentagonal, 3.5–6.8 × 5–8 cm, 3-sect, glabrous; leaflets 2 × pinnately divided; ultimate segments teeth acute. Flowers (2–)3.5–4(–4.8) cm in diam. Sepals ca. 6, pale green, usually oblanceolate, 7–12 mm, glabrous or sparsely pubescent. Petals 8–12, yellow, oblanceolate to oblong-oblanceolate, (1–) 1.5–2(–2.4) cm. Stamens ca. 1/3 as long as petals. Ovary sparsely pubescent. Styles short or inconspicuous; stigma globose. Fl. Apr–Jun.

• Forests, among shrubs, grassy slopes; 1100–3300 m. S Shaanxi, N Sichuan.

4. *Adonis chrysocyathus* J. D. Hooker & Thomson in J. D. Hooker, Fl. Brit. Ind. 1: 15. 1872.

金黄侧金盏花 jin huang ce jin zhan hua

Plants perennial. Rhizome long. Stems to 40 cm tall, unbranched, basally with sheathlike scales. Stem leaves with petiole to 15 cm basally on stem, shortly petiolate or sessile toward stem apex; leaf blade ovate-pentagonal, 3.5–5 × 3–4.5 cm, 3 × pinnately divided, abaxially pubescent when young, glabrate; ultimate segments ovate-rhombic to sublanceolate, base cuneate, apex acute. Pedicel short, pubescent. Sepals 6–8, pale purple, ovate, ca. 1.5 × 6–7 mm, abaxially pubescent, apex unequally toothed. Petals 16–24, yellow, oblanceolate, 2–2.8 × 0.8–1 cm, apex obtuse. Aggregate fruit globose, ca. 1 cm in diam. Achenes 5–7 mm, glabrous; persistent styles long, bent. Fl. May–Jun, fr. Aug.

Grassy slopes on mountains; 2200–2600 m. W Xinjiang, W Xizang [Kashmir, Pakistan, Russia].

This species is used medicinally.

5. *Adonis amurensis* Regel & Radde, Bull. Soc. Imp. Naturalistes Moscou 34(2): 35. 1861.

侧金盏花 ce jin zhan hua

Adonis vernalis Linnaeus var. *amurensis* (Regel & Radde) Finet & Gagnepain.

Plants perennial. Rhizome short, thick. Stems 5–15 cm tall in flower, to 30 cm tall in fruit, unbranched or rarely branched, glabrous, basally with membranous scales. Leaves not fully expanded at anthesis; petiole to 6.5 cm; leaf blade triangular, ca. 7.5 × 9 cm, glabrous, 2 or 3 × finely pinnately divided; leaflets long petiolulate; ultimate segments narrowly ovate to lanceolate, apex

acute. Flowers 2.8–3.5 cm in diam. Sepals ca. 9, pale grayish purple, oblong to obovate-oblong, 1.4–1.8 cm, glabrous or sparsely pubescent. Petals ca. 10, yellow, obovate-oblong to narrowly lanceolate, 1.4–2 × 0.5–0.7 cm, glabrous. Stamens ca. 3 mm, glabrous. Ovary puberulous. Styles ca. 0.8 mm, bent; stigma globose. Achenes obovoid, ca. 3.8 mm, pubescent. Fl. Mar–Apr.

Forests, grassy slopes. E Heilongjiang, Jilin, Liaoning [Japan, Korea, Russia].

This species is used medicinally.

6. *Adonis ramosa* Franchet, Bull. Soc. Philom. Paris 6: 91. 1894.

辽吉侧金盏花 liao ji ce jin zhan hua

Adonis pseudoamurensis W. T. Wang; *A. ramosa* subsp. *fupingensis* W. T. Wang.

Plants perennial. Rhizome ca. 1.5 cm, ca. 5 mm in diam. Stems 4–20 cm tall, 1.2–2 mm in diam., glabrous or apically sparsely pubescent, branched. Basal leaves and lower stem leaves scalelike, ovate to lanceolate, 0.7–1.8 cm. Leaves apically on stem ca. 4, sessile to subsessile; leaf blade broadly rhombic, 4–8 × 4–8 cm, glabrous, 2 or 3 × pinnately divided; ultimate segments linear to linear-lanceolate, 1–1.5 cm wide, apex acute. Flowers 2.5–4 cm in diam. Sepals ca. 5, gray-purple, broadly ovate, rhombic-ovate, or broadly rhombic, 7.5–10 × 6–9 mm, margin entire, shortly ciliate, and apically with 1 or 2 small teeth, apex obtuse, rounded, or sometimes acute. Petals ca. 13, yellow, oblong-oblanceolate, 1.2–3 × 0.3–0.7 cm. Stamens to 4.5 mm; anthers oblong, ca. 1.2 mm. Pistils subglabrous. Styles ca. 0.8 mm. Fl. Mar–Apr.

Sunny slopes. Jilin, Liaoning [Japan, Korea, Russia].

7. *Adonis bobroviana* Sim., Novosti Sist. Vyssh. Rast. 1968: 127. 1968.

甘青侧金盏花 gan qing ce jin zhan hua

Plants perennial. Rhizome ca. 10 cm, ca. 1.2 cm in diam., apically branched. Stems to 30 cm tall, branched from base, with very short glandular hairs; branches long, erect or inclined, basally with membranous scales. Upper stem leaves shortly petiolate or sessile, ovate to narrowly ovate, 4–7 × 2–3.6 cm, 2 or 3 × pinnately divided; ultimate segments lanceolate to linear, 0.5–2 mm wide, margin sparsely glandular ciliate to glabrate, apex acute. Flowers 2–4 cm in diam. Sepals 5, pale green tinged with purple, rhombic-ovate, 5–17 × 1.5–8 mm, margin apically sometimes with teeth and sparsely glandular ciliate. Petals 9–13, yellow, abaxially tinged with purple, oblanceolate to oblong, 1–2 × 0.3–0.8 cm. Stamens to 4 mm; anthers narrowly oblong, ca. 1.2 mm. Styles short, bent. Achenes obovoid, ca. 4 mm, pubescent; persistent styles bent into a hook. Fl. Apr–Jul.

• Dry grassy slopes; 1900–2200 m. C Gansu, S and W Nei Mongol, Ningxia, N Qinghai.

8. *Adonis sibirica* Patr. ex Ledebour, Index Sem. Hort. Dorpat., Suppl. 2: 1. 1824.

北侧金盏花 bei ce jin zhan hua

Plants perennial, glabrous except for pistils. Rhizome thick. Stems ca. 40 cm tall, 3–5 mm in diam., basally with sheathlike scales. Stem leaves ca. 15, sessile, ovate to triangular, ca. 6 × 4 cm, 2 or 3 × finely pinnately divided; ultimate segments narrowly linear to narrowly lanceolate, 1–1.5 mm wide, sometimes with small teeth. Flowers 4–5.5 cm in diam. Sepals yellowish green, rounded-ovate, ca. 1.5 × 6 mm, apex attenuate. Petals yellow, narrowly obovate, 2–2.3 × 0.6–0.8 cm, apex rounded to obtuse and with unequal teeth. Stamens ca. 1.2 cm; anthers narrowly oblong, ca. 1 mm. Styles ca. 1 mm, bent. Achenes ca. 4 mm, sparsely pubescent. Fl. Jun.

Sunny slopes; ca. 1900 m. NE Nei Mongol, N Xinjiang [Mongolia, Russia; Europe].

9. *Adonis tianschanica* (Adolf) Lipschitz ex Bobrov, Fl. URSS 7: 531. 1937.

天山侧金盏花 tian shan ce jin zhan hua

Adonis turkestanica Adolf var. *tianschanica* Adolf, Trudy Prikl. Bot. Selektiv. 23: 328. 1930.

Plants perennial. Rhizome ca. 1.5 cm in diam. Stems ca. 30 cm tall, branched from base, sparsely covered with a bent pubescence, basally with sheathlike scales. Leaves sessile, ovate to ovate-triangular, 2–4 cm, 2 or 3 × pinnately divided; ultimate segments linear to lanceolate-linear, ca. 1 mm wide. Flowers 3.5–5 cm in diam. Sepals pale purple, slightly shorter than petals, basally pubescent. Petals lanceolate, 1.5–2.5 × 0.3–0.8 cm. Stamens glabrous; anthers oblong, ca. 1.5 mm. Styles very short. Aggregate fruit pendulous, globose, ca. 2 cm in diam. Achenes narrowly obovoid, 3–5 mm, conspicuously reticulate, sparsely pubescent. Fl. May.

Slopes; ca. 1900 m. W Xinjiang [Russia].

10. *Adonis aestivalis* Linnaeus, Sp. Pl., ed. 2, 1: 771. 1762.

夏侧金盏花 xia ce jin zhan hua

Plants annual. Stems 10–20 cm tall, branched or unbranched, basally sparsely pubescent. Leaves long petiolate, clustered apically on stem; leaf blade ca. 3.5 cm, increasing in size upward on stem to 6 cm, glabrous or abaxially sparsely pubescent; upper stem leaves finely 2 or 3 × pinnately divided; ultimate segments linear to lanceolate-linear, 0.4–0.8 mm wide. Sepals 5, narrowly rhombic to narrowly ovate, membranous. Petals orange. Ovary narrowly ovoid with a dorsal ridge, apically narrowed. Achenes ovoid, ca. 3.5 mm, reticulate-veined, with conspicuous dorsal and ventral ridges. Fl. Jun.

Grassland by fields; 1000–2900. N Xinjiang, SW Xizang [Kashmir, Pakistan, Russia; SW Asia, Europe].

1a. Pedicel exerted from apical leaves at anthesis; flowers 4–5.5 mm in diam. 10a. var. *aestivalis*

1b. Pedicel included in apical leaves at anthesis; flowers ca. 8 mm in diam. 10b. var. *parviflora*

10a. *Adonis aestivalis* var. *aestivalis*

夏侧金盏花(原变种) xia ce jin zhan hua (yuan bian zhong)

Pedicel exerted from apical leaves at anthesis; flowers 4–5.5 mm in diam.

Grassland by fields; ca. 1300 m. N Xinjiang [Kashmir, Pakistan, Russia; SW Asia, Europe].

10b. *Adonis aestivalis* var. *parviflora* M. Bieberstein, Fl. Taur.-Caucas. 3: 378. 1819.

小侧金盏花 xiao ce jin zhan hua

Adonis parviflora Fischer ex de Candolle.

Pedicel included in apical leaves at anthesis; flowers ca. 8 mm in diam.

1000–2900. N Xinjiang, SW Xizang [SW Asia, Europe].

34. RANUNCULUS Linnaeus, Sp. Pl. 1: 548. 1753.

毛茛属 mao gen shu

Wang Wencai (王文采 Wang Wen-tsai); Michael G. Gilbert

Herbs perennial or annual, terrestrial or rarely aquatic. Stems usually leafy. Leaves usually both basal and along stem, lower leaves petiolate, petiole expanded into sheath at base; leaf blade simple, palmately divided, 1- or 2-ternate or, rarely, pinnate. Inflorescence a solitary terminal or leaf-opposed flower, or a simple or compound monochasium. Flowers bisexual, actinomorphic. Receptacle ± convex, sometimes forming androgynophore (*Ranunculus angustisepalus*). Sepals (3–)5(–7), usually greenish, occasionally dark reddish or purple, very rarely abaxial sepal appendiculate (*R. angustisepalus*), deciduous or, rarely, persistent. Petals (3–)5(–10), yellow, rarely white, exceptionally red (not in Flora area), base shortly clawed, with foveolate adaxial nectary pit which is sometimes covered by a scale. Stamens numerous or rarely few. Carpels numerous, sessile or rarely stalked (*R. podocarpus*); ovule 1 per carpel, basal; style usually present, with adaxial stigmatic tissue, sometimes absent; distinct stigma usually absent. Fruit aggregate, globose, ovoid, or cylindrical, with numerous achenes. Achenes ovoid, obovoid, or slightly to strongly bilaterally compressed, smooth, sometimes tuberculate or spiny, sometimes marginate or winged along sutures, usually greenish, black in *R. melanogynus*. Seeds with a copious endosperm and small embryo.

About 550 species: widespread on all continents except Antarctica, mainly in N temperate regions; 125 species (66 endemic) in China. Much use has to be made of the form of the leaf blade which varies from simple and entire through to ternately compound. The following terms are used in this account: 3-sect, i.e., divided almost to petiole so as to be almost compound; 3-partite, i.e., divided for half or more of the length of the leaf blade; 3-fid, i.e., divided for less than half of the length of the leaf blade; and 3-lobed, i.e., shallowly and irregularly divided. Some species are very variable and hence have been keyed out several times in the following key.

Species nos. 1–81 in this account belong to *Ranunculus* sect. *Auricomus* (Spach) Tamura, a taxonomically difficult group in which apomixis is known to occur.

Key 1

- 1a. Sepals 4, narrowly oblong; base of abaxial sepal appendiculate; androgynophore present . 125. *R. angustisepalus*
- 1b. Sepals 5, ovate or elliptic, rarely suborbicular; sepals not appendiculate; androgynophore absent.
 - 2a. Achenes tuberculate or spiny.
 - 3a. Achenes spiny.
 - 4a. Basal leaves glabrous; stem leaves similar to basal ones, 3-lobed or undivided; achene spines 0.5–1 mm 121. *R. muricatus*
 - 4b. Basal leaves sparsely puberulent; stem leaves 1- or 2-ternate; achene spines up to 2 mm 122. *R. arvensis*
 - 3b. Achenes tuberculate.
 - 5a. Basal leaves ternate or, if simple, 3-cleft; achenes flattened.
 - 6a. Achene tuberculate along margin only; basal leaves mostly ternate, a few simple, 3-cleft . 119. *R. sardous*
 - 6b. Achene tuberculate on whole surface; basal leaves all ternate 120. *R. trachycarpus*
 - 5b. Basal leaves simple, undivided; achenes ± ovoid.
 - 7a. All stem leaves similar to basal ones, ovate or rhombic; petal nectary pit without a scale; style ca. 0.4 mm 93. *R. caricifolius*
 - 7b. Upper stem leaves narrowly triangular or lanceolate; petal nectary pit sometimes with a scale; style ca. 0.1 mm 94. *R. triangularis*
 - 2b. Achenes usually smooth, rarely obscurely ridged.
 - 8a. Petals white, 3–5, oblong 95. *R. cheirophyllus*
 - 8b. Petals yellow, usually 5, rarely less or more, usually obovate.
 - 9a. Carpels black; style absent 92. *R. melanogynus*
 - 9b. Carpels greenish; style usually present (absent in *R. sceleratus*).
 - 10a. Achenes bilaterally compressed, flattened, marginate or winged along sutures; petal nectary pit covered by a scale.
 - 11a. Achenes strongly bilaterally compressed, papery, winged along sutures; basal leaves pinnate.
 - 12a. Persistent style slightly curved 123. *R. platyspermus*
 - 12b. Persistent style hooked 124. *R. regelianus*
 - 11b. Achenes thicker, not papery, narrowly marginate along sutures; basal leaves simple or 1- or 2-ternate.
 - 13a. Flowers leaf-opposed; stems often prostrate.
 - 14a. Sepals spreading; basal leaves ternate or simple 112. *R. diffusus*
 - 14b. Sepals reflexed; basal leaves all ternate 113. *R. sieboldii*
 - 13b. Flowers terminal, solitary or 2 or more in monochasium; stems usually erect.
 - 15a. Basal leaves ternate.
 - 16a. Receptacle glabrous 96. *R. japonicus*
 - 16b. Receptacle hairy.
 - 17a. Stolons present 117. *R. repens*
 - 17b. Stolons absent.
 - 18a. Aggregate fruit cylindric 118. *R. chinensis*
 - 18b. Aggregate fruit globose.
 - 19a. Flower solitary; carpels 10–17 111. *R. sinovaginatius*
 - 19b. Flowers 2–10 in monochasium; carpels many.
 - 20a. Sepals spreading 108. *R. trigonus*
 - 20b. Sepals reflexed.
 - 21a. Persistent style hooked 115. *R. silerifolius*
 - 21b. Persistent style straight or slightly curved.
 - 22a. Basal leaves 1-ternate 114. *R. cantoniensis*
 - 22b. Basal leaves 2-ternate 116. *R. tachiroei*

- 43b. Styles ca. 0.5 mm, circinate at apex; central lobe of basal leaf rhombic-
obovate, slightly constricted at base 104. *R. borealis*
- 10b. Achenes ovoid or obovoid, sometimes slightly bilaterally compressed, but not flattened, neither
marginate nor winged along sutures.
- 44a. Carpels and achenes stalked 90. *R. podocarpus*
- 44b. Carpels and achenes sessile.
- 45a. Carpel without a style, with a small stigma at top of ovary; achenes with 2 or 3
inconspicuous
transverse wrinkles, somewhat turgid along sutures; aggregate fruit conspicuously
elongated,
more than 2 × as long as wide 91. *R. sceleratus*
- 45b. Carpel ± with a style, without a stigma but with inconspicuous stigmatic tissue on ventral
surface
of style; achenes smooth, not turgid along sutures; aggregate fruit globose to ovoid, usually
less
than 2 × as long as broad.
- 46a. Roots tuberous 89. *R. ternatus*
- 46b. Roots fibrous, sometimes thickened at base, but not tuberous.
- 47a. Basal leaves absent after anthesis or, if present, subsessile, linear, linear-lanceolate or
narrowly spatulate with tapered base; stem leaves subsessile, entire, lanceolate or
lanceolate-linear.
- 48a. Plants conspicuously stoloniferous; basal leaves present after anthesis 88. *R. reptans*
- 48b. Plants ascending, not conspicuously stoloniferous; basal leaves withering at anthesis.
- 49a. Stems ca. 10 mm thick; leaves 7–10 mm wide; flowers 3 or 4 in terminal compound
monochasium, 2.7–3.8 cm in diam.; achenes 2–3 mm 86. *R. lingua*
- 49b. Stems slender; stem leaves 3–5(–7) mm wide; flowers solitary, 1–2.5 cm in diam.,
achenes ca. 1.8 mm 87. *R. amurensis*
- 47b. Basal leaves present after anthesis, clearly petiolate; stem leaves usually palmatifid.
- 50a. Herbs small, annual; stamens 4.
- 51a. Stems leafless, ca. 3.5 cm; petals 3–3.8 mm, with 3 colorless veins; style longer than
ovary 80. *R. tetrandrus*
- 51b. Stems 1- or 2-leaved, longer; petals 1.5–2.5 mm, with 3 blue veins; style less than
1/2
as long as ovary 81. *R. muscigenus*
- 50b. Herbs perennial, with short rhizomes; stamens usually many, rarely 4–10.
- 52a. Blade of basal leaf divided Key 2
- 52b. Blade of basal leaf not divided.
- 53a. Basal leaves entire, or (in *R. densiciliatus*, *R. ychengensis*, *R. nephelogenes* and *R.*
membranaceus) sometimes 1–2-dentate near apex; flowers solitary, terminal.
- 54a. Leaf blade hairy.
- 55a. Basal leaves ovate, elliptic, or suborbicular, abaxially glabrous, adaxially
sparsely puberulent, margin densely appressed ciliate; stems and leaves drying
blackish 53. *R. densiciliatus*
- 55b. Basal leaves linear, oblong, or lanceolate, hairy or adaxially glabrous, margin
not ciliate; stems and leaves not drying blackish 57. *R. membranaceus*
- 54b. Leaf blade glabrous.
- 56a. Petal apex rounded; leaf blade of basal leaf ovate, narrowly ovate, oblong, or
linear-lanceolate 56. *R. nephelogenes*
- 56b. Petal apex emarginate.
- 57a. Petal 9–11 × 6.5–8.5 mm; blade of basal leaf obovate or cuneate, 5–14 × 4–
11
mm, margin 1-denticulate on each side; receptacle conic, ca. 2 mm high;
stems 3–5 cm 54. *R. ychengensis*
- 57b. Petal 5.5–7 × 3.5–4 mm; blade of basal leaf ovate, orbicular-ovate, or elliptic,
2.5–5 × 2–3 mm, margin entire; receptacle hemispheric, ca. 0.5 mm high;
stems 1.5–2 cm 55. *R. humillimus*
- 53b. Basal leaves with 3 or more teeth at margin.
- 58a. Carpels and achenes puberulent.

- 59a. Basal leaves spatulate or subtrapeziform or obovate, base cuneate, 3–5-dentate at apex or 3–5-crenate on each side
- 60a. Basal leaf margin rounded-dentate to crenate near apex; flowers 2 or 3 in a monochasium; petals 5–10 × 4–7 mm 66. *R. yunnanensis*
- 60b. Basal leaf margin dentate; flower solitary; petals ca. 4 × 2.5 mm 65. *R. wangianus*
- 59b. Basal leaves suborbicular or flabellate, base broadly cuneate, rounded, subtruncate, or subcordate; flowers solitary, terminal.
- 61a. Leaf blade leathery, suborbicular, base rounded or broadly cuneate, margin 5-crenate 73. *R. pseudolobatus*
- 61b. Leaf blade papery.
- 62a. Basal leaves flabellate or obovate, margin 5–7-dentate 64. *R. felixii*
- 62b. Basal leaves ovate.
- 63a. Stems 3–10 cm; blades of basal leaves with base rounded or broadly cuneate, apex acute, margin ciliate, each side 1–3-denticulate 52. *R. kunlunshanicus*
- 63b. Stems 8–36 cm; blades of basal leaves with base truncate or subcordate at base, apex obtuse or rounded, margin glabrous, each side 2–5-dentate 77. *R. indivisus*
- 58b. Carpels and achenes glabrous.
- 64a. Blades of basal leaves longer than broad, spatulate or ovate.
- 65a. Petals 7; blades of basal leaves spatulate, cuneate, or cuneate-obovate . 67. *R. altaicus*
- 65b. Petals 5(or 6); blades of basal leaves broadly ovate, trapeziform-ovate, ovate, elliptic, or obovate
- 66a. Petals narrowly oblong or oblong-ob lanceolate, 8 × 2 mm 74. *R. hetianensis*
- 66b. Petals obovate.
- 67a. Stems 15–20 cm; blades of basal leaves ovate, elliptic, or obovate, base broadly cuneate or cuneate, 1–3-denticulate on each side 51. *R. pulchellus*
- 67b. Stems 4–8.5 cm; blades of basal leaves broadly ovate or trapeziform-ovate, base rounded or truncate, 3–5-dentate at or near apex 76. *R. lobatus*
- 64b. Blades of basal leaves broader than long, obovate, subreniform, orbicular-ovate, or depressed deltoid.
- 68a. Basal leaves up to 1.6 cm wide; flower 0.8–1.4 cm in diam.
- 69a. Stems 5–11.5 cm, puberulent; basal leaves papery; stem leaves 3-lobed to 3-sect; flower 0.8–1.2 cm in diam.; carpel not winged 78. *R. nyalamensis*
- 69b. Stems 1.5–5 cm, glabrous; basal leaves leathery, glabrous; stem leaves undivided; flower 1.2–1.4 cm in diam.; carpel winged along sutures 79. *R. similis*
- 68b. Basal leaves up to 3–3.5 cm wide, glabrous; flower 1.5–2.8 cm in diam.
- 70a. Sepals abaxially yellowish puberulent 60. *R. albertii*
- 70b. Sepals abaxially black-brown puberulent.
- 71a. Blades of basal leaves papery, indistinctly 3-lobed, margin glabrous 61. *R. transiliensis*
- 71b. Blades of basal leaves thinly leathery, unlobed, margin ciliate 62. *R. fraternus*

Key 2

- 1a. Basal leaves 3-lobed.
- 2a. Petals abaxially puberulent 63. *R. hamiensis*
- 2b. Petals glabrous.
- 3a. Petal nectary pit with a scale 75. *R. xinningensis*
- 3b. Petal nectary pit without scale.
- 4a. Carpels and achenes puberulent.
- 5a. Fibrous roots subequally thick.
- 6a. Basal leaves 1(–3), blade thinly papery, reniform, rarely orbicular-ovate, 2–5 cm wide, base usually cordate; stem leaves 3–7-sect; style shorter than ovary 59. *R. monophyllus*
- 6b. Basal leaves ca. 4, blade leathery, suborbicular or orbicular-ovate, 0.8–1.4 cm wide, base subcordate; stem leaves 3-lobed or 3-sect; styles 2 × as long as ovary 73. *R. pseudolobatus*
- 5b. Fibrous roots thickened at base.
- 7a. Blade of basal leaves flabellate or flabellate-ovate, base subtruncate to cuneate 64. *R. felixii*

- 25b. Carpels and achenes glabrous.
- 29a. Stolons present, ca. 20 cm, strigose; flowers 2 in terminal monochasium 40. *R. yanshanensis*
- 29b. Stolons absent; flowers solitary, terminal or leaf-opposed.
- 30a. Sepals completely or partly dark purple.
- 31a. Sepals uniformly dark purple; longest petiole 6–8.5 cm; leaf blade glabrous 32. *R. rufosepalus*
- 31b. Sepals with purple margins; longest petiole 2–5 cm; leaf blade sparsely pubescent ... 33. *R. adoxifolius*
- 30b. Sepals greenish.
- 32a. Petals 3 or 4, cuneate or cuneate-obovate; leaflets 1 or 2 × dissected, ultimate lobules lanceolate-linear; 49. *R. jingyuanensis*
- 32b. Petals 5; leaflets not as dissected, ultimate lobules ovate or narrowly ovate.
- 33a. Stamens 5–14.
- 34a. Fibrous roots thick at base; stamens 7–14 34. *R. mainlingensis*
- 34b. Fibrous roots uniformly thick; stamens 5 48. *R. yaoanus*
- 33b. Stamens many.
- 35a. Petiole 8–15 cm; basal leaves ca. 2.
- 36a. Leaf blade appressed puberulent, terminal segment irregularly 3-fid; petals 7–12 × 6–10 mm, obovate-orbicular 36. *R. formosa-montanus*
- 36b. Leaf blade glabrous or nearly so, terminal segment pinnatifid; petals 9–12 × 4–6 mm, narrowly obovate 38. *R. morii*
- 35b. Petiole 2–6.5 cm; basal leaves 3–8.
- 37a. Stem very slender, trailing and rooting from upper nodes; basal leaves ca. 3 37. *R. matsudae*
- 37b. Stem erect, not rooting from upper nodes; basal leaves 4–8, 39. *R. polii*
- 24b. Basal leaves 3-partite or 3-sect.
- 38a. Basal leaves 3-sect.
- 39a. Carpels and achenes puberulent.
- 40a. Flowers in a monochasium.
- 41a. Blades of basal leaves up to 4 cm wide; central segment 3-lobed, lobes ovate 25. *R. hirtellus*
- 41b. Blades of basal leaves up to 2(–3.4) cm; central segment usually 2 × dissected, ultimate lobules linear-lanceolate 47. *R. tanguticus*
- 40b. Flowers solitary.
- 42a. Petals puberulent adaxially near nectary pit 3. *R. polyrhizos*
- 42b. Petals glabrous.
- 43a. Stems 20–26 cm, mostly glabrous, sparsely puberulent only near apex; basal leaf 1 59. *R. monophyllus*
- 43b. Stems 5–14 cm, puberulent; basal leaves 3–5.
- 44a. Leaf hairs 0.8–1 mm; flower ca. 1 cm in diam. 25. *R. hirtellus*
- 44b. Leaf hairs 0.3–0.6 mm; flower 1.7–2 cm in diam. 31. *R. gelidus*
- 39b. Carpels and achenes glabrous.
- 45a. Leaves all basal; scape 4.5–7 mm 30. *R. oreionannos*
- 45b. Leaves basal and stem; stems taller.
- 46a. Basal leaves leathery, glabrous, or only adaxially puberulent.
- 47a. Petals flabellate-obovate or broadly obovate, 10–16 mm; central segment of basal leaf long elliptic or oblanceolate, undivided 15. *R. chuanchingensis*
- 47b. Petals obovate or broadly obovate, up to 7–10 mm; central segment of basal leaf rhombic, obovate, or ovate, usually 3-lobed.
- 48a. Lateral segments of basal leaf blade oblong, undivided 26. *R. banguoensis*
- 48b. Lateral segments of basal leaf blade oblique flabellate, unequally 2-cleft.
- 49a. Stems 3.5–15 cm; flowers solitary, or 2 in a monochasium; petals obovate, 5–10 × 4–12 mm 16. *R. glareosus*
- 49b. Stems 1.5–3.7 cm; flowers solitary; petals broadly obovate, 5.5–7 × 4–6.5 mm 28. *R. glabricaulis*
- 46b. Basal leaves papery or herbaceous.
- 50a. Basal leaf blade segments linear, undivided.
- 51a. Stems prostrate, rooting adventitiously near base, up to 27 cm; basal leaves glabrous, base cuneate, lateral segments spreading at an acute angle to central segment 56. *R. nephelogenes*
- 51b. Stems erect, 5–6 cm; basal leaves adaxially glabrous, abaxially appressed puberulent, base subtruncate, lateral segments spreading at a right angle to central segment 58. *R. hejingensis*

- 50b. Basal leaf blade segments not linear, usually divided.
- 52a. Inflorescence a 2- or 3-flowered monochasium.
- 53a. Basal leaf blade base broadly cuneate; flower 1–1.7 cm diam. 41. *R. potaninii*
- 53b. Basal leaf blade base deeply cordate; flower ca. 2.5 cm diam. 24. *R. balikunensis*
- 52b. Inflorescence 1-flowered.
- 54a. Basal leaf blade base broadly cuneate 41. *R. potaninii*
- 54b. Basal leaf blade base cordate or cordate-truncate.
- 55a. Basal leaf blade base cordate-truncate 45. *R. brotherusii*
- 55b. Basal leaf blade base cordate.
- 56a. Stems prostrate, filiform, up to 20 cm 19. *R. pegasus*
- 56b. Stems erect.
- 57a. Fibrous roots conspicuously thickened at base 14. *R. pseudopygmaeus*
- 57b. Fibrous roots subequally thick, in *R. hirtellus* above slightly thickened.
- 58a. Segments of basal leaf 1–3 × dissected, ultimate lobules lanceolate-linear 47. *R. tanguticus*
- 58b. Segments of basal leaf not dissected, ultimate lobules ovate or narrowly ovate.
- 59a. Sepals dark red 23. *R. rubrocalyx*
- 59b. Sepals greenish.
- 60a. Receptacle yellow puberulent; sepals persistent 20. *R. glacialiformis*
- 60b. Receptacle glabrous, subglabrous or sparsely white puberulent only in
R. songoricus; sepals deciduous.
- 61a. Basal leaves 2–4.4 cm wide; receptacle subglabrous or sparsely puberulent;
stamens ca. 70; stems 7–30 cm 1. *R. songoricus*
- 61b. Basal leaves less than 2 cm wide; receptacle glabrous; stamens fewer than
35; stems usually less than 10 cm.
- 62a. Petals oblong, 4–5.2 mm 18. *R. micronivalis*
- 62b. Petals obovate.
- 63a. Central segment of basal leaf undivided, obovate or obovate-oblong.
- 64a. Stems puberulent; basal leaves appressed yellowish pubescent . 25. *R. hirtellus*
- 64b. Stems and basal leaves glabrous 29. *R. pedicellatus*
- 63b. Central segment of basal leaf 3-lobed, rhombic-obovate
- 65a. Stems 5–12(–20) cm; basal leaves 4–14(–22) mm wide; stem leaves
2; ovary as long as styles 17. *R. petrogeiton*
- 65b. Stems 1–2.5 cm; basal leaves up to 4 mm wide; stem leaf 1; ovary 3 ×
longer than styles 27. *R. dingjieensis*
- 38b. Basal leaves 3-partite.
- 66a. Petals hairy.
- 67a. Stems 5–18 cm; basal leaves 0.7–1.8 × 1–3.2 cm, base cordate, rarely subtruncate; petals
obovate,
adaxially puberulent near nectary pit, abaxially glabrous; achenes puberulent 3. *R. polyrhizos*
- 67b. Stems 20–30 cm; basal leaves larger, 2.5–4 × 2–4 cm, base truncate; petals ovate, adaxially
glabrous, abaxially puberulent; achenes glabrous 63. *R. hamiensis*
- 66b. Petals glabrous.
- 68a. Carpels and achenes puberulent.
- 69a. Fibrous roots thickened at base.
- 70a. Basal leaf blade base broadly cuneate 64. *R. felixii*
- 70b. Basal leaf blade base cordate 71. *R. dielsianus*
- 69b. Fibrous roots subequally thick, not thickened at base.
- 71a. Stems mostly glabrous, sparsely puberulent only below flower; receptacle glabrous.
- 72a. Basal leaves ca. 10, herbaceous 6. *R. franchetii*
- 72b. Basal leaf 1, papery 59. *R. monophyllus*
- 71b. Stems puberulent throughout; receptacle puberulent.
- 73a. Stems densely brownish puberulent; basal leaf blades abaxially puberulent, adaxially
glabrous 43. *R. popovii*
- 73b. Stems sparsely white puberulent; basal leaf blades glabrous on both surfaces.
- 74a. Basal leaf blade base subtruncate 13. *R. nankotaizanus*
- 74b. Basal leaf blade base cordate.
- 75a. Stems (10–)15–25 cm; basal leaf blade with lateral segments pectinately 4- or 5-cleft,
white puberulent; flowers 1.4–1.9 cm in diam. 4. *R. pedatifidus*

- 75b. Stems 7–14 cm; basal leaf blade with lateral segments unequally 2 or 3-lobed, yellowish
strigose; flowers 0.9–1.1 cm in diam. 25. *R. hirtellus*
- 68b. Carpels and achenes glabrous.
- 76a. Fibrous roots thickened at base.
- 77a. Stems 0.8–5 cm; basal leaf blade 3–8 mm wide, adaxially glabrous or sparsely puberulent, abaxially glabrous; receptacle glabrous 14. *R. pseudopygmaeus*
- 77b. Stems ca. 40 cm; basal leaf blade 12–20 mm wide, adaxially glabrous, abaxially puberulent; receptacle puberulent 71. *R. dielsianus*
- 76b. Fibrous roots subequally thick, not thickened at base.
- 78a. Basal leaf blades with base truncate, rounded, broadly cuneate, or cuneate (*R. chuanchingensis*, *R. trautvetterianus*, and *R. brotherusii*) sometimes cordate-truncate.
- 79a. Plants aquatic 82. *R. radicans*
- 79b. Plants of alpine meadows or on slopes.
- 80a. Receptacle puberulent.
- 81a. Lateral lobes of basal leaves pectinately 4- or 5-cleft, lobules sublinear 5. *R. rigescens*
- 81b. Lateral lobes not pectinate-cleft.
- 82a. Basal leaf blades up to 4 cm wide, base truncate-cuneate or cordate-truncate; central lobe obovate or cuneate, 3-lobed 2. *R. trautvetterianus*
- 82b. Basal leaf blades up to 1.4–3.3 cm wide, base broadly cuneate or rounded; central lobe linear or oblong-oblancheolate, usually undivided.
- 83a. Basal leaf blades broadly cuneate at base; central lobe linear or oblong, undivided or 1- or 2-lobulate, lateral lobes oblique lanceolate, undivided, or oblique cuneate, 2- or 3-lobulate 46. *R. furcatifidus*
- 83b. Basal leaf blades rounded at base; central lobe oblong, undivided, lateral lobes ovate, undivided 69. *R. dongrengensis*
- 80b. Receptacle glabrous.
- 84a. Petals 6–8, broadly oblong-oblancheolate or narrowly obovate, 6–8 21. *R. luoergaiensis*
- 84b. Petals usually 5, obovate or elliptic (in *R. junipericola* sometimes oblong, then petals 5).
- 85a. Leaf blades abaxially densely pubescent 57. *R. membranaceus*
- 85b. Leaf blades abaxially glabrous or sparsely puberulent.
- 86a. Petals broadly obovate or flabellate-obovate 15. *R. chuanchingensis*
- 86b. Petals obovate, narrowly obovate, or oblong.
- 87a. Basal leaf blades leathery, base rounded, all lobes undivided, entire 26. *R. banguoensis*
- 87b. Basal leaf blades papery or herbaceous, all or at least lateral lobes divided.
- 88a. Basal leaf blades 2.1–4.5 cm wide.
- 89a. Basal leaf blade subpentagonal or rhombic-ovate, base broadly cuneate, lateral lobes unequally 3-partite 41. *R. potaninii*
- 89b. Basal leaf blade rhombic or cuneate, base cuneate, lateral lobes unequally 2-lobed or undivided 42. *R. cangshanicus*
- 88b. Basal leaf blades up to 2.2–2.8 cm wide.
- 90a. Basal leaf blade with central lobe and lobules of lateral lobes rounded or obtuse, and apiculate at apex 12. *R. junipericola*
- 90b. Basal leaf blade with lobes and lobules acute or slightly acute, and not apiculate at apex.
- 91a. Basal leaf blade 3-partite slightly beyond middle, lateral lobes oblique cuneate or oblique oblong, unequally 2-lobed or 2-cleft, glabrous or abaxially puberulent, base rounded, broadly cuneate, or subtruncate at base 43. *R. popovii*
- 91b. Basal leaf blade 3-partite nearly to base, lateral lobes oblique flabellate, unequally 2-partite, puberulent, base cordate-truncate or truncate . 45. *R. brotherusii*
- 78b. Basal leaf blade base cordate.
- 92a. Petals 8, oblong 22. *R. chinghoensis*

- 92b. Petals 5 (sometimes 6 in *R. petrogeiton*, *R. songoricus*, and *R. trautvetterianus*).
- 93a. Receptacle glabrous.
- 94a. Petals cuneate, oblong, or long elliptic.
- 95a. Stems slender, prostrate, up to 20 cm, glabrous, rooting at nodes 19. *R. pegasus*
- 95b. Stems erect, 4.2–5 cm tall, usually puberulent, not rooting.
- 96a. Basal leaf blade puberulent on both surfaces or only adaxially; petals cuneate, apex truncate; ovary longer than style 10. *R. minor*
- 96b. Basal leaf blade glabrous; petals long elliptic, apex obtuse; ovary shorter than style 18. *R. micronivalis*
- 94b. Petals obovate or broadly obovate, sometimes oblong-obovate in *R. petrogeiton*.
- 97a. Basal leaf blades up to 3 cm wide, 3-partite slightly beyond middle, glabrous 11. *R. munroanus*
- 97b. Basal leaf blades smaller, up to 1.8–2 cm wide, 3-partite nearly to base, often hairy.
- 98a. Basal leaves yellowish strigose 25. *R. hirtellus*
- 98b. Basal leaves glabrous or white puberulent on one or other surface.
- 99a. Petal apex emarginate 9. *R. platypetalus*
- 99b. Petal apex not emarginate.
- 100a. Basal leaves leathery, glabrous or adaxially puberulent 16. *R. glareosus*
- 100b. Basal leaves papery, glabrous or abaxially sparsely puberulent 17. *R. petrogeiton*
- 93b. Receptacle puberulent.
- 101a. Plants aquatic.
- 102a. Basal leaf blade 3-partite; central lobe 3-lobed or undivided, ultimate lobules ovate 82. *R. radicans*
- 102b. Basal leaf blade 3-sect; central lobe 1 or 2 × dissected, ultimate lobules narrowly ovate to linear-lanceolate 83. *R. gmelinii*
- 101b. Plants terrestrial.
- 103a. Lateral lobes of basal leaf pectinately 4- or 5-cleft, glabrous 5. *R. rigescens*
- 103b. Lateral lobes of basal leaf not pectinately cleft.
- 104a. Leaf blade leathery; sepals persistent.
- 105a. Receptacle densely yellow puberulent 20. *R. glacialiformis*
- 105b. Receptacle white puberulent 8. *R. balangshanicus*
- 104b. Leaf blade papery; sepals deciduous.
- 106a. Basal leaf blade up to 4–4.4 cm wide.
- 107a. Basal leaves cordate at base, 3-partite nearly to base 1. *R. songoricus*
- 107b. Basal leaves truncate-cordate at base, 3-partite slightly beyond middle 2. *R. trautvetterianus*
- 106b. Basal leaf blade up to 2.4 cm wide.
- 108a. Petals narrowly obovate or oblong, 1.4–2 mm wide 7. *R. yinshanicus*
- 108b. Petals obovate or broadly obovate, 4–11 mm wide.
- 109a. Stems 2–12 cm; basal leaves 0.7–1.2 cm wide; petal apex emarginate 9. *R. platypetalus*
- 109b. Stems 19–24 cm; basal leaves 1.6–2.4 cm wide; petal apex rounded 68. *R. menyuanensis*

1. *Ranunculus songoricus* Schrenk, Enum. Pl. Nov. 2: 67. 1842.

新疆毛茛 *xin jiang mao gen*

?*Ranunculus songoricus* var. *lasiopetalus* Maximowicz. Herbs perennial. Roots fibrous, subequally thick. Stems 7–30 cm, glabrous below, puberulent above, simple or branched. Basal leaves several; petiole 3.5–8 cm, glabrous; blade 3-sect or 3-partite, cordate-pentagonal, 1.4–3 × 2–4.4 cm, papery, glabrous, base cordate, central segment rhombic or rhombic-obovate, 3-lobed, incised-dentate; lateral segments obliquely flabellate, unequally 2-partite. Lower stem leaves similar to basal leaves or absent, upper stem leaves short petiolate or sessile, palmatisect, segments narrowly lanceolate or linear. Flowers solitary, terminal, 1.6–2.6 cm in diam.

Receptacle puberulent. Sepals 5, elliptic, 5–7 mm, abaxially yellow sericeous. Petals 5 or 6, broadly obovate or obovate, 7–12 × 5–10 mm, nectary pit without a scale, apex truncate-rounded or rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid or subglobose, 5–7 mm in diam. Achene slightly bilaterally compressed, obovoid, 2.2–2.8 × 1.8–2 mm, glabrous; style persistent, ca. 0.8 mm, hooked. Fl. May–Sep.

Meadows, scrub, gravelly slopes; 1900–4400 m. C and W Xinjiang [Kazakhstan].

The authors have seen no material of var. *lasiopetalus*; its status needs proper investigation.

2. *Ranunculus trautvetterianus* Regel ex Ovczinnikov, Fl. URSS. 7: 403. 1937.

毛托毛茛 *mao tuo mao gen*

Ranunculus songoricus Schrenk var. *partitus* Ruprecht, Sert. Tianschan. 37. 1869.

Herbs perennial. Roots fibrous, subequally thick. Stems 1 to several, 7.5–15 cm, glabrous or sparsely puberulent below, puberulent above, simple or 1-branched. Basal leaves several; petiole 2–4 cm, glabrous or sparsely puberulent; blade 3-cleft slightly beyond middle, reniform-pentagonal, 1–2.5 × 1.5–4 cm, papery, glabrous or adaxially sparsely appressed puberulent, base truncate-cuneate or truncate-cordate, central lobe cuneate or obovate, 3-lobed or 3-dentate; lateral lobes obliquely flabellate, unequally 2-lobed. Stem leaves 1 or 2, short petiolate or sessile, palmatisect, segments narrowly lanceolate or linear. Flowers solitary, terminal, 1.5–2.2 cm in diam. Receptacle sparsely puberulent. Sepals 5, elliptic-ovate, 5–7 mm, abaxially densely appressed yellowish puberulent. Petals 5 or 6, broadly obovate, 7–10 × 8–11 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit ovoid, ca. 7 mm. Achene obliquely obovoid, 1.5–2 mm, glabrous; style persistent, short, slightly recurved. Fl. Jun.

Alpine meadows or by streams; 1700–4500 m. W Xinjiang [Kazakhstan].

3. *Ranunculus polyrhizos* Stephan ex Willdenow, Sp. Pl. 2: 1324. 1799.

多根毛茛 *duo gen mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 1–3, 5–18 cm, glabrous below, sparsely puberulent above, simple. Basal leaves 4–7; petiole 1.5–5 cm, glabrous; blade 3-partite or 3-sect, reniform or reniform-pentagonal, 0.7–1.8 × 1–3.2 cm, papery, glabrous, base cordate or subtruncate, central segment oblique flabellate or oblique obovate, unequally 2-lobed, lobes entire or 1-toothed. Lower stem leaves similar to basal leaves, upper stem leaves sessile, 3-sect, segments linear. Flowers solitary, terminal, 1.1–1.9 cm in diam. Receptacle puberulent. Sepals 5, broadly ovate, ca. 5 mm, abaxially sparsely yellowish puberulent. Petals 5, obovate, 5–10 × 5–8 mm, with a few hairs near nectary pits, apex rounded or subtruncate. Stamens numerous; anthers narrowly oblong. Aggregate fruit subglobose, ca. 5 mm in diam. Achene slightly bilaterally compressed, obovoid, 1.6–2 × ca. 1.2 mm, puberulent; style persistent, ca. 0.1 mm.

Meadows, scrub; 1200–1700 m. Xinjiang [Kazakhstan, Russia (W Siberia); Europe].

4. *Ranunculus pedatifidus* J. E. Smith, Cycl. 29: *Ranunculus* no. 72. 1818.

裂叶毛茛 *lie ye mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems (10–)15–25 cm, sparsely sericeous, branched. Basal and lower stem leaves long petiolate; petiole 2–4.5 cm, sparsely sericeous; blade 3-partite near base, reniform-pentagonal or suborbicular, 1–1.7 × 1.7–2.6 cm, papery, sparsely sericeous, base cordate, central segment rhombic-cuneate, 3-lobed or 3-partite, lobes oblong or linear; lateral segments obliquely flabellate, unequally 2-partite, upper lobe smaller, 3-lobed, lower lobe unequally 3-partite, lobules linear. Upper stem leaves sessile, palmatisect, segments linear. Flowers solitary, terminal, 1.4–1.9 cm in diam. Receptacle densely puberulent. Sepals 5, broadly ovate, ca. 5 mm, abaxially pubescent. Petals 5, broadly obovate, 6–10 × 7–10 mm, nectary pit without a scale, apex rounded-truncate. Stamens numerous; anthers oblong. Aggregate fruit cylindrical, 8–10 × 5–6 mm. Achene slightly bilaterally compressed, obovoid, 1.5–2 × 1.2–1.7 mm, puberulent or glabrous; style persistent, 0.4–0.7 mm. Fl. Jun–Aug, fr. Jun–Sep.

Meadows, forests; 1900–4000 m. Gansu (Yuzhong Xian), SW Nei Mongol, Xinjiang [Kazakhstan, Mongolia, Russia (W Siberia)].

5. *Ranunculus rigescens* Turczaninow ex Ovczinnikov, Fl. URSS. 7: 389. 1937.

掌裂毛茛 *zhang lie mao gen*

Ranunculus manshuricus S. H. Li; *R. rigescens* var. *leiocarpus* Kitagawa.

Herbs perennial. Roots fibrous, subequally thick. Stems 15–22 cm, glabrous, branched. Basal leaves ca. 3; petiole 3–8.5 cm, glabrous or sparsely pubescent; blade 7–9-palmatifid, lobes oblanceolate, sometimes 3-lobed and with coarse triangular teeth cordate-orbicular or cordate-pentagonal in outline, 1–2 × 1.4–3 cm, papery, glabrous, base cordate to truncate-cordate. Lower stem leaves similar to basal ones, with shorter petiole, upper ones sessile, palmatisect, segments narrowly linear. Flowers solitary, terminal, ca. 2 cm in diam. Receptacle puberulent. Sepals 5, broadly ovate, 3.5–5 mm, abaxially yellowish puberulent. Petals 5, obovate, ca. 10 × 8 mm, nectary pit without a scale, apex rounded; stamens numerous; anthers oblong. Aggregate fruit ovoid, 6–9 mm. Achene slightly bilaterally compressed, obliquely obovoid, 1.5–2 × 1–1.4 mm, glabrous; style persistent, ca. 0.4 mm. Fl. May–Jul.

Meadows, by streams; ca. 700 m. Nei Mongol, Xinjiang [Mongolia, Russia (Siberia)].

6. *Ranunculus franchetii* H. Boissieu, Bull. Herb. Boissier 7: 591. 1899.

深山毛茛 *shen shan mao gen*

Ranunculus polyrhizos Stephan ex Willdenow var. *major* Maximowicz; *R. ussuriensis* Komarov.

Herbs perennial. Roots fibrous, slightly thickened at plant base. Stems 3–5, flaccid, 7–20 cm, glabrous, simple or 1-branched above. Basal leaves ca. 10;

petiole 4–14 cm, glabrous; blade 3-sect or 3-partite, reniform or semiorbicular, 1–2 × 1.8–3.9 cm, herbaceous, abaxially glabrous, base broadly cordate or subtruncate, central segment broadly obovate, 3–5-lobulate; lateral segments oblique, broadly obovate or flabellate, unequally 2-lobed. Stem leaves ca. 2, sessile, 3-sect, segments usually petiolulate. Flowers solitary, terminal, (1–)1.2–1.8 cm in diam. Receptacle glabrous. Sepals 5, elliptic, 4–6 mm, abaxially appressed puberulent. Petals 5, obovate, (6–)7–8 × 4–7 mm, nectary pit without a scale, apex rounded or subtruncate. Stamens numerous; anthers oblong. Aggregate fruit ovoid or subglobose, 5–8 mm in diam. Achene slightly bilaterally compressed, subglobose, ca. 1.5 × 1.5 mm, densely puberulent; style persistent, ca. 1 mm, curved at apex. Fl. Apr–May.

Forest or forest margins; 300–1300 m. Heilongjiang, C and E Jilin, E Liaoning [N Japan, N Korea, Russia (Far East)].

7. *Ranunculus yinshanicus* (Y. Z. Zhao) Y. Z. Zhao, Bull. Bot. Res., Harbin 9(1): 67. 1989.

阴山毛茛 *yin shan mao gen*

Ranunculus pulchellus C. A. Meyer var. *yinshanicus* Y. Z. Zhao, Fl. Intramongolica 2: 255, 369. 1978.

Herbs perennial. Roots fibrous, subequally thick. Stems 5–15 cm, appressed yellowish puberulent above, glabrous below, branched. Basal leaves ca. 5; petiole 1–2.2 cm, glabrous; blade 3-cleft slightly beyond middle, broadly ovate, 0.5–1.5 × 0.5–1.5 cm, papery, glabrous, base cordate, central lobe cuneate-obovate, indistinctly 3-lobed; lateral lobes obliquely flabellate, unequally 2-lobed. Stem leaves short petiolate or sessile, 3–5-sect; segments narrowly linear, 1–2 cm × 0.5–1.2 mm.

Flowers terminal, 1 or 2 in a monochasium, ca. 1 cm in diam. Receptacle puberulent. Sepals 5, broadly ovate, ca. 3 mm, abaxially appressed yellowish puberulent. Petals 5, obovate, ca. 5 × 2.5 mm, nectary pit without a scale, apex rounded. Stamens ca. 15; anthers oblong. Aggregate fruit subglobose, ca. 5 mm in diam. Achene slightly bilaterally compressed, obovoid, ca. 1.5 × 1 mm, glabrous; style persistent, 0.5 mm. Fl. May–Jun.

• Forests, slopes. S Nei Mongol (Daqing Shan).

8. *Ranunculus balangshanicus* W. T. Wang, Bull. Bot. Res., Harbin 7(2): 105. 1987.

巴郎山毛茛 *ba lang shan mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 5.5–10 cm, puberulent, simple. Basal leaves 5–10; petiole 1.2–5 cm, sparsely puberulent or subglabrous; blade 3-partite, reniform or reniform-pentagonal, 0.6–1.2 × 1.2–2.1 cm, thinly leathery, glabrous or sparsely ciliolate, base cordate, central lobe rhombic-obovate, 3-lobed, lobules ovate, entire or 1-dentate; lateral lobes obliquely flabellate, unequally 2-cleft nearly to middle. Stem leaves 1 or 2, short petiolate or sessile, depressed pentagonal, 3-cleft or 3-sect. Flowers solitary, terminal, 1.5–2.4 cm in diam. Receptacle sparsely puberulent. Sepals 5, elliptic or broadly so, 6–6.5 mm, abaxially above sparsely appressed puberulent. Petals 5(or 6),

obovate or broadly obovate, 7–12 × 6–10.5 mm, nectary pit without a scale, apex rounded-truncate.

Stamens numerous; anthers oblong. Aggregate fruit subglobose, ca. 5 mm in diam. Achene slightly bilaterally compressed, obliquely ovoid, ca. 1.2 × 1.1 mm, glabrous; style persistent, ca. 0.8 mm. Fl. Jul.

• Gravelly slopes; ca. 4300 m. NW Sichuan (Wenchuan Xian).

9. *Ranunculus platypetalus* (Handel-Mazzetti) Handel-Mazzetti, Acta Horti Gothob. 13: 155. 1939.

大瓣毛茛 *da ban mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 2–12 cm, subglabrous or sparsely puberulent, simple or branched. Basal leaves 2–5; petiole 2.5–6 cm, glabrous; blade 3-partite, pentagonal, 0.5–1.4 × 0.7–2.3 cm, papery, glabrous or sparsely ciliate, base cordate, central lobe obovate or broadly rhombic, 3-lobed or 3-dentate; lateral lobes obliquely flabellate, unequally 2-lobed. Stem leaves 1–3, petiolate or subsessile, 3-partite or 3-sect, rarely undivided. Flowers solitary, terminal, rarely axillary, 1–2 cm in diam. Receptacle sparsely puberulent or glabrous. Sepals 5(or 6), long elliptic, 4–9 mm, glabrous or abaxially sparsely puberulent. Petals 5, broadly obovate, 5.5–10 × 4–11 mm, nectary pit without a scale, apex subtruncate or rounded, emarginate. Stamens numerous; anthers oblong. Carpels numerous, glabrous; style slightly shorter than ovary. Fl. Jun–Aug.

• 3800–4100 m. NW Yunnan.

- 1a. Basal leaves 0.7–1.2 cm wide; stem leaves distinctly petiolate, 3-partite or 3-sect; flowers 1–1.4 cm in diam.; receptacle sparsely puberulent 9a. var. *platypetalus*
- 1b. Basal leaves 1.2–2.3 cm wide; stem leaves subsessile, 3-lobed or undivided; flowers 1.7–2 cm in diam.; receptacle glabrous 9b. var. *macranthus*

9a. *Ranunculus platypetalus* var. *platypetalus*

大瓣毛茛(原变种) *da ban mao gen* (yuan bian zhong)

Ranunculus micronivalis Handel-Mazzetti var. *platypetalus* Handel-Mazzetti, Symb. Sin. 7: 308. 1931.

Basal leaves 0.7–1.2 cm wide; Stem leaves distinctly petiolate, 3-partite or 3-sect. Flowers 1–1.4 cm in diam. Receptacle sparsely puberulent.

• Grassy slopes; ca. 4100 m. NW Yunnan (Zhongdian Xian).

9b. *Ranunculus platypetalus* var. *macranthus* W. T. Wang, Bull. Bot. Res., Harbin 16: 161. 1996.

硕花大瓣毛茛 *shuo hua da ban mao gen*

Basal leaves 1.2–2.3 cm wide; Stem leaves subsessile, 3-lobed or undivided. Flowers 1.7–2 cm in diam.

Receptacle glabrous

• Grassy slopes; 3800–4100 m. NW Yunnan (Dêqên Xian).

10. *Ranunculus minor* (L. Liou) W. T. Wang, Bull. Bot. Res., Harbin 6(1): 29. 1986.

小苞毛茛 *xiao bao mao gen*

Ranunculus involucratum Maximowicz var. *minor* L.

Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 361. 1980.

Herbs perennial. Roots fibrous, subequally thick. Stems 1.5–4.2 cm, densely puberulent above, simple. Basal leaves 1 or 2; petiole 1–3 cm, glabrous; blade 3-cleft to or slightly beyond middle, pentagonal, 4–5 × 3–8 mm, leathery, puberulent on both surfaces or only adaxially, base cordate or subcordate, central lobe rhombic, entire, 3-dentate, or 3-lobulate; lateral lobes obliquely flabellate, unequally 2-lobed or 2-cleft. Stem leaves 2 or 3, smaller, short petiolate, 3-cleft or uppermost leaf undivided. Flowers solitary, terminal, ca. 1 cm in diam. Receptacle glabrous. Sepals 5, ovate, 3–4 mm, subglabrous. Petals 5, cuneate, ca. 5 × 2 mm, nectary pit without a scale, apex rounded-truncate. Stamens numerous; anthers oblong. Carpels numerous; ovary ca. 3 × longer than style, ca. 0.9 mm, glabrous. Fl. May–Jun.

• Shady slopes; ca. 5400 m. S Xizang (Dinggyê Xian).

11. *Ranunculus munroanus* J. R. Drummond ex Dunn, Bull. Misc. Inform. Kew 1925: 279. 1925.

藏西毛茛 zang xi mao gen

Ranunculus munroanus var. *minor* Tamura.

Herbs perennial. Roots fibrous, slightly thickened at base. Stems erect or ascending, 10–20 cm, puberulent above, simple or 1-branched. Basal leaves ca. 3; petiole 3–10 cm; blade 3-cleft slightly beyond middle, reniform, 0.7–2 × 1.5–3 cm, papery, glabrous, base cordate, central lobe broadly obovate or obovate, obtusely 3-dentate at apex or entire; lateral lobes obliquely flabellate, unequally 2-cleft, few dentate or entire.

Lowermost stem leaf similar to basal ones, upper ones short petiolate or sessile, 3-lobed, or undivided, oblong. Flowers solitary, terminal, ca. 0.8 cm in diam.

Receptacle glabrous. Sepals 5, elliptic, ca. 2 mm, glabrous. Petals 5, elliptic-obovate, ca. 4 × 1.5 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, ca. 3 × 2.8 mm; carpels numerous. Achene subellipsoid, ca. 1.2 × 1 mm, glabrous; style persistent, ca. 0.4 mm. Fl. May–Jun.

Alpine regions; ca. 4200 m. W Xizang [Kashmir, Nepal, Pakistan].

12. *Ranunculus junipericola* J. Ohwi, Acta Phytotax. Geobot. 2: 154. 1931.

高山毛茛 gao shan mao gen

Herbs perennial. Roots fibrous, slightly thickened at base. Stems 7–25 cm, appressed puberulent, branched or simple. Basal leaves 3–5; petiole 2–11 cm, sparsely appressed puberulent; blade 3-partite, orbicular-ovate or oblate, 1–2.2 × 1.2–2.8 cm, papery, abaxially glabrous, adaxially sparsely appressed puberulent or glabrous, base truncate, rounded, or truncate-cuneate, central lobe narrowly ovate, obovate, or oblong-ovate, margin entire or with 1 tooth on each side, apex rounded or slightly obtuse and mucronate; lateral lobes obliquely cuneate, unequally 2-lobed. Stem leaves 2 or 3, long or short

petiolate, or sessile, 3-partite, 3-sect, or undivided, lanceolate-linear. Flowers terminal, 1 or 2 in a monochasium, ca. 0.9 cm in diam. Receptacle glabrous. Sepals 5, elliptic-ovate, 3.2–3.5 mm, abaxially yellowish puberulent. Petals 5, oblong-obovate or suboblong, ca. 5 × 2 mm, nectary pit without a scale, apex rounded. Stamens ca. 13; anthers oblong. Aggregate fruit ovoid, ca. 6 × 4 mm. Achene obovoid, ca. 2 mm, glabrous; style persistent, ca. 0.7 mm, slightly curved. Fl. Jun–Jul.

• Forests, scrub margins, gravelly places; 3300–3600 m. Taiwan.

13. *Ranunculus nankotaizanus* J. Ohwi, Acta Phytotax. Geobot. 2: 155. 1931.

南湖毛茛 nan hu mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 8–10 cm, appressed puberulent, 1- or 2-branched or simple. Basal leaves ca. 3; petiole 4–7 cm; blade 3-partite or 3-sect, subpentagonal, ca. 2 cm wide, papery, sparsely appressed puberulent, base truncate, rounded-truncate, or indistinctly subcordate, central segment oblanceolate, entire or with 1 tooth on each side; lateral segments oblanceolate, entire or with 1 tooth on each side, obliquely cuneate, unequally 2-lobed, lobules slightly obtuse and mucronate at apex. Stem leaves few, lower ones moderately long petiolate, 3-sect; upper ones smaller, short petiolate or sessile, sublinear, usually undivided. Flowers solitary, terminal.

Receptacle puberulent. Aggregate fruit ovoid, 4–5 × 2–3.5 mm. Achene suborbicular, ca. 1.5 mm, puberulent; style persistent, ca. 0.5 mm. Fr. Jul.

• Alpine regions. Taiwan (Nanhu Dashan).

14. *Ranunculus pseudopygmaeus* Handel-Mazzetti, Acta Horti Gothob. 13: 161. 1939.

矮毛茛 ai mao gen

Herbs perennial. Roots fibrous, thickened above. Stems 0.8–5 cm, glabrous or sparsely puberulent at nodes, simple or branched. Basal leaves 3–5; petiole 0.8–3 cm, glabrous or sparsely puberulent; blade usually 3-partite or 3-sect, occasionally 3-lobed or undivided, pentagonal or broadly ovate in outline, 2–6 × 3–8 mm, papery, glabrous or adaxially sparsely puberulent, base cordate, sometimes rounded-truncate; central segment obovate or rhombic, obtuse at apex, entire or 3-dentate; lateral segments obliquely flabellate or obliquely obovate, unequally 2-partite or 2-lobed, lobes entire or 2-lobed again. Stem leaves 1 or 2, similar to basal ones, short petiolate or sessile. Flowers solitary, terminal, 0.4–0.6 cm in diam. Receptacle glabrous. Sepals 5, elliptic, 2–2.5 mm, subglabrous or abaxially sparsely puberulent. Petals 5, narrowly obovate or subelliptic, 2–2.5 × 1.2–2 mm, nectary pit without a scale, apex rounded. Stamens 8–16; anthers long ellipsoid. Aggregate fruit ovoid, ca. 4 × 2.5 mm. Achene obliquely ellipsoid or obliquely obovoid, ca. 1 × 1 mm, glabrous; style persistent, ca. 0.3 mm. Fl. Jun–Sep.

Meadows, gravelly slopes, by lakes; 3000–4000 m. SE Xizang (Médog Xian), NW Yunnan [Nepal].

15. *Ranunculus chuanchingensis* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 362. 1980.

川青毛茛 *chuan qing mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 2.5–6 cm, glabrous or sparsely puberulent, simple or 1-branched. Basal leaves 2–5; petiole 1–4 cm, glabrous; blade 3-sect or 3-partite, oblate or orbicular-obovate, 0.6–1.6 × 1–2.6 cm, leathery, glabrous or adaxially puberulent, base subtruncate or rounded, central segment long elliptic or narrowly obovate, usually undivided; lateral segments unequally 2-lobed or 2-partite, lobes undivided or unequally 2-lobed. Stem leaves (1 or) 2, subsessile or sessile, 3–5-sect, segments narrowly elliptic or linear. Flowers solitary, terminal, 2–3.2 cm in diam. Receptacle glabrous. Sepals 5, ovate, 6–7 mm, glabrous or abaxially appressed puberulent. Petals 5, flabellate-obovate or broadly obovate, 10–16 × 11–17 mm, nectary pit without a scale, apex truncate-rounded or emarginate. Stamens numerous; anthers oblong. Carpels numerous, glabrous; style slightly shorter than ovary. Fl. Jun–Jul.

• Alpine meadows; ca. 4900 m. S Qinghai, NW Sichuan.

16. *Ranunculus glareosus* Handel-Mazzetti, Symb. Sin. 7: 307. 1931.

砾地毛茛 *li di mao gen*

Herbs perennial. Roots fibrous, slightly thickened above. Stems ascending, 3.5–15 cm, sparsely puberulent, simple or few branched, often rooting at lower nodes. Basal leaves 1–3; petiole 1.2–7.5 cm, glabrous; blade usually 3-sect, sometimes 3-partite, ovate or pentagonal, 0.4–2 × 0.6–1.8 cm, leathery, glabrous or adaxially appressed pubescent, base sometimes cordate, central segment ovate or rhombic, undivided or 3-lobed; lateral segments flabellate, unequally 2-partite. Stem leaves usually 2, shortly petiolate or sessile, often 3-sect, segments lanceolate or sublinear. Flowers terminal, solitary or 2 in a simple monochasium. 1–2.3 cm in diam. Pedicel 1–4 cm, puberulent. Receptacle glabrous. Sepals 5, elliptic, 4–5 mm, abaxially puberulent or subglabrous. Petals 5, obovate, 5–10 × 4–12 mm, nectary pit without a scale, apex rounded or subtruncate. Stamens numerous; anthers oblong. Aggregate fruit ovoid, 5–8 × 5–6 mm. Achene slightly bilaterally compressed, obliquely ovoid, 2–3 × 1.8–2 mm, glabrous; style persistent, ca. 0.5 mm. Fl. Jun–Aug.

• Gravelly slopes; 3900–4800 m. E and S Qinghai, W Sichuan, NW Yunnan (Dêqên Xian).

17. *Ranunculus petrogeiton* Ulbrich, Repert. Spec. Nov. Regni Veg. Beih. 12: 376. 1922.

太白山毛茛 *tai bai shan mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems ascending, 5–12(–20) cm, sparsely puberulent, branched or simple. Basal leaves 3 or more; petiole 0.7–5.5 cm, glabrous or sparsely puberulent; blade 3-sect or 3-partite, pentagonal or broadly ovate, 0.5–2 ×

0.7–2.2 cm, thinly leathery or papery, glabrous or abaxially sparsely puberulent, base cordate, central segment cuneate or rhombic, 3-lobed, 3-dentate, or entire; lateral segments obliquely flabellate, unequally 2-lobed. Lower stem leaves similar to basal ones, short petiolate, upper ones subsessile, 3-sect, segments oblong. Flowers solitary, terminal, 0.9–2 cm.

Receptacle glabrous. Sepals 5, elliptic, 4–6.5 mm, abaxially sparsely puberulent. Petals 5(or 6), obovate or oblong-obovate, rarely broadly obovate, 4.5–9 × 2–9 mm, nectary pit without a scale, apex rounded, rarely subtruncate. Stamens numerous; anthers oblong. Aggregate fruit ovoid, 5–7 × 4–6 mm; carpels numerous. Achene slightly bilaterally compressed, broadly obovoid, 1.2–1.5 × ca. 1.2 mm, glabrous; style persistent, 0.5–1 mm. Fl. Jul–Aug, fr. Jul–Sep.

• Forests, gravelly slopes; 3000–4800 m. C Gansu, S Shaanxi (Taibai Shan), W Sichuan (Kangding Xian, Sungpan Xian).

18. *Ranunculus micronivalis* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 57: 48. 1920.

窄瓣毛茛 *zhai ban mao gen*

Ranunculus longipetalus Handel-Mazzetti.

Herbs perennial. Roots fibrous, subequally thick. Stems 0.6–5 cm, sparsely puberulent, sometimes glabrous, simple. Basal leaves 3–5; petiole 0.4–2.2 cm, glabrous; blade 3-partite or 3-sect, pentagonal, 1.8–5 × 3–7 mm, papery, glabrous, base cordate or truncate, central segment rhombic or obovate, undivided; lateral segments obliquely flabellate or obliquely obovate, unequally 2-lobed. Stem leaves 1 or absent, short petiolate or sessile, 2- or 3-cleft, or undivided, lobes linear or lanceolate. Flowers solitary, terminal, 0.6–0.8 cm in diam. Receptacle glabrous. Sepals 5, elliptic, 2.5–3 mm, glabrous. Petals 5, long elliptic, 4–5.2 × 2 mm, nectary pit without a scale, apex obtuse. Stamens 3–7; anthers oblong. Carpels numerous, glabrous; style slightly longer than ovary. Fl. Jul–Aug.

• Grassy slopes, meadows; 3700–4800 m. W Sichuan, NW Yunnan (Zhongdian Xian).

19. *Ranunculus pegaeus* Handel-Mazzetti, Acta Horti Gothob. 13: 141. 1939.

爬地毛茛 *pa di mao gen*

Herbs perennial. Roots fibrous. Stems prostrate, stoloniferous, to 20 cm, glabrous, branched, rooting at nodes. Basal leaves ca. 10; petiole 2–3.6 cm, glabrous; blade usually 3-sect, sometimes 3-partite, pentagonal, 3–6(–10) × 5–9(–15) mm, papery, glabrous, base cordate, central segment rhombic or oblong, usually entire; lateral segments obliquely flabellate, 1 or 2 × unequally 2-cleft. Stem leaves similar to basal ones but short petiolate. Flowers solitary, terminal, 0.5–0.7 cm in diam. Pedicel 0.5–2 cm, glabrous. Receptacle glabrous. Sepals 5, elliptic, ca. 2 mm, glabrous. Petals 5, elliptic or narrowly elliptic, 2.8–3 mm, nectary pit without a scale, apex obtuse or rounded. Stamens 6 or 7; anthers oblong. Aggregate fruit subglobose, ca. 3 mm in diam.;

carpels ca. 12. Achene slightly bilaterally compressed, obliquely obovoid, ca. 1×0.8 mm, glabrous; style persistent, ca. 0.2 mm. Fl. Jun–Sep.

Forests, scrub, grassy slopes, by streams; 3400–4100 m. S Xizang, NW Yunnan [Nepal, Sikkim].

20. *Ranunculus glacialiformis* Handel-Mazzetti, Acta Horti Gothob. 13: 153. 1939.

宿萼毛茛 *su e mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 6–10 cm, fulvous puberulent, simple. Basal leaves 2–4; petiole 1.8–5 cm, glabrous; blade 3-sect, orbicular-reniform or orbicular-ovate, $0.75\text{--}1.5 \times 1.1\text{--}2$ cm, leathery, glabrous, base subcordate, central segment obovate, 3-lobed or 3-cleft to middle; central lobe ovate, entire; lateral lobes 2- or 3-lobulate; lateral segments flabellate, unequally 2-partite. Stem leaves 2, subsessile or sessile, 3-sect or 3-lobed. Flowers solitary, terminal, 1.2–1.8 cm in diam. Receptacle yellow puberulent. Sepals 5, elliptic, 5–7 mm, abaxially fulvous pubescent. Petals 5, broadly obovate or obovate, $7\text{--}9 \times 5\text{--}8$ mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, ca. 6×4.5 mm. Achene slightly bilaterally compressed, ovoid, ca. 1.2×1 mm, glabrous; style persistent, 0.5–0.8 mm. Fl. Jul–Aug.

Meadows, gravelly slopes; 4700–5000 m. W Sichuan, NW Yunnan (Zhongdian Xian) [Kashmir].

21. *Ranunculus luogaiensis* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 361. 1980.

若尔盖毛茛 *ruo er gai mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems ca. 12 cm, mostly glabrous, sparsely puberulent above, simple. Basal leaves ca. 2; petiole 3.5–5.2 cm, sparsely puberulent; blade 3-sect or 3-partite, pentagonal, $1.1\text{--}1.2 \times 1.4\text{--}1.5$ cm, papery, abaxially glabrous, base rounded-truncate or subtruncate, central segment cuneate or cuneate-rhombic, 3-lobed, lobules entire; lateral segments obliquely obovate, unequally 2-cleft, lobes entire or 2-lobed. Stem leaves 3, short petiolate or sessile, 3-sect, segments lanceolate-linear, 1–2 mm wide. Flowers solitary, terminal, ca. 1.6 cm in diam. Receptacle glabrous. Sepals 5, dark purple, broadly ovate, ca. 6 mm, abaxially white puberulent. Petals 6–8, oblong-oblancheolate or narrowly obovate, ca. 9×4 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, ca. 8×7 mm. Achene narrowly obovoid, $1.6\text{--}2 \times 1\text{--}1.1$ mm, glabrous, longitudinally rugose; style persistent, ca. 1 mm, recurved. Fl. Jul–Aug.

• Alpine meadows; ca. 4300 m. NW Sichuan (Zoigê Xian).

22. *Ranunculus chinghoensis* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 361. 1980.

清河毛茛 *qing he mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems ca. 32 cm, mostly glabrous, only near apex appressed

puberulent, simple. Basal leaves ca. 5; petiole 4–14 cm, sparsely pubescent; blade 3-partite, pentagonal, $2\text{--}3.5 \times 2.8\text{--}5.2$ cm, papery, abaxially glabrous, base deeply cordate, central lobe cuneate-rhombic, 3-lobed, lobules 1- or 2-dentate; lateral lobes obliquely flabellate, unequally 2-cleft near middle, incised-dentate. Monochasium terminal, 3-flowered; bracts 2, short petiolate, ca. 4 cm, 3-sect, segments linear, 2–3 mm wide. Flowers ca. 1.5 cm in diam. Pedicel ca. 2 cm, densely appressed pubescent. Receptacle glabrous. Sepals 5, narrowly ovate, ca. 6 mm, abaxially white pubescent. Petals 8, oblong, $8.2\text{--}9 \times 2.4\text{--}3.1$ mm, nectary pit without a scale, apex rounded or rounded-obtuse. Stamens numerous; anthers ellipsoid. Carpels numerous; ovary longer than style, glabrous. Fl. Jun.

• Forest margins. N Xinjiang (Qinghe Xian).

23. *Ranunculus rubrocalyx* Regel ex Komarov, Trav. Soc. Naturalistes St. Petersbourg, Sect. Bot. 26: 62. 1896.

红萼毛茛 *hong e mao gen*

Ranunculus rufosepalus Franchet var. *parviflorus* Komarov.

Herbs perennial. Stems 2 or 3, 5–12 cm, glabrous for most part, sparsely puberulent only below flowers, branched above. Basal leaves ca. 4; petiole 1.5–5 cm, glabrous or subglabrous; blade 3-sect, broadly ovate, $1.4\text{--}2 \times 2.2\text{--}2.6$ cm, papery, glabrous except for ciliate margin, base cordate, central segment broadly rhombic-ovate or broadly obovate, 3-lobed, lateral lobes often pectinately lobulate; lateral segments oblique flabellate, unequally 2-partite. Stem leaves 2, sessile or subsessile, nearly 3-sect; segments lanceolate, glabrous, entire or 1- or 2-dentate at margin. Flowers solitary, terminal, 1.5–2 cm in diam. Receptacle puberulent. Sepals 5, dark red, ovate, 5–9 mm, abaxially yellowish puberulent. Petals 5, broadly obovate, $7\text{--}10 \times 6\text{--}9$ mm, nectary pit without a scale, apex subtruncate or truncate-rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit subglobose. Achene oblong-obovoid, 1.5–2 mm, glabrous; style persistent, short, hooked at apex. Fl. May–Jul.

Alpine meadows, slopes, by rivers; 1400–3300 m. Xinjiang (Tian Shan, Yining Shi) [Afghanistan, Kazakhstan, N Pakistan].

24. *Ranunculus balikunensis* J. G. Liu, Bull. Bot. Res., Harbin 12(3): 235. 1992.

巴里坤毛茛 *ba li kun mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems ca. 30 cm, glabrous, 1-branched above. Basal leaves 3 or 4; petiole 6–12 cm, glabrous; blade 3-sect or 3-partite, reniform-orbicular or cordate-pentagonal, $2.8\text{--}3.5 \times 3.8\text{--}5$ cm, papery, glabrous, base deeply cordate, central segment obovate, 3-lobed; central lobe ovate or narrowly ovate, entire; lateral lobes 1- or 2-dentate, lateral segments obliquely flabellate, unequally 2-partite, upper lobe incised-dentate, lower lobe unequally 2-lobed. Stem leaves subsessile or sessile, 3–7-sect, segments divided into lanceolate or narrowly ovate lobes. Monochasium terminal, 2- or 3-flowered;

bracts leaflike or linear. Flowers ca. 2.5 cm in diam. Pedicel 2–5 cm, densely yellowish puberulent above. Receptacle puberulent. Sepals 5, ovate or elliptic-ovate, ca. 8 mm, abaxially yellowish puberulent. Petals 5, broadly obovate, 9–11 × 10–13 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit cylindric, ca. 12 × 8 mm. Achene ovoid, ca. 2.5 × 1.6 mm, glabrous; style persistent, ca. 1 mm, recurved at apex. Fl. Jun.
• Grassy places, slopes; ca. 2400 m. E Xinjiang (Barkol Kazak Zizhixian).

25. *Ranunculus hirtellus* Royle, Ill. Bot. Himal. Mts. 53. 1834.

基隆毛茛 *ji long mao gen*

Herbs perennial. Roots fibrous, slightly thickened above. Stems 1–5, 4.5–27 cm, puberulent, branched or simple. Basal leaves 2–5; petiole 1.5–9.5 cm, sparsely puberulent or subglabrous; blade 3-sect or 3-partite, sometimes 3-cleft to near middle, pentagonal or reniform, 0.5–3.5 × 0.7–4.2 cm, papery, often glabrescent, base usually cordate, central segment obovate or cuneate-obovate, 3-lobed or 3-dentate, rarely entire; lateral segments obliquely flabellate, unequally 2-cleft. Stem leaves short petiolate or sessile, 3-sect. Flowers solitary or 2 or 3 in a terminal monochasium, 0.9–1.5 cm in diam. Pedicel 1–12 cm, puberulent. Receptacle puberulent or glabrous. Sepals 5, elliptic-ovate or elliptic, 2.5–5.5 mm, abaxially yellowish pubescent. Petals 5, obovate or broadly obovate, 5–8 × 3.2–7 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers ellipsoid or oblong. Aggregate fruit ovoid or narrowly ovoid, 5–7 × 4–5 mm. Achene obliquely obovoid, 1.7–2 × 1–1.5 mm, puberulent or glabrous; style persistent, 0.6–1 mm.

3000–5000 m. E and S Qinghai, W Sichuan, Xizang, NW Yunnan [Afghanistan, N India, Kashmir, Nepal, N Pakistan].

- 1a. Petiole of basal leaves 6–9.5 cm; leaf blade 1.3–3.5 × 1.6–4.2 cm, 3-sect; flowers 2 or 3 in a terminal monochasium, 1.2–1.5 in diam.; stems 15–27 cm; receptacle and achenes puberulent 25a. var. *hirtellus*
- 1b. Petiole of basal leaves 1–5 cm; leaf blade 0.5–1.5 × 0.7–2 cm, 3-sect or 3-partite, sometimes 3-cleft nearly to middle; flowers solitary, terminal, 0.9–1.2 cm in diam.; stems 4.5–15(–20) cm.
 - 2a. Receptacle puberulent; achenes puberulent or glabrous 25b. var. *humilis*
 - 2b. Receptacle glabrous, rarely with a few hairs; achenes glabrous 25c. var. *orientalis*

25a. *Ranunculus hirtellus* var. *hirtellus*

基隆毛茛(原变种) *ji long mao gen* (yuan bian zhong)
Ranunculus jilongensis L. Liou.

Stems 15–27 cm. Basal leaves with petiole 6–9.5 cm; blade 3-sect, 1.3–3.5 × 1.6–4.2 cm. Flowers 2 or 3 in a

terminal monochasium, 1.2–1.5 in diam. Receptacle and achenes puberulent. Fl. May–Jun.

Scrub, weedy places; 3000–3400 m. S Xizang [Afghanistan, N India, Kashmir, Nepal, N Pakistan].

25b. *Ranunculus hirtellus* var. *humilis* W. T. Wang, Bull. Bot. Res., Harbin 15: 176. 1995.

小基隆毛茛 *xiao ji long mao gen*

Stems 7–14 cm. Basal leaves with petiole 1.5–3 cm; blade 3-sect or 3-partite, sometimes 3-fid nearly to middle, 0.5–1.5 × 0.7–2 cm. Flowers 0.9–1.1 cm in diam. Receptacle puberulent. Achene puberulent or glabrous. Fl. Jul–Sep.

• Alpine meadows, on rocks; 4000–4800 m. S Qinghai, W Sichuan, S and E Xizang.

25c. *Ranunculus hirtellus* var. *orientalis* W. T. Wang, Bull. Bot. Res., Harbin 15: 176. 1995.

三裂毛茛 *san lie mao gen*

Ranunculus hirtellus var. *glabrescens* W. L. Zheng; *R. hirtellus* var. *sigylaicus* W. L. Zheng.

Stems 4.5–15(–20) cm. Basal leaves with petiole 1–5 cm; blade 3-sect or 3-partite, sometimes 3-fid nearly to middle, 0.5–1.4 × 0.8–2 cm. Flowers 0.9–1.2 cm in diam. Receptacle glabrous, rarely with a few hairs. Achene glabrous. Fl. Jun–Aug.

• Meadows, gravelly slopes, by streams, on rocks; 3000–5000 m. E Qinghai, W Sichuan, S Xizang, NW Yunnan.

26. *Ranunculus banguoensis* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 362. 1980.

班戈毛茛 *ban ge mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 1.2–4 cm, puberulent above, simple or 1-branched. Basal leaves ca. 2; petiole 0.5–1.5 cm, glabrous or sparsely puberulent; blade occasionally 3-cleft to middle, rhombic-obovate or broadly rhombic, leathery, glabrous or abaxially sparsely puberulent, lobes narrowly ovate, 4–13 × 4–9 mm, 3-sect or 3-partite; segments linear-oblongate, narrowly oblong, or narrowly obovate, entire. Stem leaves short petiolate or sessile, 3-partite or 3-sect, rarely undivided. Flowers solitary, terminal, 0.8–1.6 cm in diam. Receptacle glabrous. Sepals 5, elliptic or ovate, 3–6 mm, abaxially sparsely puberulent. Petals 5, narrowly obovate to broadly obovate, 4.5–9 × 2.5–6.5 mm, nectary pit without a scale, apex rounded. Stamens 6–14 or numerous; anthers oblong. Carpels numerous; ovary longer than style, glabrous. Fl. Jun–Jul.

• 4900–5400 m. SW Qinghai, C and SW Xizang.

- 1a. Leaf blade 4–8 × 4–7, 3-partite or 3-sect; flowers 8–10 mm in diam.; petals 4.5–5.2 × 2.5–2.8 mm 26a. var. *banguoensis*
- 1b. Leaf blade 6–13 × 5–9 mm, 3-partite near base, sometimes 3-lobed; flowers 13–16 mm in diam.; petals 6–9 × 3.6–6.5 mm 26b. var. *grandiflorus*

26a. *Ranunculus banguoensis* var. *banguoensis*

班戈毛茛(原变种) ban ge mao gen (yuan bian zhong)
Leaf blade 3-partite or 3-sect, 4–8 × 4–7 mm. Flowers 0.8–1 cm in diam. Petals 4.5–5.2 × 2.5–2.8 mm, nectary pit without a scale.

• Grassy slopes, meadows, by streams; ca. 5200 m. SW Qinghai, C Xizang (Baingoin Xian).

26b. *Ranunculus banguoensis* var. *grandiflorus* W. T. Wang, Bull. Bot. Res., Harbin 15: 177. 1995.

普兰毛茛 pu lan mao gen

Leaf blade 3-partite near base, sometimes 3-lobed, 6–13 × 5–9 mm. Flowers 1.3–1.6 cm in diam. Petals 6–9 × 3.6–6.5 mm, nectary pit without a scale.

• Gravelly slopes; 4900–5400 m. SW Xizang (Burang Xian).

27. *Ranunculus dingjieensis* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 362. 1980.

定结毛茛 ding jie mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 1–2.5 cm, scapiform, puberulent, simple. Basal leaves ca. 5; petiole 1–1.5 cm, glabrous or sparsely puberulent; blade 3-sect, pentagonal, broadly rhombic, or orbicular-ovate, or orbicular-ovate in outline, rarely undivided and lanceolate-linear. 2–4 × 2–4 mm, papery, subglabrous or abaxially sparsely puberulent; central segment short stalked, rhombic, 3-lobed, or oblanceolate, undivided; lateral segments sessile, obliquely rhombic, unequally 3-lobed, or undivided; Stem leaves 1 or 2, on lower part of stem, similar to basal leaves. Flowers solitary, terminal, 0.6–1.2 cm in diam.

Receptacle glabrous. Sepals 5, long elliptic, 2–3.5 mm, abaxially sparsely puberulent. Petals 5, obovate, broadly obovate, or long elliptic, 3–6 × 1.2–4.5 mm, nectary pit without a scale, apex rounded or truncate. Stamens numerous; anthers broadly oblong or ellipsoid. Carpels numerous; ovary longer than style, glabrous. Fl. Jun.

• Alpine meadows; 4500–4800 m. S Xizang (Dinggyê Xian).

28. *Ranunculus glabricaulis* (Handel-Mazzetti) L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 298. 1980.

甘藏毛茛 gan zang mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 1.5–3.7 cm, glabrous or puberulent, simple. Basal leaves 2 or 3; petiole 0.7–2 cm, glabrous, rarely sparsely pubescent; blade 3-sect, pentagonal, 0.3–0.7 × 0.5–1.1 cm, leathery, glabrous or sparsely pubescent, base deeply cordate, central segment rhombic, broadly rhombic, or obovate, 3-cleft nearly to middle, with narrowly ovate or oblong entire lobes, or long elliptic or narrowly obovate, undivided; lateral segments oblique flabellate or oblique obovate, unequally 2-lobed; lobes undivided or unequally 2-lobed, ultimate lobules narrowly ovate or lanceolate. Stem leaves 1 or 2, short petiolate or sessile, palmately 3–7-sect, segments linear. Flowers solitary, terminal, 1–1.5 cm in diam. Pedicel 1–2 cm. Receptacle glabrous. Sepals 5, dark purple or greenish, elliptic-ovate, 4–6 mm, abaxially glabrous or yellowish puberulent. Petals 5, broadly obovate, 5.5–7

× 4–6.5 mm, nectary pit without a scale, apex emarginate or rounded-truncate. Stamens numerous; anthers oblong. Carpels numerous, glabrous; style shorter than ovary.

• ca. 5000 m. C Gansu (Tianzhu Xian), E Xizang.

1a. Stems and pedicels glabrous; sepals dark

purple, glabrous or abaxially sparsely puberulent 28a. var. *glabricaulis*

1b. Stems and pedicels puberulent; sepals

greenish or tinged with purple at margin, abaxially ± densely

puberulent 28b. var. *viridisepalus*

28a. *Ranunculus glabricaulis* var. *glabricaulis*

甘藏毛茛(原变种) gan zang mao gen (yuan bian zhong)

Ranunculus hirtellus Royle var. *glabricaulis* Handel-Mazzetti, Acta Horti Gothob. 13: 151. 1939.

Stems and pedicels glabrous. Sepals dark purple, glabrous or abaxially sparsely puberulent.

• Meadows, gravelly slopes; ca. 5000 m. C Gansu (Tianzhu Xian), E Xizang.

28b. *Ranunculus glabricaulis* var. *viridisepalus* W. T. Wang, Bull. Bot. Res., Harbin 15: 178. 1995.

绿萼甘藏毛茛 lu e gan zang mao gen

Stems and pedicels puberulent. Sepals greenish or tinged with purple at margin, abaxially ± densely puberulent. Fl. Aug.

• C Gansu (Tianzhu Xian).

29. *Ranunculus pedicellatus* Handel-Mazzetti, Acta Horti Gothob. 13: 161. 1939.

长梗毛茛 chang geng mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 6–9 cm, glabrous, simple. Basal leaves ca. 7; petiole 2.6–4.6 cm, glabrous; blade 3-sect, pentagonal or deltoid, 2.5–7 × 4–10 mm, papery, glabrous, base truncate-cordate, central segment obovate or obovate-oblong; lateral segments flabellate or obliquely broadly obovate, unequally 2-cleft to middle. Stem leaves 1 or 2, lowermost similar to basal leaves; upper 1 short petiolate, undivided or 3-sect, segments linear or linear-lanceolate. Flowers solitary, terminal, 1–1.3 cm in diam.

Pedicel 2.8–3.8 cm, glabrous; receptacle glabrous. Sepals 5, narrowly oblong, ca. 4.5 mm, glabrous. Petals 5 or 6, obovate, 4.5–6.5 × 2.5–3.5 mm, nectary pit without a scale, apex rounded, nectariferous foveola small. Stamens numerous; anthers oblong. Carpels numerous, ca. 0.8 mm, glabrous. Fl. Aug.

• Alpine meadows; ca. 4500 m. NW Sichuan (Songpan Xian).

• Alpine meadows; ca. 4500 m. NW Sichuan (Songpan Xian).

30. *Ranunculus oreionannos* Marquand & Airy Shaw, J. Linn. Soc., Bot. 48: 155. 1929.

花葶毛茛 hua ting mao gen

Herbs perennial. Roots fibrous. Scape 4.2–7 cm, sparsely puberulent. Leaves all basal, 3 or 4; petiole 1.5–3.6 cm, glabrous; leaf blade 3-sect, broadly ovate

or semiorbicular, sometimes undivided and then oblong, 1–2.5 × 2–3.2 mm, papery, glabrous, base truncate-cordate, subtruncate, or broadly cuneate, central segment obovate, narrowly obovate, or elliptic, margin entire; lateral segments obliquely obovate, unequally 2-lobed or undivided. Flowers solitary, terminal, 0.6–0.7 cm in diam. Receptacle glabrous. Sepals 5, elliptic or obovate, 2–2.5 mm, glabrous. Petals 5, elliptic-obovate, 2.5–3.2 × 1.5–1.8 mm, nectary pit without a scale, apex rounded. Stamens 6 or 7; anthers oblong. Carpels ca. 15, glabrous; style ca. 1/2 as long as ovary. Fl. Jul.

Gravelly slopes; 4500–4800 m. SE Xizang [Nepal].

31. *Ranunculus gelidus* Karelin & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 15: 133. 1842.

冷地毛茛 *leng di mao gen*

Ranunculus glacialis Linnaeus var. *gelidus* (Karelin & Kirilov) Finet & Gagnepain.

Herbs perennial. Roots fibrous, subequally thick. Stems 5–14 cm, sparsely puberulent or subglabrous, branched. Basal leaves 3–5; petiole 1.5–9 cm, subglabrous; blade 3-sect, cordate-orbicular or cordate-pentagonal, 0.6–1.6 × 0.8–2.6 cm, papery, sparsely puberulent or subglabrous, base subcordate, central segment stalked, broadly rhombic, 3-partite, lobes incised-lobed; lateral segments subsessile, obliquely flabellate, unequally 2-partite; lobes 2 × dissected, ultimate lobules narrowly ovate or narrowly oblong. Stem leaves similar to basal ones, short petiolate or subsessile. Flowers solitary, terminal, 1.5–2 cm in diam. Receptacle puberulent. Sepals 5, broadly elliptic, ca. 5 mm, abaxially appressed white sericeous. Petals 5, broadly obovate, 8–10 × 6–10 mm, nectary pit without a scale, apex truncate-rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit globose, ca. 6 mm in diam. Achene slightly bilaterally compressed, obliquely obovoid, ca. 2 × 2 mm, puberulent; style persistent, ca. 0.7 mm. Fl. Jun–Sep.

Meadows, grassy places in valley; 2300–2800 m. NW Xinjiang [Kazakhstan].

32. *Ranunculus rufosepalus* Franchet, Ann. Sci. Nat., Bot., sér. 6, 15: 217. 1883.

棕萼毛茛 *zong e mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 18–21 cm, glabrous for most part, puberulent only below flowers, simple. Basal leaves several; petiole 6–8.5 cm, glabrous; blade ternate, broadly ovate in outline, 1.5–3.6 × 2.2–5.8 cm, papery, glabrous, base cordate; central leaflet depressed pentagonal or broadly rhombic, 3-partite, petiolule 0.5–1.8 cm, lobes 2- or 3-lobulate; lateral leaflets oblique flabellate, unequally 2-sect, segments unequally 2-partite, petiolules 3–9 mm. Stem leaves ca. 2, sessile, palmatipartite, segments narrowly lanceolate or linear. Flowers solitary, terminal, 1.6–2.2

cm in diam. Receptacle glabrous. Sepals 5, dark purple, ovate, 5–6 mm, abaxially brown puberulent. Petals 5–7, broadly obovate, 7–9 × 7–10 mm, nectary pit without a scale, apex truncate-rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit ovoid, ca. 7 mm. Achene ovoid, 2–2.4 mm, glabrous; style persistent, ca. 1 mm, slightly curved. Fl. Aug.

Slopes; ca. 4800 m. SW Xinjiang [Afghanistan, Kazakhstan, N Pakistan, Tajikistan].

33. *Ranunculus adoxifolius* Handel-Mazzetti, Acta Horti Gothob. 13: 152. 1939.

五福花叶毛茛 *wu fu hua ye mao gen*

Herbs perennial. Roots fibrous, slightly thickened toward base. Stems 5–12 cm, sparsely yellowish pilose, branched from base. Basal leaves several; petiole 2–5 cm, sparsely pilose; blade ternate, reniform in outline, 0.9(–2.5) × 1.2(–2.5) cm, thinly papery, sparsely pilose, central segment obovate, 3-lobed to 3-fid, lobes lanceolate, apex subacute; lateral lobes similar to middle lobe, obliquely 3-fid. Stem leaves 2 or 3, lowest one similar to basal leaves, upper stem leaves short petiolate or sessile, 3-sect, segments lanceolate. Flowers solitary or 2 in a monochasium, terminal. Flowers ca. 0.7 cm in diam. Pedicel 1–2.5(–4) cm, sparsely pilose. Receptacle glabrous. Sepals 5, with purple margins, elliptic-ovate, 3(–4) mm, abaxially pale puberulent. Petals 5 or 6, elliptic-oblong (to obovate), 3–3.5 × 1.5–2 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers ellipsoid. Aggregate fruit ± ovoid, carpels numerous, ovary longer than style. Mature achene not seen, glabrous; style ± straight. Fl. Jun.

In gravel by streams; ca. 3400(–4300) m. SE Xizang [Nepal, Sikkim]. The description is based primarily on the only Chinese collection seen which is smaller in most parts than is indicated in the protologue.

34. *Ranunculus mainlingensis* W. T. Wang, Acta Phytotax. Sin. 32: 473. 1994.

米林毛茛 *mi lin mao gen*

Herbs perennial. Roots fibrous, thickened at base. Stems 4–7, cespitose, 6.5–18 cm, sparsely appressed puberulent or glabrescent, branched or simple. Basal leaves 3–7; petiole 3–8 cm, glabrous or subglabrous; blade ternate, orbicular-ovate or deltoid in outline, 0.9–1.4 × 1.3–2.2 cm, herbaceous or papery, glabrous or abaxially sparsely puberulent, base cordate; central leaflet flabellate-obovate, cuneate, or rhombic, 3-lobed; lobes ovate, undivided or unequally 2-lobulate; lateral leaflets obliquely flabellate, unequally 2-partite, petiolule 1.5–3 mm. Stem leaves 2, lower 1 ternate, long petiolate; upper 1 moderately long or short petiolate, 3-sect. Flowers solitary, terminal, 0.8–1 cm in diam. Receptacle glabrous. Sepals 5, elliptic, 3–4 mm, abaxially pubescent. Petals 5, elliptic-obovate, 3.8–4.8 × 1.5–2.8 mm, nectary pit without a scale, apex rounded. Stamens 7–14; anthers oblong. Aggregate fruit narrowly ovoid, 3–7.5 × 2–3 mm. Achene obliquely

obovoid, 1–1.2 × 0.8–1 mm, glabrous; style persistent, 0.3–0.6 mm. Fl. Jul–Aug, fr. Aug.

• Wet places in valleys, alpine meadows; 2700–4300 m. SE Xizang (Bomi Xian, Mainling Xian).

35. *Ranunculus stenorhynchus* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 189. 1886.

宝兴毛茛 bao xing mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 13–16 cm, sparsely puberulent or subglabrous, simple. Basal leaves ca. 7; petiole 2.8–5.5 cm, subglabrous; blade ternate, orbicular-ovate in outline, 0.6–1.1 × 1–1.9 cm, thinly papery, abaxially glabrous, adaxially sparsely sericeous, base deeply cordate, leaflets short petiolulate, central leaflet oblique flabellate, unequally 2-lobed. Stem leaves 1 or 2, short petiolate or sessile, 3-sect, segments of uppermost linear, entire. Flowers terminal, solitary or 2 in a simple monochasium. Pedicel 2–5.5 cm, glabrous or sparsely puberulent. Receptacle glabrous. Sepals 5, elliptic, ca. 4 mm, abaxially sparsely puberulent. Petals 5, narrowly obovate, ca. 6 × 2.6 mm, nectary pit without a scale, apex subtruncate, emarginate. Stamens numerous; anthers oblong. Aggregate fruit ovoid, ca. 3 mm in diam. Achene obliquely obovoid, ca. 1 × 1 mm, densely puberulent; style persistent, ca. 0.7 mm.

• W Sichuan (Baoping Xian).

36. *Ranunculus formosa-montanus* J. Ohwi, Acta Phytotax. Geobot. 2: 154. 1931.

蓬莱毛茛 peng lai mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 10–20 cm, appressed puberulent, simple or branched. Basal leaves ca. 2; petiole 8–15 cm, appressed puberulent; blade ternate, subpentagonal in outline, ca. 3 × 3 cm, appressed puberulent, base cordate; central leaflet short petiolulate, broadly rhombic or rhombic, to 1.5 cm wide, 3-partite; central lobe oblong or narrowly rhombic, undivided or 3-lobed, lateral lobes unequally 2-lobed or undivided; lateral leaflets short petiolulate, obliquely flabellate, unequally 2-partite. Lower stem leaves similar to basal leaves but shortly petiolate, upper ones small, sessile, 3-sect, segments linear. Flowers solitary, terminal, ca. 2 cm in diam. Receptacle glabrous. Sepals 5, ovate, 4–5 mm, abaxially brown pubescent. Petals 5, broadly ovate, 7–8 mm, nectary pit without a scale, apex rounded. Stamens numerous. Aggregate fruit subglobose, ca. 5 × 5 mm. Achene broadly obovoid, glabrous, narrowly marginate; style persistent, short, recurved. Fl. Jul.

• Open places and sunny slopes; above 2600 m. Taiwan (Nanhu Dashan).

37. *Ranunculus matsudae* Hayata ex Masamune, J. Soc. Trop. Agric. 6: 570. 1934.

疏花毛茛 shu hua mao gen

Herbs perennial. Stems 7–17 cm, appressed puberulent, simple or 1- or 2-branched. Basal leaves ca. 3; petiole 1.5–6.5 cm; blade 3-partite to near base, deltoid or pentagonal, 1–1.7 × 1.2–2.4 cm, papery, puberulent,

base subtruncate or truncate-cordate, central lobe rhombic or cuneate-rhombic, 3-lobed, few dentate; lateral lobes obliquely rhombic or obliquely cuneate, unequally 2-lobed. Stem leaves few, similar to basal leaves but short petiolate; uppermost leaf sessile, 2- or 3-sect, segments linear. Flowers solitary, terminal, 1.5–2 cm in diam. Receptacle glabrous. Sepals 5, ovate, 5–6 mm, abaxially puberulent. Petals 5, broadly obovate, 7.5–10 × 5–8 mm, nectary pit covered by a scale, apex subtruncate. Stamens numerous; anthers oblong. Aggregate fruit broadly ovoid, ca. 5 × 5 mm. Achene obliquely obovate, ca. 2.2 × 1.5 mm, glabrous, not distinctly marginate; style persistent, ca. 0.5 mm. Fl. Jul.

• Bamboo thickets, gravelly places; 3300–3900 m. Taiwan.

38. *Ranunculus morii* (Yamamoto) J. Ohwi, J. Jap. Bot. 12: 333. 1936.

森氏毛茛 sen shi mao gen

Anemone taraoi Takeda var. *morii* Yamamoto, Suppl. Icon. Pl. Formos. 3: 26. 1927; *Ranunculus taizanensis* Yamamoto.

Herbs perennial. Roots fibrous, subequally thick. Stems erect, 5–20 cm, sparsely pubescent. Basal leaves few; petiole 3.4–9 cm, sparsely pubescent; blade ternate to 2-ternate, broadly ovate to pentagonal in outline, 2.6–4.2 × 3.4–5 cm, thinly leathery, glabrous or abaxially sparsely pubescent, central segment ovate, petiolule 0.5–1 cm, pinnatifid to bipinnatifid, lobes acute; lateral segments ternate to pinnatifid, similar to central lobe. Stem leaves similar to basal ones. Flowers solitary, leaf-opposed or terminal, 2–2.5 cm in diam. Pedicel 3–11.5 cm, pubescent. Receptacle glabrous. Sepals 5, broadly elliptic or ovate, 5–7 × 3–4 mm, glabrous. Petals 5(–8), narrowly obovate, 9–12 × 4–6 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit globose, ca. 10 mm in diam. Achene obliquely obovoid, 2–4 mm, glabrous; style persistent, ca. 0.5 mm, recurved. Fl. Apr–Jun, fr. May–Jul.

• Above 3000 m. N Taiwan (Nanhu Dashan, Xue Shan).

No material of this species has been seen by the authors and the account is based largely on Yuang & Huan (Fl. Taiwan, ed. 2, 2: 556. 1996). The pinnatifid leaflets were first mistaken for those of an *Anemone* or *Pulsatilla*.

39. *Ranunculus polii* Franchet ex Forbes & Hemsley, J. Linn. Soc., Bot. 23: 15. 1886.

上海毛茛 shang hai mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 5–15 cm, glabrous, branched. Basal leaves 4–8; petiole 2–2.5 cm; blade ternate, ovate in outline, 1.5–2.8 × 1.8–3.4 cm, papery; central leaflet long petiolulate, broadly rhombic, 7–10 × 8–14 mm, 3-partite or 3-sect; lobes oblong or narrowly obovate, entire or 1-denticulate; lateral leaflets shortly petiolulate, unequally 2- or 3-partite, lobes obliquely narrowly obovate, unequally 2-lobed. Stem leaves few, lowermost similar to basal leaves, upper ones simple, 3-sect, segments narrowly

obovate or oblong, entire. Flowers solitary, terminal, 1–1.4 cm in diam. Receptacle glabrous. Sepals 5, ovate, 3.5–4 mm, abaxially sparsely puberulent. Petals 5, narrowly obovate, 5.8–6.5 × 2.8–4 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Carpels numerous; ovary 1–2 mm. Achene puberulent or glabrous; style 0.5–0.7 mm, circinate. Fl. Apr–Aug.

• Hilly slopes; below 100 m. Shanghai.

40. *Ranunculus yanshanensis* W. T. Wang, Bull. Bot. Res., Harbin 16: 161. 1996.

砚山毛茛 *yan shan mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stolons ca. 20 cm, strigose. Stems ca. 20 cm, strigose, 1-branched above; Basal leaves ca. 4; petiole 3.5–7 cm, strigose; blade ternate, rarely simple, ovate in outline, 2.5–4.4 × 4–5 cm, papery, abaxially strigose, base cordate; central leaflet long petiolulate, broadly rhombic, 3-partite; lobes incised-denticulate, petiolule 0.7–1.3 cm, apex acute; lateral leaflets shortly petiolulate or subsessile, oblique flabellate, unequally 2-partite, often 3-sect in smallest leaves, lobes unequally 2- or 3-lobed and few denticulate; Stem leaves ca. 2, smaller, lower short petiolate, ternate; uppermost subsessile, 3-sect. Monochasium terminal, 2-flowered; bracts 3-sect, segments linear. Flowers ca. 0.7 cm in diam. Pedicel 1.4–3 cm, strigose. Receptacle puberulent. Sepals 5, long elliptic, ca. 4 mm, abaxially strigose. Petals 5, oblong, ca. 4.2 × 2 mm, nectary pit without a scale, apex rounded. Stamens ca. 15; anthers oblong, ca. 0.7 mm. Carpels numerous; body ca. 0.8 mm. Achene glabrous; style ca. 3.5 mm. Fl. Oct.

• Moist places by rivers; ca. 1200 m. SE Yunnan (Yanshan Xian).

41. *Ranunculus potaninii* Komarov, Repert. Spec. Nov. Regni Veg. 9: 392. 1911.

川滇毛茛 *chuan dian mao gen*

Ranunculus pulchellus C. A. Meyer var. *potaninii* (Komarov) Handel-Mazzetti.

Herbs perennial. Roots fibrous, subequally thick. Stems 20–30 cm, glabrous or sparsely puberulent below. Petiole 4.5–12 cm, glabrous or sparsely puberulent; leaf blade 3-sect or 3-partite, pentagonal-ovate or pentagonal, 2.5–5 × 2.5–5 cm, thinly papery, glabrous or abaxially sparsely appressed pubescent, base broadly cuneate, central segment rhombic, 3-cleft, with narrowly ovate or lanceolate lobes, or undivided and oblong or linear-lanceolate; lateral segments oblique flabellate or oblique cuneate, unequally 2- or 3-cleft, ultimate lobes linear-lanceolate or long elliptic. Lower stem leaves similar to basal ones, upper leaves sessile, 3-sect, segments linear. Monochasium terminal, 1–3-flowered; bracts leaflike. Flowers 1–1.7 cm in diam. Pedicel 1–6 cm, puberulent. Receptacle glabrous. Sepals 5, broadly elliptic, 2.8–4 mm, abaxially puberulent. Petals 5, broadly obovate, 4–8 × 3.2–7 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, 5–7 ×

3–4 mm. Achene obliquely obovoid, ca. 1.1 × 1.1 mm, glabrous; style persistent, 0.5–0.7 mm. Fl. May–Jul. Meadows, swamps; 3600–4800 m. SW Gansu, W Sichuan, SE Xizang, NW Yunnan (Zhongdian Xian) [Nepal].

42. *Ranunculus cangshanicus* W. T. Wang, Bull. Bot. Res., Harbin 15: 321. 1995.

苍山毛茛 *cang shan mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems ca. 36 cm, glabrous below, sparsely appressed puberulent above, branched. Basal leaves 7–12; petiole 7–14 cm, glabrous; blade 3-partite, cuneate to rhombic, 2.2–4.5 × 0.8–3.3 cm, papery, glabrous, rarely abaxially very sparsely appressed puberulent, base cuneate, central lobe lanceolate-linear, entire; lateral lobes lanceolate-linear or obliquely narrowly cuneate, unequally 2-lobed or undivided. Stem leaves 1 or 2, short petiolate or sessile, 3-partite, 2.5–4 cm, lobes narrowly linear. Monochasia terminal and axillary, 1–3-flowered; bracts lanceolate-linear. Flowers 1.2–1.3 cm in diam. Pedicel 2–5 cm, puberulent above. Receptacle glabrous. Sepals 5, navicular-elliptic, 4.5–5 mm, abaxially yellowish appressed, puberulent. Petals 5, obovate, 5.5–7 × 4–5 mm, nectary pit without a scale, apex rounded. Stamens 14–23; anthers broadly oblong. Aggregate fruit ovoid, ca. 5.5 × 4 mm. Achene obliquely obovoid, ca. 2.5 × 1.2 mm, glabrous; style persistent, ca. 1 mm. Fl. Aug.

• Swamps; ca. 3200 m. NW Yunnan.

43. *Ranunculus popovii* Ovczinnikov in Komarov, Fl. URSS 7: 741. 1937.

天山毛茛 *tian shan mao gen*

Herbs perennial. Roots fibrous, slightly thickened above. Stems 4–16 cm, sparsely to densely subappressed puberulent, branched. Basal leaves ca. 4; petiole 2–4 cm, appressed puberulent; blade 3-fid or 3-partite, rarely 3-lobed, pentagonal, broadly ovate, or rhombic, 0.9–1.8 × 0.8–2 cm, papery, abaxially sparsely puberulent, base subtruncate or truncate-cordate, central lobe narrowly obovate or long elliptic, 3-lobed or undivided; lateral lobes obliquely obovate or obliquely flabellate, unequally 2-lobed. Stem leaves short petiolate or sessile, palmatisect, segments linear, abaxially densely pubescent. Flowers solitary, terminal, 0.9–1.5 cm in diam. Receptacle puberulent or glabrous. Sepals 5, orbicular-ovate, 3–5 mm, abaxially densely appressed yellowish pubescent. Petals 5, obovate, 5–9 × 2–5.5 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, 5–6 × 4–5 mm. Achene slightly bilaterally compressed, obliquely ellipsoid, 1.2–2 × ca. 1 mm, sparsely appressed puberulent or glabrous; style persistent, 0.7–1 mm.

2300–4500 m. S Gansu, Qinghai, SW Sichuan, W and S Xinjiang, W and N Xizang, NW Yunnan [N India, Nepal].

1a. Stems densely yellowish puberulent;

receptacle and achenes puberulent 43a. var. *popovii*

1b. Stems sparsely white puberulent;
receptacle and achenes glabrous 43b. var. *stracheyanus*

43a. *Ranunculus popovii* var. *popovii*

天山毛茛 (原变种) tian shan mao gen (yuan bian zhong)

Stems 5–12 cm, densely yellowish puberulent. Leaf blade 0.9–1.4 × 0.8–1.8 cm. Flowers 1–1.3 cm in diam. Receptacle puberulent. Petals 5–6 × 3–3.8 mm, nectary pit without a scale. Achene 1.2–2 mm, puberulent. Fl. and fr. Jul–Aug.

Alpine meadows, grassy slopes, by streams; 3100–3700 m. C Xinjiang [Kazakhstan].

43b. *Ranunculus popovii* var. *stracheyanus* (Maximowicz) W. T. Wang, Bull. Bot. Res., Harbin 15: 180. 1995.

深齿毛茛 shen chi mao gen

Ranunculus affinis R. Brown var. *stracheyanus* Maximowicz, Fl. Tangut. 14. 1889; *R. pulchellus* C. A. Meyer var. *stracheyanus* (Maximowicz) Handel-Mazzetti.

Stems 4–16 cm, sparsely white puberulent. Leaf blade 0.7–1.8 × 0.8–2 cm. Flowers 0.9–1.5 cm in diam. Receptacle glabrous. Petals 5.5–9 × 2.5–5.5 mm, nectary pit without a scale. Achene ca. 1.2 mm, glabrous. Fl. May–Aug, fr. Jul–Oct.

Alpine meadows, grassy slopes, by streams; 2300–4500 m. S Gansu, Qinghai, SW Sichuan, W and S Xinjiang, W and N Xizang, NW Yunnan [Bhutan, N India, Nepal, Sikkim].

44. *Ranunculus pectinatilobus* W. T. Wang, Bull. Bot. Res., Harbin 15: 275. 1995.

栉裂毛茛 zhi lie mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 9–15 cm, puberulent, simple or branched. Basal leaves ca. 5; petiole 2–5.5 cm, sparsely puberulent above; blade 3-lobed or rarely undivided, orbicular-ovate, ovate, elliptic, or obovate, 0.8–1.5 × 0.6–2.2 cm, papery, abaxially sparsely appressed puberulent, base broadly cuneate or rounded, central lobe oblong-ovate, apex slightly obtuse; lateral lobes pectinately 2–4-lobulate, lobules oblique triangular or oblique ovate. Lower stem leaves similar to basal leaves, short petiolate, 3-partite; upper leaves subsessile or sessile, 3-sect, segments linear, undivided or lateral segments 2-partite. Flowers solitary, terminal, 1–1.7 cm in diam. Receptacle puberulent. Sepals 5, orbicular-ovate or broadly ovate, 4–5 mm, abaxially pubescent. Petals 5, broadly obovate, 6–9 × 4.5–7.5 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit ovoid or oblong-ovoid, 5–8 × 4–5 mm. Achene ovoid, ca. 1 × 1 mm, glabrous; style persistent, ca. 0.5 mm. Fl. Jun.

• By streams, meadows; ca. 2000 m. SW Nei Mongol (Helan Shan).

45. *Ranunculus brotherusii* Freyn, Bull. Herb. Boissier 6: 885. 1898.

鸟足毛茛 niao zu mao gen

Herbs perennial. Roots fibrous, slightly thickened at apex. Stems 1–4, 2.5–12 cm, appressed puberulent, simple or 1- or 2-branched. Basal leaves 5–15; petiole 1.2–3.5 cm, appressed puberulent, glabrescent; blade 3-partite or 3-sect, orbicular-ovate or pentagonal, occasionally suborbicular and then broadly 3-lobed, papery, appressed puberulent, base cordate-truncate or subtruncate, central segment cuneate, 3-lobed or 3-dentate at apex or oblong and entire; lateral segments obliquely flabellate, usually unequally 2-partite. Stem leaves 2–4, lower ones similar to basal leaves, upper ones sessile, palmatisect, segments linear. Flowers solitary, terminal, 0.6–1.3 cm in diam. Receptacle glabrous, rarely with a few hairs. Sepals 5, ovate, 2.2–3.2 mm, abaxially appressed whitish pubescent. Petals 5, obovate or elliptic-obovate, 3–8 × 2.5–4 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, rarely subglobose, 3–6 × 2–4 mm. Achene slightly bilaterally compressed, obliquely obovoid, 1–1.5 × ca. 0.8 mm, glabrous; style persistent, 0.3–0.5 mm. Fl. May–Aug. Meadows, grassy slopes, by streams; 2100–4700 m. Gansu (Sunan Xian), SW Nei Mongol (Helan Shan), Qinghai (Qilian Xian), Shanxi (Wutai Shan), NW Sichuan, C Xinjiang, S Xizang [Kazakhstan].

46. *Ranunculus furcatifidus* W. T. Wang, Acta Phytotax. Sin. 32: 478. 1994.

叉裂毛茛 cha lie mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 4–18 cm, appressed puberulent, branched. Basal leaves ca. 5; petiole 1.5–5 cm, appressed puberulent; blade 3-partite, broadly rhombic, rarely triangular, 1–2.5 × 0.7–2.3 cm, papery, abaxially appressed puberulent, base broadly cuneate, rarely subtruncate, central lobe oblong-ob lanceolate or linear, usually undivided, sometimes 1- or 2-lobulate; lateral lobes obliquely lanceolate, undivided or obliquely cuneate, unequally 2 (or 3)-lobulate. Stem leaves short petiolate or sessile, 3-sect, segments linear. Flowers solitary, terminal, 0.5–1.2 cm in diam. Receptacle puberulent. Sepals 5, oblong-elliptic or broadly elliptic, 2.5–4.2 mm, abaxially appressed puberulent. Petals 5, elliptic-obovate, 3–5(–6) × 2–3 mm, nectary pit without a scale, apex rounded. Stamens 10–12; anthers oblong.

Aggregate fruit oblong-ovoid, 4–7 × 2.5–4 mm. Achene narrowly obovoid or obliquely obovoid, ca. 1 × 0.5–0.7 mm, glabrous; style persistent, ca. 0.4 mm. Fl. Jun–Aug.

• Slopes, marshy meadows, by brooklets; (1500–)2700–4800 m. NW Hebei (Xiaowutai Shan), SW Nei Mongol (Helan Shan), Qinghai, W Sichuan, S Xinjiang, Xizang, NW Yunnan (Dêqên Xian).

47. *Ranunculus tanguticus* (Maximowicz) Ovczinnikov, Fl. URSS. 7: 392. 1937.

高原毛茛 gao yuan mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 6–25(–30) cm, puberulent, branched. Basal leaves 5–10

or more; petiole 1.5–5.5 cm, puberulent; blade 3-sect, pentagonal or broadly ovate, 0.8–1.5(–2.6) × 1–2(–3.4) cm, papery, appressed puberulent or only abaxially, base cordate, segments sessile or short stalked; central segment broadly rhombic or cuneate-rhombic; lateral segments obliquely flabellate, 2 × dissected, ultimate lobes linear-lanceolate or linear. Stem leaves short petiolate or sessile, palmately 3–5-sect, segments narrowly linear. Monochasium terminal, 2- or 3-flowered, rarely 1-flowered; bracts leaflike. Flowers 0.8–1.9 cm in diam. Pedicel 1–6 cm, densely puberulent. Receptacle puberulent. Sepals 5, narrowly elliptic, 3–4 mm, abaxially appressed yellowish puberulent. Petals 5, obovate or obovate-elliptic, 4.5–8.5 × 2–6.5 mm, nectary pit without a scale, apex rounded or truncate-rounded. Stamens numerous; anthers oblong. Aggregate fruit narrowly ovoid, 3–6.5 × 3–4 mm. Achene slightly bilaterally compressed, obovoid, 1–1.5 × 0.8–1.1 mm. Style persistent, ca. 0.8 mm. Fl. Jun–Oct.

2200–4200 m. Gansu, SW Nei Mongol, Ningxia, E Qinghai, S Shaanxi (Taibai Shan), C and NW Shanxi, W Sichuan, S and E Xizang, NW Yunnan [Nepal].

- 1a. Achene glabrous 47a. var. *tanguticus*
1b. Achene puberulent 47b. var. *dasycarpus*

47a. *Ranunculus tanguticus* var. *tanguticus*

高原毛茛(原变种) *gao yuan mao gen* (*yuan bian zhong*)

Ranunculus affinis R. Brown var. *tanguticus* Maximowicz, Fl. Tangut. 14. 1889; *R. affinis* var. *tanguticus* lusus *leiocarpus* Maximowicz; *R. affinis* var. *ternatus* Franchet; *R. brotherusii* Freyn var. *tanguticus* (Maximowicz) Tamura.

Achene glabrous.

Meadows, grassy slopes, forest margins, by streams; 2200–4200 m. Gansu, SW Nei Mongol, Ningxia, S and E Qinghai, S Shaanxi (Taibai Shan), C and NW Shanxi, W Sichuan, S and E Xizang, NW Yunnan [Nepal].

47b. *Ranunculus tanguticus* var. *dasycarpus* (Maximowicz) L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 297. 1980.

毛果高原毛茛 *mao guo gao yuan mao gen*

Ranunculus affinis var. *tanguticus* lusus *dasycarpus* Maximowicz, Fl. Tangut. 14. 1889; *R. brotherusii* var. *dasycarpus* (Maximowicz) Handel-Mazzetti.

Achene puberulent.

• Meadows, grassy slopes, scrub, by streams; 2200–4100 m. NW Gansu, NE Qinghai, W Sichuan, SE Xizang, NW Yunnan.

48. *Ranunculus yaoanus* W. T. Wang, Bull. Bot. Res., Harbin 15: 278. 1995.

姚氏毛茛 *yao shi mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 18–25 cm, glabrous below, sparsely puberulent above, branched. Basal leaves ca. 7; petiole 5–7 cm, glabrous; blade ternate, pentagonal in outline, 1.2–2.2 × 2.2–2.6 cm, papery, glabrous, base truncate-cordate; central

leaflet broadly rhombic, 0.8–1.5 × 1–1.4 cm, 3-partite; central lobe broadly oblanceolate or long elliptic, entire; lateral lobes obliquely cuneate, unequally 2-lobulate, petiolule 4–6 mm; lateral leaflets oblique flabellate, 2 × unequally 2-partite, ultimate lobules narrowly ovate, petiolules 1–2.5 mm. Lowermost stem leaf similar to basal leaves but short petiolate; upper leaves 3-sect, segments narrowly linear. Flowers solitary, terminal, ca. 1.5 cm in diam. Receptacle glabrous. Sepals 5, elliptic-ovate, ca. 5 mm, abaxially appressed puberulent. Petals 5, obovate, 6–7 × 4.5–6 mm, nectary pit without a scale, apex rounded. Stamens 5, 2.5–3 mm; anthers oblong, 1.2 mm. Carpels numerous. Achene 1–1.5 mm overall, glabrous; style 0.4–0.6 mm. Fl. Jul.

• Streams; ca. 3700 m. SE Xizang (Nyingchi Xian).

49. *Ranunculus jingyuanensis* W. T. Wang, Acta Phytotax. Sin. 32: 475. 1994.

靖远毛茛 *jing yuan mao gen*

Herbs perennial. Roots fibrous, thickened at base.

Stems ca. 30 cm, puberulent, branched. Basal leaves ca. 5; petiole 6–9.5 cm, sparsely puberulent; blade ternate, broadly rhombic in outline, 2–4.2 × 2–5 cm, papery, abaxially sparsely appressed puberulent, base broadly cuneate; central leaflet 3-partite nearly to base, lobes lanceolate-linear, 1–2 mm wide; lateral leaflets oblique rhombic, 1 or 2 × 2-partite, ultimate lobules lanceolate-linear, petiolules 1.5–12 mm. Stem leaves short petiolate or sessile, palmatisect, segments linear.

Inflorescence of 1 terminal and 2 or 3 axillary simple monochasia; bracts sessile, 1–2.4 cm, 3-sect. Flowers 1.1–1.2 cm in diam. Pedicel 0.5–3.8 cm, puberulent. Receptacle glabrous. Sepals 5–7, broadly ovate or broadly elliptic, 4–5.5 mm, abaxially appressed pubescent. Petals 3 or 4, cuneate-obovate, 4–7 × 2–3.5 mm, nectary pit without a scale, apex subtruncate. Stamens numerous; anthers oblong. Carpels numerous; ovary ca. 2 × longer than style, 1.2–1.8 mm, glabrous. Fl. Jul.

• Mountain tops; ca. 2500 m. Gansu (Jingyuan Xian).

50. *Ranunculus nematolobus* Handel-Mazzetti, Acta Horti Gothob. 13: 148. 1939.

丝叶毛茛 *si ye mao gen*

Ranunculus affinis R. Brown var. *capillaceus* Franchet, Pl. Delavay. 19. 1889; *R. affinis* var. *filiformis* Finet & Gagnepain; *R. altaicus* E. G. Laxmann var. *sulphureus* Finet & Gagnepain; *R. tanguticus* (Maximowicz) Ovczinnikov var. *capillaceus* (Franchet) L. Liou.

Herbs perennial. Roots fibrous, subequally thick. Stems 20–30 cm, glabrous, branched. Basal leaves 1–4; petiole 3–7 cm, glabrous; blade 3-sect, obovate-flabellate, 2.5–3.2 × 3–3.5 cm, papery, glabrous; segments petiolulate, 2 to 3 × dichotomously dissected, ultimate lobules narrowly linear or filiform. Stem leaves smaller, short petiolate or subsessile. Compound monochasium terminal, corymbose; bracts leaflike. Flowers 0.7–1.1 cm in diam. Pedicel 0.6–2 cm, sparsely appressed puberulent above. Receptacle puberulent. Sepals 5, elliptic or obovate, 2–3.5 mm, abaxially

sparsely appressed puberulent, glabrescent. Petals 5, obovate or narrowly obovate, 3–6.2 × 1.6–3 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, 3–4 × 2–3 mm. Achene slightly bilaterally compressed, broadly obliquely obovoid, 1–1.2 × ca. 1 mm, puberulent; style persistent, ca. 0.5 mm. Fl. Jun–Sep.

• Moist grassy places, by streams; 2500–2900 m. NW Yunnan.

51. *Ranunculus pulchellus* C. A. Meyer in Ledebour, Fl. Altaic. 2: 333. 1830.

美丽毛茛 *mei li mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 15–20 cm, glabrous or sparsely puberulent, usually 1- or 2-branched. Basal leaves 5–7; petiole 2–6 cm, glabrous or sparsely puberulent; blade sometimes 3-lobed, ovate, elliptic, or obovate, 0.8–1.6 × 0.5–0.9 cm, papery or leathery, glabrous or sparsely puberulent, base broadly cuneate or rounded, margin 1–3-dentate on each side, apex slightly acute. Stem leaves sessile, 3-partite or 3-sect, segments linear. Flowers solitary, terminal, ca. 1 cm in diam. Receptacle glabrous. Sepals 5, elliptic, 5–7 × 3.8–5 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, 5–7 × 4–5 mm. Achene obliquely obovoid, ca. 2 × 1 mm, glabrous; style persistent, ca. 0.5 mm. Fl. Jun–Jul.

By streams, alpine meadows; 2300–3100 m. Gansu (Shandan Xian), Nei Mongol (Ulan Hot Shi), Xinjiang (Tian Shan) [Kazakhstan, Mongolia, Russia (Siberia)].

52. *Ranunculus kunlunshanicus* J. G. Liu in Z. M. Mao, Fl. Xinjiang. 2(1): 352. 1994.

昆仑毛茛 *kun lun mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 3–10 cm, white puberulent, branched or simple. Basal leaves 3–5; petiole 1.4–3 cm, glabrous or puberulent above; blade ovate or narrowly ovate, 0.7–2 × 0.4–1.5 cm, papery, glabrous except for ciliate margin, base rounded or broadly cuneate, margin 1–3-dentate on each side or entire, apex acute. Stem leaves 2 or 3, lowermost similar to basal ones but short petiolate; upper 2 short petiolate or sessile, 3-sect, segments lanceolate-linear. Flowers solitary, terminal, ca. 1.4 cm in diam. Receptacle puberulent. Sepals 5, broadly elliptic, ca. 5 mm, abaxially puberulent. Petals 5, narrowly obovate or obovate, 6.5–8 × ca. 3.8 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ellipsoid, ca. 5 mm in diam. Achene ovoid, ca. 2 × 1.5 mm, sparsely puberulent, upper margin narrowly winged; style persistent, short. Fl. Jun–Jul.

• Slopes, bases of rocky cliffs; 4000–4300 m. S Xinjiang.

53. *Ranunculus densiciliatus* W. T. Wang, Bull. Bot. Res., Harbin 15: 280. 1995.

睫毛毛茛 *jie mao mao gen*

Ranunculus densiciliatus var. *glabrescens* W. L. Zheng;
R. densiciliatus var. *nyingchiensis* W. L. Zheng.

Herbs perennial, turning blackish on drying. Roots fibrous, subequally thick. Stems 5–7 cm, appressed puberulent, branched. Basal leaves ca. 6; petiole 2.5–6 cm, sparsely puberulent; blade sometimes 2- or 3-lobed, ovate, elliptic, or suborbicular, 1.2–1.7 × 0.7–1.4 cm, papery, abaxially glabrous, base rounded or broadly cuneate, margin entire or with 1 or 2 small teeth, densely appressed ciliate, apex obtuse. Lower stem leaves petiolate, narrowly ovate, upper ones short petiolate or sessile, long elliptic or narrowly oblong, entire. Flowers solitary, terminal, ca. 1.4 cm in diam. Receptacle glabrous. Sepals 5, ovate, 4–5 mm, abaxially appressed puberulent. Petals 5, obovate, 6–7 × ca. 4.5 mm, nectary pit without a scale, apex rounded. Stamens ca. 18; anthers narrowly oblong. Carpels numerous; ovary longer than style, ca. 1.6 mm, glabrous. Fl. Jun.

• Sandy places by rivers; ca. 4100 m. S Xizang (Dinggyê Xian).

54. *Ranunculus yechengensis* W. T. Wang, Bull. Bot. Res., Harbin 15: 281. 1995.

叶城毛茛 *ye cheng mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 3–5 cm, glabrous below, puberulent above, simple. Basal leaves 2 or 3; petiole 1.8–2.9 cm, glabrous; blade 3-lobed or 3-dentate, obovate, cuneate, broadly rhombic, or pentagonal, 5–14 × 4–11 mm, leathery, glabrous, base broadly cuneate, cuneate, or subtruncate, lobes ovate. Stem leaves 3, lowermost similar to basal leaves; upper 2 subopposite, short petiolate or sessile, broadly rhombic, 3-partite; central lobe narrowly oblong, lateral lobes linear-lanceolate. Flowers solitary, terminal, 1.7–2.4 cm in diam. Receptacle glabrous. Sepals 5, broadly elliptic, 4–6 mm, abaxially sparsely puberulent. Petals 5, obovate or obcordate, 9–11 × 6.5–8.5 mm, nectary pit without a scale, apex emarginate or subtruncate. Stamens numerous; anthers oblong. Carpels numerous. Achene ca. 2 mm, glabrous; style slightly shorter than ovary. Fl. Sep.

• Alpine meadows; ca. 4700 m. SW Xinjiang (Yecheng Xian).

55. *Ranunculus humillimus* W. T. Wang, Bull. Bot. Res., Harbin 15: 281. 1995.

低毛茛 *di mao gen*

Herbs perennial. Roots fibrous, 2 or 3, subequally thick. Stems 1.5–2 mm, glabrous or puberulent below flower, simple. Basal leaves 3 or 4; petiole 1–2.2 cm, glabrous; blade ovate, orbicular-ovate, or elliptic, 2.5–5 × 2–3 mm, leathery, glabrous, base rounded, truncate, or broadly cuneate, margin entire, apex obtuse or subacute. Stem leaves 2, lower 1 similar to basal leaves, upper short petiolate, oblong. Flowers solitary, terminal, 0.9–1.3 cm in diam. Receptacle glabrous. Sepals 5, obovate or suboblong, 3.5–4 mm, glabrous. Petals 5, obovate, 5.5–7 × 3.5–4 mm, nectary pit without a scale, apex rounded-truncate, often emarginate. Stamens 17–20; anthers oblong. Carpels 14–20; ovary ca. 2 × longer than style, ca. 1.4 mm, glabrous. Fl. Jun.

•River banks; ca. 5000 m. NE Xizang (Amdo Xian).

56. *Ranunculus nephelogenes* Edgeworth, Trans. Linn. Soc. London 20: 28. 1846.

云生毛茛 *yun sheng mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems (2–)10–25(–52) cm, usually glabrous for most part, sparsely puberulent above or near apex, rarely so basally, branched or simple. Basal leaves 4–9; petiole 1.2–10 cm, glabrous, rarely sparsely puberulent; blade sometimes 3-lobed or rarely 3-sect, ovate, elliptic, oblong, lanceolate, or lanceolate-linear, 0.9–3.7 cm × 4–14 mm, papery or rarely leathery, glabrous, base cuneate, broadly cuneate, or rounded, margin entire or rarely 1-dentate, apex subobtuse. Lower stem leaves long or short petiolate, lanceolate or lanceolate-linear; upper ones sessile, lanceolate-linear, undivided or rarely 3-sect. Flowers solitary, terminal, (0.8–)1–1.6(–2.3) cm in diam. Receptacle glabrous or sparsely puberulent. Sepals 5, broadly ovate, 3.5–5 mm, abaxially pubescent. Petals 5(–7), obovate, (4.5–)6–8(–9.5) × (3–)4–6(–9) mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit ovoid or narrowly ovoid, 4–7 × 3–5 mm. Achene obliquely obovoid, 1.2–1.5(–2) × 1–1.2 mm, glabrous; style persistent, ca. 0.6 mm.

1700–5200 m. Gansu, Qinghai, Shanxi, Sichuan, S and C Xinjiang, Xizang, NW Yunnan [Kazakhstan, Mongolia, Nepal, Pakistan, Russia (Siberia)].

- 1a. Petals as long as or slightly longer than sepals 56c. var. *longicaulis*
- 1b. Petals conspicuously longer than sepals.
 - 2a. Stems erect, not rooting 56a. var. *nephelogenes*
 - 2b. Stems prostrate and rooting below, then ascending ... 56b. var. *geniculatus*

56a. *Ranunculus nephelogenes* var. *nephelogenes*

云生毛茛(原变种) *yun sheng mao gen (yuan bian zhong)*

Ranunculus affinis R. Brown var. *tibeticus* Maximowicz; *R. longicaulis* var. *nephelogenes* (Edgeworth) L. Liou.

Stems (2–)10–20(–35) cm, basally glabrous or rarely sparsely puberulent, sparsely puberulent above. Basal leaves with blade undivided, sometimes 3-lobed or 3-partite, ovate, oblong, lanceolate, or lanceolate-linear. Stem leaves undivided, margin entire or rarely 2-dentate. Sepals 3.5–5 mm. Petals 6–8(–9.5) mm. Fl. Mar–Aug, fr. May–Aug.

Alpine meadows, gravelly slopes, by streams, swamps; 2800–5200 m. W Gansu, Qinghai, Shanxi (Wutai Shan), Sichuan, S and C Xinjiang, Xizang [Nepal, Pakistan].

56b. *Ranunculus nephelogenes* var. *geniculatus* (Handel-Mazzetti) W. T. Wang, Bull. Bot. Res., Harbin 7(2): 109. 1987.

曲升毛茛 *qu sheng mao gen*

Ranunculus pulchellus C. A. Meyer var. *geniculatus* Handel-Mazzetti, Symb. Sin. 7: 305. 1931; *R. longicaulis* var. *geniculatus* (Handel-Mazzetti) L. Liou.

Stems 10–26 cm, glabrous throughout or sparsely puberulent only above. Basal leaves with blade undivided, or 3-lobed to 3-sect, lanceolate-linear, oblong, or narrowly oblong. Stem leaves linear or lanceolate-linear, undivided or 3-sect. Sepals 4.5–6 mm. Petals 6–9 mm. Fl. Apr–Aug, fr. Jun–Aug.

•Meadows, by streams, swamps; 2500–3200 m. NW Yunnan.

56c. *Ranunculus nephelogenes* var. *longicaulis* (Trautvetter) W. T. Wang, Bull. Bot. Res., Harbin 7(2): 110. 1987.

长茎毛茛 *chang jing mao gen*

Ranunculus pulchellus var. *longicaulis* Trautvetter, Bull. Soc. Imp. Naturalistes Moscou 33(1–2): 68. 1860, based on *R. longicaulis* C. A. Meyer in Ledebour, Fl. Altaic. 2: 308. 1830, not Ledebour ex A. Sprengel (1828).

Stems 13–52 cm, glabrous for most part, sparsely puberulent only below flower. Basal leaves with blade undivided, ovate, narrowly elliptic, oblong, or linear-lanceolate. Stem leaves lanceolate-linear, undivided. Sepals 4–5 mm. Petals 4.5–6 mm. Fl. and fr. May–Aug.

Alpine meadows, by streams, swamps; 1700–4200 m. Gansu (Sunan Xian), NE Qinghai, Shanxi (Luya Shan), C and S Xinjiang, W Xizang (Rutog Xian) [Kazakhstan, Mongolia, Russia (Siberia)].

57. *Ranunculus membranaceus* Royle, Ill. Bot. Himal. Mts. 53. 1834.

棉毛茛 *mian mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 2.5–28 cm, velutinous or puberulent, branched or simple. Basal leaves 3–7; petiole 1.5–8 cm, puberulent or glabrous; blade undivided or sometimes 3-lobed or 3-partite, lanceolate, oblong, or linear, 1–7.5 × 0.3–0.9 cm, papery, abaxially velutinous or appressed puberulent, base attenuate or cuneate. Stem leaves short petiolate or sessile, linear-lanceolate, undivided, 3-lobed, or 3–5-sect. Flowers solitary, or 2 in a terminal monochasium, 1–2.2 cm in diam. Receptacle glabrous or puberulent. Sepals 5, ovate or broadly ovate, 3–7.5 mm, abaxially velutinous or puberulent. Petals 5(–7), obovate or broadly obovate, (4–)5.5–10 × (1.5–)4–10 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit ovoid, 5–12 × 4–7 mm. Achene obliquely obovoid, 1.5–2 × 1–1.6 mm, glabrous; style persistent, 0.5–0.8 mm.

2700–5000 m. S Gansu, SW Nei Mongol (Helan Shan), SW Ningxia, Qinghai, NW and S Sichuan, S Xinjiang, S Xizang [Nepal, Pakistan].

- 1a. Basal leaf blade adaxially sparsely pubescent, abaxially velutinous 57a. var. *membranaceus*
- 1b. Basal leaf blade adaxially glabrous or sparsely pubescent, abaxially appressed pubescent.
- 2a. Basal leaf blade undivided or 3-lobed; stem leaves 3-sect; flowers solitary, terminal; petals 5 57b. var. *pubescens*
- 2b. Basal leaf blade 3-lobed or 3-partite nearly to base; stem leaves mostly 5-sect; flowers often 2 in a terminal monochasium; petals 5–9 57c. var. *floribundus*

57a. *Ranunculus membranaceus* var. *membranaceus*

棉毛茛(原变种) mian mao gen (yuan bian zhong)

Ranunculus pulchellus C. A. Meyer var. *membranaceus* (Royle) Mukerjee; *R. pulchellus* var. *sericeus* J. D. Hooker & Thomson.

Stems 2.5–12 cm, velutinous, sometimes densely puberulent. Basal leaves ca. 4; petiole 2–3.7 cm, glabrous or appressed puberulent; blade lanceolate-linear, linear, or narrowly oblong, 1.6–3 × 0.3–0.4 mm. Stem leaves linear-lanceolate, undivided or 3-sect and segments linear. Flowers solitary, terminal, 1.2–1.8 cm in diam. Fl. Jun–Sep.

Alpine meadows, gravelly places, river banks; 3700–5000 m. NW Sichuan (Dêgê Xian), S Xizang [Nepal, Pakistan].

57b. *Ranunculus membranaceus* var. *pubescens* (W. T. Wang) W. T. Wang, Bull. Bot. Res., Harbin 15: 285. 1995.

柔毛茛 rou mao gen

Ranunculus nephelogenes Edgeworth var. *pubescens* W. T. Wang, Bull. Bot. Res., Harbin 7(2): 110. 1987; *R. alaskanicus* Y. Z. Zhao.

Stems (3.5–)5–25 cm, puberulent. Basal leaves 3–7; petiole 1.5–8 cm, sparsely puberulent; blade broadly lanceolate, linear-lanceolate, or narrowly oblong, 1–7.5 × 0.3–0.9 cm. Stem leaves 3-sect, segments linear. Flowers solitary, terminal, 1–2.2 cm in diam. Fl. Jun–Aug, fr. Jul–Aug.

• Alpine meadows, slopes, swamps, river banks; 2700–4500 m. S Gansu, SW Nei Mongol (Helan Shan), SW Ningxia, Qinghai, S Sichuan, S Xinjiang (Qira Xian), SW Xizang (Zhongba Xian).

57c. *Ranunculus membranaceus* var. *floribundus* W. T. Wang, Bull. Bot. Res., Harbin 15: 285. 1995.

多花柔毛茛 duo hua rou mao gen

Stems 22–28 cm, puberulent. Basal leaves 5–10; petiole 3.5–8 cm, pubescent; blade 2- or 3-lobed or 3-partite, oblanceolate or rhombic, lobes lanceolate-linear. Stem

leaves 3–5-sect, segments linear. Flowers mostly 3 in a terminal monochasium, 1.5–2 cm in diam. Fl. Jun–Jul.

• Slopes; ca. 3000 m. S Gansu (Min Xian).

58. *Ranunculus hejingensis* W. T. Wang, Bull. Bot. Res., Harbin 15: 286. 1995.

和静毛茛 he jing mao gen

Herbs perennial. Rhizomes branched. Stems 5–6 cm, densely appressed puberulent, branched. Basal leaf 1; petiole 0.7–1.5 cm, appressed puberulent; blade 3-sect, deltoid, 2.2–2.8 × 3–3.6 cm, papery, abaxially appressed puberulent, base broadly cuneate or subtruncate, central segment lanceolate-linear; lateral segments narrowly oblong, undivided or unequally 2-partite. Stem leaves similar to basal ones but smaller, subsessile or sessile. Flowers solitary, terminal, ca. 1 cm in diam. Receptacle puberulent. Sepals 5, ovate, ca. 4 mm, abaxially densely appressed puberulent. Petals 5, obovate, ca. 5 × 3–3.5 mm, apex rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit ovoid, 5–6 × 3.5–5 mm; carpels numerous. Achene obliquely obovoid, 1.6–1.8 × 1–1.2 mm, glabrous; style persistent, ca. 0.6 mm. Fl. and fr. Aug.

• By streams in valley; ca. 3100 m. C Xinjiang (Hejing Xian).

59. *Ranunculus monophyllus* Ovczinnikov, Bot. Mater. Gerb. Glavn. Bot. Sada RSFSR 3: 54. 1922.

单叶毛茛 dan ye mao gen

Ranunculus auricomus Linnaeus subsp. *sibiricus* (Glehn) Korshinsky; *R. auricomus* var. *sibiricus* Glehn; *R. krylovii* Ovczinnikov; *R. monophyllus* f. *latisectus* Ovczinnikov; *R. sibiricus* Adams (1834), not Sprengel (1831).

Herbs perennial. Roots fibrous, subequally thick. Stems 14–45 cm, glabrous or rarely sparsely puberulent above, simple or 1- or 2-branched. Basal leaves 1(–3); petiole 5–14 cm, glabrous; blade 3-lobed, sometimes 3-partite or 3-sect, reniform or orbicular-ovate, 1.2–3.6 × 2–5 cm, papery, sparsely puberulent, base cordate or subcordate, rarely subtruncate, margin dentate. Stem leaves 2, sessile, 3–7-sect, 1.5–3.5 cm, segments narrowly lanceolate or linear, entire. Flowers solitary, terminal, 1.2–1.8 cm in diam. Receptacle puberulent or glabrous. Sepals elliptic, 4–5 mm, abaxially puberulent. Petals 5, obovate or broadly obovate, 5.5–8.5 × 4–8 mm, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, ca. 6 × 5 mm. Achene slightly bilaterally compressed, obliquely obovoid, 2–2.8 × 1.8–2 mm, puberulent; style persistent, 0.6–1 mm. Fl. Apr–Jun. Meadows, forests, by stream; below 2000 m. N Hebei, Heilongjiang, Nei Mongol, Shanxi (Luya Shan), Xinjiang [Kazakhstan, Mongolia, Russia].

60. *Ranunculus albertii* Regel & Schmalhaus, Trudy Imp. S.-Peterburgsk. Bot. Sada 5: 223. 1877.

宽瓣毛茛 kuan ban mao gen

Ranunculus sulphureus Solander var. *albertii* (Regel & Schmalhausen) Maximowicz.

Herbs perennial. Roots fibrous, subequally thick. Stems 6–30 cm, glabrous below, appressed puberulent above, simple or 1-branched. Basal leaves 2–5; petiole 1.5–8 cm, glabrous; blade undivided or 3-lobed, reniform-pentagonal or obovate, 1–2.2 × 1.4–3.5 cm, thinly papery, glabrous, base subcordate or truncate-rounded, margin with 3 or 4 rounded teeth on each side, ciliate. Stem leaves 2 or 3, lower ones short petiolate, palmatifid, upper 1 sessile, subpalmatifid, segments narrowly oblong. Flower solitary, terminal, 1.7–2.8 cm in diam. Receptacle glabrous. Sepals 5, ovate, 6–8 mm, abaxially yellowish puberulent. Petals 5 or 6, broadly obovate or flabellate-obovate, 10–13 × 9–17 mm, apex truncate or truncate-rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, ca. 6 mm. Achene slightly bilaterally compressed, obliquely obovoid, ca. 2.5 × 1.8 mm, glabrous; style persistent, ca. 0.5 mm. Fl. Jun–Sep.

Grassy slopes, by stream; 1800–3300 m. W and C Xinjiang [Kazakhstan].

61. *Ranunculus transiliensis* M. G. Popov ex Ovczinnikov in Komarov, Fl. URSS. 7: 401. 1937.

截叶毛茛 jie ye mao gen

Ranunculus nivalis Linnaeus var. *tianschanicus* Ruprecht.

Herbs perennial. Roots fibrous, subequally thick. Stems 8–25 cm, glabrous for most part, sparsely puberulent only below flower, simple or 1-branched. Basal leaves several; petiole 2–8.5 cm, glabrous; blade indistinctly 3-lobed, obovate or suborbicular, 0.8–2.5 × 0.9–3 cm, papery, glabrous, base subtruncate, broadly cuneate, or rounded, margin with 3–6 unequal obtuse or rounded teeth on each side, apex rounded. Stem leaves 2, sessile or short petiolate, cuneate-obovate, 3-lobed; lobes narrowly ovate, lateral ones sometimes unequally 2-lobed. Flowers solitary, terminal, 1.7–2.5 cm in diam. Receptacle puberulent. Sepals 5, ovate, 6.5–8 mm, abaxially blackish brown pubescent. Petals 5, broadly obovate or obovate, 9–12 × 10–11 mm, apex rounded-truncate or rounded. Stamens numerous; anthers narrowly oblong. Carpels numerous; ovary longer than style, glabrous. Fl. Jul.

Alpine meadows; 2500–3400 m. Xinjiang (Tian Shan) [Kazakhstan].

62. *Ranunculus fraternus* Schrenk, Enum. Pl. Nov. 1: 103. 1841.

团叶毛茛 tuan ye mao gen

Ranunculus altaicus E. G. Laxmann var. *fraternus* (Schrenk) Trautvetter.

Herbs perennial. Roots fibrous, subequally thick. Stems 6–18 cm, glabrous below, appressed puberulent above, simple or 1-branched. Basal leaves 2 or 3; petiole 1.5–7 cm, sparsely puberulent or subglabrous; blade suborbicular or orbicular-ovate, 0.8–2.5 × 1–3 cm,

thinly leathery, glabrous, base subcordate or rounded, margin with 5–7 rounded teeth on each side, ciliate, apex obtuse. Stem leaves 1 or 2, short petiolate or sessile, palmatifid or palmatisect, segments oblong-lanceolate or linear. Flowers solitary, terminal, 1.5–2.8 cm in diam. Receptacle glabrous. Sepals 5, elliptic-ovate, 6–8 mm, abaxially appressed brown-puberulent. Petals 5 or 6, broadly obovate or cuneate, 7–14 × 7–10 mm, apex rounded or truncate-rounded. Stamens numerous; anthers oblong. Carpels numerous; ovary longer than style, glabrous. Fl. May–Jun.

Alpine meadows; 2100–2600 m. W Xinjiang (Zhaosu Xian) [Kazakhstan].

63. *Ranunculus hamiensis* J. G. Liu, Acta Phytotax. Sin. 30: 378. 1992.

哈密毛茛 ha mi mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 20–30 cm, glabrous, branched from base. Basal leaves ca. 7; petiole 5–7 cm, glabrous; blade 3-lobed or 3-cleft to middle, orbicular-obovate or obovate, 2.5–3.5 × 2–3 cm, papery, glabrous, base broadly cuneate or rounded; central lobe suboblong, 3-lobed or 3-dentate above; lateral lobes obliquely ovate, incised-dentate. Stem leaves subsessile or sessile, palmately 5–9-partite, lobes lanceolate. Monochasium terminal, 2-flowered; bracts leaflike. Flowers ca. 2.5 cm in diam. Pedicel 5–7 cm, yellow puberulent above. Receptacle glabrous. Sepals 5, ovate, 5–7 mm, yellowish puberulent. Petals 5, orbicular-ovate, 8–10 × 6–8 mm, abaxially yellow puberulent below, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit globose, ca. 6 mm in diam.; carpels numerous. Achene ovoid, ca. 2 × 1.6 mm, glabrous; style persistent, ca. 1 mm, curved. Fl. and fr. Jun.

• Valleys; ca. 2000 m. E Xinjiang (Hami Xian).

64. *Ranunculus felixii* H. Léveillé, Repert. Spec. Nov. Regni Veg. 12: 281. 1913.

扇叶毛茛 shan ye mao gen

Herbs perennial. Roots fibrous, thickened above. Stems 15–25 cm, spreading pubescent, simple or 1- or 2-branched above. Basal leaves ca. 2; petiole 3–8.5 cm, sparsely puberulent or subglabrous; blade 3-lobed or rarely 3-partite, obovate or flabellate, 1.2–2.6 × 1.6–3.8 cm, papery, glabrous or abaxially sparsely puberulent, base truncate-cuneate, truncate, or cordate, central lobe entire, lateral lobes 2- or 3-dentate; teeth ovate or orbicular-ovate, apex acute, or subtruncate and apiculate. Stem leaves 3 or 4, short petiolate or sessile, 3-sect, segments linear, undivided or unequally 2-partite. Flowers terminal, solitary or 2 in a monochasium, 1–1.2 cm in diam. Pedicel 1–4.5 cm, sparsely puberulent. Receptacle subglabrous. Sepals 5, elliptic-ovate, 3–3.5 mm, abaxially sparsely puberulent. Petals 5, obovate, 5–7 × 3–4 mm, nectariferous foveola small, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ellipsoid, ca. 5 × 3 mm; carpels numerous. Achene slightly bilaterally compressed,

broadly ellipsoid, ca. 1.8×1.2 mm, densely puberulent; style persistent, ca. 1 mm. Fl. May–Jul. $2n = 32^*$.

• 2500–4400 m. SW Sichuan, N Yunnan.

- 1a. Basal leaf blade base truncate-cuneate
or truncate 64a. var. *felixii*
1b. Basal leaf blade base cordate 64b. var. *forrestii*

64a. *Ranunculus felixii* var. *felixii*

扇叶毛茛 (原变种) shan ye mao gen (yuan bian zhong)

Ranunculus affinis R. Brown var. *flabellatus* Franchet.

Basal leaf blade base truncate-cuneate or truncate.

• Grassy slopes, forests; 2600–4400 m. SW Sichuan, N Yunnan.

64b. *Ranunculus felixii* var. *forrestii* Handel-Mazzetti, Acta Horti Gothob. 13: 142. 1939.

心基扇叶毛茛 xin ji shan ye mao gen

Basal leaf blade base cordate.

• Forest margins, by streams; 2500–3100 m. NW Yunnan.

65. *Ranunculus wangianus* Q. E. Yang, Acta Phytotax. Sin. 38: 551. 2000.

文采毛茛 wen cai mao gen

Herbs perennial. Roots fibrous, subequal, not thickened.

Stems 10–20 cm, sparsely pilose, 1–3-branched. Basal leaves usually more than 3; petiole 5–10 cm; blade obovate- to obtrapezoid-obovate, $1.5-3 \times (1-1.5-2.5)$ cm, papery, base broadly cuneate, apex 3–5-toothed. Lower stem leaves similar to basal leaves but shortly petiolate, upper stem leaves 3-partite or entire, rarely 3-lobate, segments linear. Flowers solitary, terminal, less than 1 cm in diam. Receptacle glabrous. Sepals 5, oblong, ca. 3 mm, abaxially pilose. Petals 5, obovate, ca. 4×2.5 mm, nectary pit without a scale, apex subrounded.

Stamens numerous; anthers oblong, less than 1 mm.

Aggregate fruit subglobose. Carpels numerous. Achene

inflated, ovoid-globose, ca. 2.8×2.4 mm, densely puberulent; style persistent, straight or curved, ca. 1

mm. Fl. and fr. Aug. $2n = 48^*$.

• About 3300 m. Yunnan (Weixi Lisu Zu Zizhixian).

66. *Ranunculus yunnanensis* Franchet, Bull. Soc. Bot. France 32: 5. 1885.

云南毛茛 yun nan mao gen

Ranunculus mairei H. Léveillé (1913), not H. Léveillé (1914).

Herbs perennial. Roots fibrous, subequally thick. Stems

1–4, 7–15 cm, glabrous, usually few branched. Basal leaves 3–8; petiole 2–7 cm, glabrous blade cuneate-obovate, obovate, spatulate, or subtrapeziform, $(0.7-1.2-4.6 \times (0.5-0.9-2.5))$ cm, thickly papery, glabrous, base cuneate, apex 3–7-dentate or crenate. Lower stem leaf short petiolate or subsessile, spatulate, 3-dentate apically, upper stem leaf sessile, 3-partite or 3-sect, segments linear. Monochasium terminal, 2- or 3-flowered; bracts leaflike. Flowers 1.2–2.1 cm in diam. Pedicel 1.5–8.5 cm, appressed puberulent. Receptacle glabrous. Sepals 5, elliptic, 3.5–6 mm, abaxially appressed puberulent. Petals 5(–8), obovate, $5-10 \times 4-7$ mm, nectary pit without a scale, apex rounded or subtruncate. Stamens numerous; anthers oblong.

Aggregate fruit ovoid, $3.5-5 \times 3-4$ mm; carpels

numerous. Achene slightly bilaterally compressed, obliquely obovoid, $1.5-2 \times 1-1.2$ mm, densely puberulent; style persistent, ca. 0.8 mm. Fl. Jun–Sep. $2n = 16^*$.

• Grassy slopes, meadows, forest margins, by streams; 2800–4800 m. SW Sichuan, N Yunnan.

67. *Ranunculus altaicus* E. G. Laxmann, Novi Comment. Acad. Sci. Imp. Petrop. 18: 533. 1773.

阿尔泰毛茛 a er tai mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 10–15 cm, brown puberulent only below flower, simple.

Basal leaves several; petiole 1.5–3.5 cm, glabrous; blade spatulate, cuneate, or narrowly obovate, $1-2.5 \times 0.6-1.5$ cm, papery, glabrous, base cuneate, apex 3–5-lobed. Stem leaves 2 or 3, lower ones short petiolate, similar to basal ones or 3-lobed, uppermost leaf sessile, palmately partite, lobes linear-lanceolate. Flowers solitary, terminal, ca. 2.5 cm in diam. Receptacle densely puberulent. Sepals 5, ovate, ca. 8 mm, abaxially densely dark brown puberulent. Petals ca. 7, broadly obovate or obovate, ca. $11 \times 8-11$ mm, nectary pit without a scale, apex rounded or rounded-truncate.

Stamens numerous; anthers oblong. Aggregate fruit ovoid, ca. 5×4 mm; carpels numerous. Achene slightly bilaterally compressed, obliquely ovoid, ca. 2.5×0.8 mm, glabrous; style persistent, ca. 1 mm. Fl. Jul–Aug.

Meadows, swamps; 2600–2700 m. N Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia (Siberia)].

Collections from scree slopes in Xinjiang (Tian Shan) and Xizang (Zola), named as *Ranunculus nivalis* Linnaeus, are clearly related to this species and *R. sulphureus* Solander. Both *R. nivalis* and *R. sulphureus* were originally described from arctic Europe. These collections differ from *R. altaicus* by the more deeply divided basal leaves and larger flowers, nearly 3 cm diam. They also resemble *R. chuanchingensis* in habit and flower size, but differ by the wider lobes of the basal leaf blades and dense, brown sepal indumentum. More work is needed to clarify their taxonomy.

68. *Ranunculus menyuanensis* W. T. Wang, Bull. Bot. Res., Harbin 15: 290. 1995.

门源毛茛 men yuan mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 19–24 cm, puberulent, simple or branched. Basal leaves

ca. 4; petiole 4–8 cm, 3-lobed, sparsely puberulent or subglabrous; blade broadly ovate or subreniform, $1.2-2.4 \times 1.6-2.4$ cm, papery, abaxially glabrous, base cordate; lateral lobes obliquely flabellate, unequally 2-lobed. Stem leaves short petiolate or sessile, 3-sect, lobes usually undivided, narrowly oblong or oblong-lanceolate, rarely central lobe 3-lobed and lateral lobes unequally 2-lobed. Flowers solitary, terminal, 1.2–1.4 cm in diam. Receptacle sparsely puberulent. Sepals 5, broadly elliptic, 4–5.5 mm, abaxially appressed pubescent. Petals 5, obovate, $5-6.5 \times 4.5-7$ mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, $6-7 \times 5-6$ mm. Achene obliquely ellipsoid or narrowly ellipsoid, $2-2.2 \times$ ca. 1.2 mm, glabrous; style persistent, ca. 1 mm. Fl. and fr. Aug.

• Wet places on slopes; ca. 3000 m. NE Qinghai (Menyuan Xian). The spelling "*mengyuanensis*" in the protologue was a typographical error, as the epithet was based on the type locality, Menyuan. The correct spelling was used for the accompanying illustrations.

69. *Ranunculus dongrergensis* Handel-Mazzetti, Acta Horti Gothob. 13: 157. 1939.

圆裂毛茛 yuan lie mao gen

Herbs perennial. Roots fibrous, slightly thickened at base. Stems 4–25 cm, glabrous or puberulent, simple or branched. Basal leaves several; petiole 2–11 cm, glabrous or puberulent; blade 3-lobed or 3-cleft, obovate, orbicular-ovate, or obovate, 0.7–2 × 0.7–2 cm, glabrous or adaxially strigose, base rounded, subtruncate, or broadly cuneate, lobes ovate, broadly ovate, or oblong, entire or lateral lobes 1-dentate or unequally 2-lobed, apex obtuse. Lower stem leaves similar to basal ones; upper stem leaves short petiolate or sessile, 3-lobed to 3-sect. Flowers solitary, terminal, 1–1.8 cm in diam. Receptacle glabrous or puberulent. Sepals 5, elliptic, 4–6 mm, glabrous or abaxially puberulent. Petals 5, obovate, 4–9 × 2.2–7 mm, nectary pit without a scale, apex rounded or emarginate. Stamens numerous, oblong. Aggregate fruit narrowly ovoid, 5.5–7 × 2.5–4 mm; carpels numerous. Achene narrowly obovoid, ca. 1.5 mm, glabrous; style persistent, 0.3–0.7 mm. Fl. May–Aug.

• 3200–5600 m. NW Sichuan (Sungpan Xian), S Xizang, NW Yunnan (Dêqên Xian).

- 1a. Basal leaves 3-lobed not to middle; receptacle glabrous 69a. var. *dongrergensis*
1b. Basal leaves 3-cleft beyond middle; receptacle puberulent 69b. var. *altifidus*

69a. *Ranunculus dongrergensis* var. *dongrergensis*

圆裂毛茛(原变种) yuan lie mao gen (yuan bian zhong)
Basal leaves 3-lobed not to middle. Receptacle glabrous.

• Meadows, grassy slopes; 3200–5600 m. NW Sichuan (Sungpan Xian), S Xizang, NW Yunnan (Dêqên Xian).

69b. *Ranunculus dongrergensis* var. *altifidus* W. T. Wang, Bull. Bot. Res., Harbin 15: 291. 1995.

深圆裂毛茛 shen yuan lie mao gen

Basal leaves 3-cleft beyond middle. Receptacle puberulent.

• Grassy slopes, by streams; ca. 3600 m. SE Xizang (Mêdog Xian).

70. *Ranunculus chungdianensis* W. T. Wang, Bull. Bot. Res., Harbin 7(2): 104. 1987.

中甸毛茛 zhong dian mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 5.5–8.5 cm, glabrous below, sparsely puberulent above, simple, rarely branched at base. Basal leaves ca. 3; petiole 2–2.6 cm, glabrous; blade cordate-pentagonal, 5–7 × 6–10 mm, papery, base cordate, apex rounded. Stem leaves 2 or 3, sessile, 3-sect, segments 2-cleft or undivided, ultimate lobes linear-lanceolate or linear-oblong. Flowers solitary, terminal, 1.5–1.9 cm in diam. Pedicel 1–5 cm, appressed puberulent. Receptacle gla-

brous. Sepals 5, broadly ovate or orbicular-ovate, 3.5–4 mm, abaxially pilose. Petals 5(or 6), flabellate or broadly obovate, 6–7.5 × 6–9.5 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Carpels numerous, glabrous; style slightly shorter than ovary. Fl. Jul.

• Grassy slopes; ca. 3600 m. NW Yunnan (Zhongdian Xian).

71. *Ranunculus dielsianus* Ulbrich, Bot. Jahrb. Syst. 48: 621. 1913.

康定毛茛 kang ding mao gen

Herbs perennial. Roots fibrous, thickened above. Stems 5–40 cm, glabrous or sparsely puberulent, simple or branched. Basal leaves 1–3; petiole 2–9 cm, glabrous or sparsely puberulent; blade 3-lobed or 3-partite, reniform or pentagonal, 4–14 × 6–22 mm, papery or herbaceous, glabrous or sparsely puberulent or pubescent, base cordate, central lobe broadly obovate or rhombic-obovate, entire, 3-dentate, or 3-lobed, lateral lobes obliquely flabellate, unequally 2-lobed. Lower stem leaves similar to basal ones; upper stem leaves short petiolate or sessile, 3-sect, segments narrowly elliptic or oblong. Flowers solitary, terminal, 0.6–1.3 cm in diam. Pedicel 0.4–7 cm, subglabrous or puberulent. Receptacle puberulent. Sepals 5, ovate, 2.2–4 mm, abaxially appressed puberulent. Petals 5, obovate or elliptic-obovate, 4–6.5 × 1.8–4 mm, nectary pit without a scale, apex rounded or subtruncate. Stamens numerous; anthers oblong. Aggregate fruit ovoid, ca. 5 × 3 mm; carpels numerous. Achene obliquely broadly obovoid, 1–1.1 × 0.9–1 mm, puberulent or glabrous; style persistent, 0.6–1 mm. Fl. Jul–Sep.

• 2100–4800 m. NE Qinghai, W and NW Sichuan, S Xizang, N Yunnan.

- 1a. Carpels and achenes puberulent.
2a. Basal leaves adaxially glabrous, abaxially glabrous or sparsely puberulent; stems 5–25 cm 71a. var. *dielsianus*
2b. Basal leaves adaxially pubescent, abaxially glabrous; stems 7–10 cm 71b. var. *suprasericeus*
1b. Carpels and achenes glabrous.
3a. Stems 6–10 cm; basal leaves adaxially puberulent; receptacle with sparse hairs ca. 0.4 mm 71c. var. *longipilosus*
3b. Stems ca. 40 cm; basal leaves adaxially glabrous; receptacle with sparse hairs 0.1–0.15 mm 71d. var. *leiogynus*

71a. *Ranunculus dielsianus* var. *dielsianus*

康定毛茛(原变种) kang ding mao gen (yuan bian zhong)

Stems 5–25 cm. Basal leaves adaxially glabrous, abaxially glabrous or sparsely puberulent. Carpels and achenes puberulent.

• Grassy or gravelly slopes, woods, by streams; 3500–4800 m. W Sichuan, S Xizang, NE Yunnan.

71b. *Ranunculus dielsianus* var. *suprasericeus* Handel-Mazzetti, Symb. Sin. 7: 299. 1931.

丽江毛茛 *li jiang mao gen*

Ranunculus suprasericeus (Handel-Mazzetti) L. Liou.

Stems 7–10 cm. Basal leaves adaxially pubescent, abaxially glabrous. Carpels and achenes puberulent.

• Scrub, by streams; ca. 3500 m. SW Sichuan, NW Yunnan.

71c. *Ranunculus dielsianus* var. *longipilosus* W. T. Wang, Bull. Bot. Res., Harbin 16: 164. 1996.

长毛康定毛茛 *chang mao kang ding mao gen*

Stems 6–10 cm. Basal leaves adaxially puberulent. Receptacle with sparse hairs ca. 0.4 mm. Carpels and achenes glabrous.

• Alpine meadows; ca. 3800 m. NE Yunnan (Qiaojia Xian).

71d. *Ranunculus dielsianus* var. *leiogynus* W. T. Wang, Bull. Bot. Res., Harbin 15: 291. 1995.

大通毛茛 *da tong mao gen*

Stems ca. 40 cm. Basal leaves adaxially glabrous. Receptacle with sparse hairs 0.1–0.15 mm. Carpels and achenes glabrous.

• Margins of *Picea* forests; ca. 2100 m. NE Qinghai (Datong Xian).

72. *Ranunculus limprichtii* Ulbrich, Repert. Spec. Nov. Regni Veg. Beih. 12: 377. 1922.

纺锤毛茛 *fang chui mao gen*

Herbs perennial. Roots fibrous, thickened above. Stems erect or ascending, 7–10 cm, glabrous or sparsely puberulent, simple or few branched. Basal leaf 1; petiole 1–3 cm, glabrous; blade 3-lobed to middle, reniform-pentagonal, 6–8.5 × 8–14 mm, herbaceous, glabrous or adaxially and margin sparsely puberulent, base cordate, central lobe broadly obovate, apex truncate or rounded; lateral lobes obliquely flabellate, inconspicuously 2-lobed. Upper stem leaves smaller, short petiolate. Flowers solitary, terminal, 0.6–1.1 cm in diam. Pedicel 1.5–4 cm, glabrous or sparsely puberulent. Receptacle glabrous. Sepals 5, ovate or elliptic, 2.5–3 mm, abaxially glabrous or puberulent. Petals 5, obovate or narrowly elliptic, 3–5.5 × 1–4 mm, nectary pit without a scale, apex rounded or obtuse. Stamens numerous; anthers ellipsoid. Aggregate fruit ovoid, ca. 4 × 3 mm; carpels numerous. Achene obliquely obovoid, ca. 1.8 × 1.2 mm, densely puberulent; style persistent, ca. 0.4 mm.

• 2600–5100 m. W Sichuan.

1a. Flowers 8.5–11 mm in diam.; petals obovate, 4.8–5.5 × 2.8–3.8 mm, apex rounded; sepals abaxially puberulent; stems glabrous or sparsely puberulent, leaves glabrous or adaxially and at margin sparsely puberulent 72a. var. *limprichtii*

1b. Flowers smaller, 6.5–7 mm in diam.; petals long elliptic, 3–3.7 × 1–1.4 mm,

apex obtuse; sepals abaxially glabrous; stems and leaves glabrous 72b. var. *flavus*

72a. *Ranunculus limprichtii* var. *limprichtii*

纺锤毛茛(原变种) *fang chui mao gen* (yuan bian zhong)

Stems glabrous or sparsely puberulent. Flowers 0.8–1.1 cm in diam. Sepals abaxially puberulent. Petals obovate, 4.8–5.5 × 2.8–3.8 mm, nectary pit without a scale, apex rounded.

• Grassy slopes, forest margins; 2600–5100 m. W Sichuan.

72b. *Ranunculus limprichtii* var. *flavus* Handel-Mazzetti, Acta Horti Gothob. 13: 144. 1939.

狭瓣纺锤毛茛 *xia ban fang chui mao gen*

Stems and leaves glabrous. Flowers 0.6–0.7 cm in diam. Sepals abaxially glabrous. Petals long elliptic, 3–3.7 × 1–1.4 mm, nectary pit without a scale, apex obtuse.

• Rocky areas, scrub; 4000–4200 m. NW Sichuan (Songpan Xian).

73. *Ranunculus pseudolobatus* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 360. 1980.

大金毛茛 *da jin mao gen*

Herbs perennial. Roots fibrous, slightly thickened above. Stems 8–15 cm, glabrous below, puberulent above, branched. Basal leaves ca. 4; petiole 3–5.2 cm, glabrous; blade 3-lobed, suborbicular or orbicular-ovate, 0.8–1.2 × 0.8–1.4 cm, leathery, abaxially glabrous, adaxially sparsely puberulent or glabrous, base rounded, broadly cuneate, or subcordate, margin with a few rounded teeth. Stem leaves few, lower ones similar to basal leaves, short petiolate, upper ones sessile, 3-sect, segments linear. Flowers solitary, terminal, 1.4–1.8 cm in diam. Pedicel 1–5 cm, puberulent. Receptacle puberulent. Sepals 5, elliptic, 4–5 cm, abaxially puberulent. Petals 5(or 6), broadly obovate or obovate, 7–9 × 4.5–6 mm, nectary pit without a scale, apex subtruncate or rounded. Stamens numerous; anthers oblong. Carpels numerous; ovary puberulent; style longer than ovary. Fl. Jun.

• Grassy slopes; ca. 4800 m. NW Sichuan (Jinchuan Xian).

74. *Ranunculus hetianensis* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 360. 1980.

和田毛茛 *he tian mao gen*

Herbs perennial. Roots fibrous, thickened at base. Stems ca. 20 cm, slender, sparsely puberulent, simple. Basal leaves ca. 2; petiole slender, 5.5–9 cm, glabrous; blade ovate or broadly elliptic, ca. 1.8 × 1.6 cm, papery, glabrous, base subcordate or rounded, margin unequally 2- or 3-toothed on each side, undivided, or indistinctly 3-lobed, apex slightly obtuse. Stem leaves 2, glabrous, lower one short petiolate, 3-partite, lobes oblong-lanceolate, upper one sessile, 3-sect, segments linear-lanceolate. Flowers solitary, terminal, ca. 1.3 cm in diam. Receptacle puberulent. Sepals 5, elliptic, ca. 7 mm, abaxially appressed puberulent. Petals 5, narrowly oblong, ca. 8 × 2 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Carpels

numerous; ovary 0.8–1 mm, glabrous; style 1.2–1.7 mm. Fl. Jul.

• Alpine meadows; ca. 3200 m. SW Xinjiang (Hotan Xian).

75. *Ranunculus xinningensis* W. T. Wang, Bull. Bot. Res., Harbin 9(2): 10. 1989.

新宁毛茛 *xin ning mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 5–8.2 cm, sparsely puberulent, simple or few branched. Basal leaves ca. 8; petiole 1.5–4.5 cm, puberulent; blade reniform or reniform-pentagonal, 5–8 × 8–15 mm, papery, glabrous, base deeply cordate, central lobe obtuse-trapeziform, 3-dentate; lateral lobes subflabellate, unequally 2-lobed. Stem leaves 1–3, 3-sect, segments linear. Flowers solitary, terminal, 1–1.2 cm in diam. Receptacle glabrous. Sepals 5, oblong, 5.2–6 mm, abaxially sparsely puberulent. Petals 5(or 6), obovate-oblong, 5.2–6 × 2–3 mm, nectary pit with a scale, apex rounded or obtuse. Stamens numerous; anthers oblong. Aggregate fruit subglobose or broadly ovoid, 2.5–3.5 × 2–2.2 mm. Achene slightly bilaterally compressed, ellipsoid, 1.2–1.5 mm, sparsely puberulent, with a prominent dorsal rib; style persistent, ca. 0.2 mm. Fl. and fr. Mar.

• Shady places on wet rocks; ca. 300 m. S Hunan (Xinning Xian).

76. *Ranunculus lobatus* Jacquemont, Voy. Inde 4(Bot.): 4. 1835–1844.

浅裂毛茛 *qian lie mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 4–8.5 cm, glabrous or puberulent above, simple or branched. Basal leaves ca. 4; petiole 2–4.8 cm, glabrous; blade broadly ovate or trapeziform-ovate, 0.8–2 × 0.6–1.4 cm, papery or thinly leathery, glabrous except for ciliate margin, base rounded, broadly cuneate or subtruncate, apex 3–5-toothed, obtuse or slightly acute. Lower stem leaves similar to basal leaves, middle and upper ones short petiolate or sessile, 2- or 3-partite or undivided. Flowers solitary, terminal, 1.2–2.2 cm in diam. Receptacle glabrous. Sepals 5, elliptic, 5–7 mm, abaxially pubescent. Petals 5(or 6), broadly obovate, 5–10 × 5–7 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Carpels numerous, glabrous; style slightly shorter than ovary. Fl. Aug.

Alpine meadows, wet places of slopes, by streams; 4300–5100 m. SW Xizang [N India, N Pakistan].

This name is a later homonym of *Ranunculus lobatus* Moench (Methodus, 214. 1796), an illegitimate renaming of *R. muricatus* Linnaeus that seems to have been completely overlooked or ignored. No useful purpose would be served by changing an established name on such a technicality, discovered shortly before this work was due to go to press, and Jacquemont's name will therefore be proposed for conservation.

77. *Ranunculus indivisus* (Maximowicz) Handel-Mazzetti, Acta Horti Gothob. 13: 145. 1939.

圆叶毛茛 *yuan ye mao gen*

Herbs perennial. Roots fibrous, slightly thickened at base. Stems 8–36 cm, puberulent, sometimes glabrous below, branched. Basal leaves 4–9; petiole 2–5 cm,

glabrous; blade rounded-ovate, ovate, or deltoid-ovate, 1–3 × 1–3 cm, papery, glabrous, base subtruncate or subcordate, margin dentate or crenate, apex obtuse or rounded. Lower stem leaves similar to basal leaves or cuneate, 3-lobed; upper ones short petiolate or sessile, 3-sect or undivided, ciliate or sparsely puberulent. Flowers solitary, terminal, 1–1.7 cm in diam.

Receptacle puberulent. Sepals 5, subelliptic, 4–5.5 mm, abaxially appressed pubescent. Petals 5, narrowly obovate, 5–9 × 3–4 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit narrowly ovoid, 6–9 × 3.5–5 mm. Achene obliquely obovoid, 1.5–2 × 1.2–1.5 mm, puberulent; style persistent, ca. 0.8 mm.

• 2100–4300 m. SW Gansu, C and NE Qinghai, Shanxi, NW Sichuan.

1a. Upper stem leaves 3-sect, segments narrowly lanceolate or linear 77a. var. *indivisus*

1b. Upper stem leaves undivided, narrowly lanceolate or linear-lanceolate, entire or with 1 tooth at margin, rarely 3-lobed 77b. var. *abaensis*

77a. *Ranunculus indivisus* var. *indivisus*

圆叶毛茛(原变种) *yuan ye mao gen* (*yuan bian zhong*)

Ranunculus affinis R. Brown var. *indivisus*

Maximowicz, Fl. Tangut. 14. 1889.

Upper stem leaves 3-sect, segments narrowly lanceolate or linear. Fl. Jun–Jul, fr. Aug.

• Scrub, slopes, under rocks; 3400–3900 m. C and NE Qinghai, Shanxi (Jiaocheng Xian).

77b. *Ranunculus indivisus* var. *abaensis* (W. T. Wang) W.

T. Wang, Bull. Bot. Res., Harbin 15: 293. 1995.

阿坝毛茛 *a ba mao gen*

Ranunculus abaensis W. T. Wang, Acta Phytotax. Sin. 25: 36. 1987.

Upper stem leaves undivided, narrowly lanceolate or linear-lanceolate, margin entire or 1-toothed, rarely 3-lobed. Fl. Jun–Jul, fr. Jun–Aug.

• Scrub, wet places, alpine meadows; 2100–4300 m. SW Gansu, C and NE Qinghai, NW Sichuan.

78. *Ranunculus nyalamensis* W. T. Wang, Bull. Bot. Res., Harbin 15: 293. 1995.

聂拉木毛茛 *nie la mu mao gen*

Herbs perennial. Roots fibrous, slightly thickened at base. Stems 5–11.5 cm, puberulent or glabrous below, simple or branched. Basal leaves 4–8; petiole 1.8–5.3 cm, sparsely puberulent; blade subpentagonal or oblate, 4–11 × 5.5–14 mm, papery, puberulent or sometimes glabrous, base truncate-subcordate or subtruncate, margin with 2–4 unequal teeth on each side, apex rounded or obtuse. Stem leaves ca. 2; lower short petiolate, 3-lobed or 3-sect; uppermost sessile, 3-partite or 3-sect, sometimes undivided, oblong. Flowers solitary, terminal, 1–1.2 cm in diam. Receptacle sparsely puberulent. Sepals 5, subelliptic, ca. 5 mm, abaxially puberulent. Petals 5, obovate, 5.5–6 × 3.5–5

mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Carpels numerous, 0.8–1 mm, glabrous; style slightly shorter than ovary.

• 4200–4500 m. S Xizang.

- 1a. Stems 6–11.5 cm, puberulent from base to apex; leaf blade adaxially glabrous, abaxially puberulent; flower 1–1.2 cm in diam.; petals oblate, 5.5–6 × 3.5–5 mm 78a. var. *nyalamensis*
- 1b. Stems lower, 5–5.5 cm, glabrous below, puberulent above; leaf blade glabrous or adaxially puberulent; flower smaller, 0.8–1 cm in diam.; petals smaller, narrowly obovate, 4–5.2 × 2.2–3.2 mm 78b. var. *angustipetalus*

78a. *Ranunculus nyalamensis* var. *nyalamensis*

聂拉木毛茛(原变种) nie la mu mao gen (yuan bian zhong)

Stems 6–11.5 cm, puberulent from base to apex. Leaf blade adaxially glabrous, abaxially puberulent. Flower 1–1.2 cm in diam. Petals oblate, 5.5–6 × 3.5–5 mm, nectary pit without a scale. Fl. Jun.

• Grassy places by streams; ca. 4200 m. S Xizang (Nyalam Xian).

78b. *Ranunculus nyalamensis* var. *angustipetalus* W. T. Wang, Bull. Bot. Res., Harbin 15: 294. 1995.

浪卡子毛茛 lang ka zi mao gen

Stems lower, 5–5.5 cm, glabrous below, puberulent above. Leaf blade glabrous or adaxially puberulent. Flower 0.8–1 cm in diam. Petals narrowly obovate, 4–5.2 × 2.2–3.2 mm, nectary pit without a scale. Fl. Sep.

• Under rocks on slopes; ca. 4500 m. S Xizang (Nagarze Xian).

79. *Ranunculus similis* Hemsley, Hooker's Icon. Pl. 26: t. 2586. 1899.

苞毛茛 bao mao gen

Oxygraphis involucrata Riedl; *Ranunculus involucratus* Maximowicz (1889), not Lapeyrouse (1813); *R. maximowiczii* Pampanini.

Herbs perennial. Roots fibrous, subequally thick. Stems 1.5–5 cm, glabrous, simple, rarely 1-branched. Basal leaves 2–4; petiole 1.6–3.8 cm, glabrous; blade 3-lobed or with 3–5(–7) rounded teeth, subreniform, oblate, or cuneate-obovate, 3–10 × 4–16 mm, leathery, glabrous, base subcordate, subtruncate, or rounded. Stem leaves 2(or 3), clustered below flower, sessile, cuneate-obovate or oblate, 3-lobed or 3-dentate, 5–12 × 5–11 mm. Flowers solitary, terminal, 1.2–1.4 cm in diam. Receptacle glabrous. Sepals 5, broadly elliptic, ca. 4.5 mm, abaxially puberulent, persistent. Petals 5, cuneate-obovate, ca. 8 × 4 mm, nectary pit without a scale, apex truncate-rounded. Stamens numerous; anthers broadly oblong. Aggregate fruit subglobose, 5–8 mm in diam.

Achene ellipsoid-ovoid, ca. 2 × 1.5–2 mm, glabrous; style persistent, ca. 1 mm. Fl. Jun–Jul, fr. Jul–Aug.

• Grassy or gravelly slopes, by rivers; 4900–5700 m. SW Qinghai, SE Xinjiang, Xizang.

80. *Ranunculus tetrandrus* W. T. Wang, Acta Phytotax. Sin. 32: 477. 1994.

四蕊毛茛 si rui mao gen

Herbs annual. Scape ca. 3.5 cm, glabrous. Basal leaves ca. 3; petiole 1.4–2.2 cm, glabrous; blade 3-partite or 3-sect, rarely 3-cleft to middle, broadly rhombic or broadly trapeziform-ovate, 2–2.5 × 2.8–2.5 mm, papery or subleathery, glabrous, base broadly cuneate or truncate-cuneate, segments obovate-oblong or obovate-linear, undivided or lateral ones unequally 2-lobed. Flowers solitary, terminal, ca. 0.6 cm in diam. Receptacle glabrous. Sepals 5, obovate-oblong, 2.2–2.6 mm, glabrous. Petals 5, narrowly obovate or oblong-obovate, 3–3.8 × ca. 1.2 mm, nectary pit without a scale, apex rounded. Stamens 4; anthers oblong. Aggregate fruit broadly ovoid, ca. 2.2 × 3 mm. Achene obliquely obovoid, ca. 1 × 0.7 mm, glabrous; style persistent, ca. 0.7 mm. Fl. and fr. Jul.

• Among tufts of mosses on alpine meadows by glaciers; ca. 4500 m. SE Xizang (Mainling Xian).

81. *Ranunculus muscigenus* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 30. 1986.

藓丛毛茛 xian cong mao gen

Herbs annual. Roots fibrous, subequally thick. Stems slender, 1.5–2.5 cm, glabrous. Basal leaves ca. 6; petiole 6–15 mm, glabrous; blade 3-lobed, flabellate-obovate or rhombic-obovate, 1.5–3 × 1.8–2.8 mm, papery, glabrous, base broadly cuneate or rounded, lobes deltoid or broadly ovate, obtuse at apex. Stem leaves 1 or 2, similar to basal ones, with shorter petiole. Flowers solitary, leaf-opposed, ca. 0.3 cm in diam. Pedicel 3–6 mm, glabrous. Receptacle glabrous. Sepals 5, elliptic, ca. 1.2 mm, glabrous. Petals 5, narrowly obovate or elliptic, ca. 1.5 × 0.6–0.9 mm, nectary pit without a scale, apex rounded. Stamens ca. 4, 1–1.2 mm; anthers elliptic. Carpels 9–14; ovary 0.5–0.8 mm, glabrous; style ca. 0.2 mm. Fl. Jul.

• Damp places among mosses under forests; 3200–3600 m. SE Xizang (Mainling Xian).

82. *Ranunculus radicans* C. A. Meyer in Ledebour, Fl. Altaic. 2: 316. 1830.

沾地毛茛 zhan di mao gen

Ranunculus gmelinii de Candolle var. *radicans* (C. A. Meyer) Krylov; *R. hyperboreus* Rottbøll var. *radicans* (C. A. Meyer) J. D. Hooker.

Herbs perennial, semiaquatic. Roots fibrous, subequally thick. Stems flaccid, glabrous or sparsely appressed puberulent, slightly branched above, rooting at nodes. Stem leaves with petiole 2–3(–8) cm, glabrous or sparsely puberulent; blade 3-partite, orbicular-reniform

or cordate-pentagonal, 0.5–1(–1.6) × 0.7–1.7(–2.6) cm, herbaceous, glabrous or sparsely appressed puberulent, base cordate or cordate-truncate, central lobe rhombic-cuneate or broadly rhombic, 3-lobed, lobules entire, obtuse; lateral lobes obliquely flabellate, unequally 2-lobed nearly to middle. Flowers terminal or leaf-opposed, 0.6–0.7(–1.3) cm in diam. Pedicel 1–5 cm, glabrous. Receptacle sparsely puberulent. Sepals 5, ovate, 1.8–2.5 mm, glabrous. Petals 5, oblong-obovate, ca. 2.7 × 1.5 mm, nectary pit without a scale, apex rounded. Stamens ca. 13; anthers broadly ellipsoid. Aggregate fruit 3–5 mm in diam.; carpels numerous. Achene obovoid, 1–1.5 × ca. 0.8 mm, glabrous, margin with corky thickening; style persistent, ca. 0.3 mm. Fl. Jun–Jul.

Rivers or river banks. C and N Heilongjiang, N Nei Mongol, N Xinjiang [Mongolia, Russia (Siberia)].

83. *Ranunculus gmelinii* de Candolle, Syst. Nat. 1: 308. 1817.

小掌叶毛茛 *xiao zhang ye mao gen*

Herbs perennial, subaquatic. Roots fibrous, subequally thick. Stems elongated, glabrous or appressed puberulent above, short branched, often rooting at nodes. Stem leaves with petiole 0.5–2 cm, glabrous or sparsely puberulent; blade 3-partite near base, orbicular-reniform or cordate-pentagonal, 0.4–1 × 0.6–1.7 cm, herbaceous, subglabrous or abaxially sparsely appressed puberulent, base cordate, central lobe cuneate-rhombic, 3-lobed; lateral lobes obliquely obovate or obliquely flabellate, unequally 2-partite, ultimate lobules narrowly ovate or linear-lanceolate. Monochasium terminal, 1–4-flowered; bracts sessile, leaflike or undivided, narrowly ovate, 0.5–7 mm. Flowers 0.4–0.9 cm in diam. Pedicel to 3.5 cm, glabrous or sparsely puberulent. Receptacle sparsely puberulent. Sepals 5, ovate-elliptic, 2.2–3 mm, glabrous. Petals 5, narrowly obovate or obovate, 2.2–4 × 1.5–2.5 mm, nectary pit without a scale, apex rounded. Stamens 12 or numerous; anthers ellipsoid. Aggregate fruit subglobose, 3–4 mm in diam.; carpels numerous. Achene broadly ellipsoid or obliquely obovoid, 1–1.3 × 0.8–1 mm, glabrous, margin with corky thickening; style persistent, ca. 0.3 mm. Fl. Jun–Aug, fr. Sep.

Streams, moist places by streams, meadows. Heilongjiang, Jilin, NE Nei Mongol [Japan, Mongolia, Russia (Siberia); N Europe].

84. *Ranunculus natans* C. A. Meyer in Ledebour, Fl. Altaic. 2: 315. 1830.

浮毛茛 *fu mao gen*

Herbs perennial, subaquatic. Roots fibrous, subequally thick. Stems 10–40 cm, glabrous, branched, often rooting at nodes. Basal leaves 3–5; petiole 2.5–11 cm, glabrous; blade 3-lobed, cordate-pentagonal or orbicular-reniform, 0.7–2.1 × 1.1–3.7 cm, herbaceous, glabrous, base cordate, central lobe broadly cuneate or broadly obovate, undivided or 3-lobed, apex rounded; lateral lobes larger, obliquely broadly obovate,

undivided or unequally 2-lobed. Stem leaves similar to basal ones, gradually reduced upward; petiole sometimes sparsely puberulent. Flowers leaf-opposed, terminal, or 2 in a monochasium, 0.6–0.9 cm in diam. Pedicel 1–4 cm, glabrous or sparsely puberulent. Receptacle sparsely puberulent. Sepals 5, orbicular-ovate, 2.3–3 mm, glabrous. Petals 5, obovate, 2.5–4.2 × 2–3.2 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit broadly ellipsoid or broadly ovoid, 5–6 mm in diam.; carpels numerous. Achene slightly bilaterally compressed, obliquely obovoid, 1.3–1.6 × 1–1.2 mm, glabrous, margin with corky thickening; style persistent, ca. 0.1 mm. Fl. Jun–Aug, fr. Jul–Aug.

Rivers, lakes, by streams; 1800–3500 m. Heilongjiang, Nei Mongol, Qinghai, Xinjiang, Xizang [Kazakhstan, Mongolia, Russia (Siberia)].

85. *Ranunculus intramongolicus* Y. Z. Zhao, Bull. Bot. Res., Harbin 9(1): 69. 1989.

内蒙古毛茛 *nei meng gu mao gen*

Herbs perennial, subaquatic. Roots fibrous, subequally thick. Stems 3–5, subglabrous or sparsely puberulent, branched, branches rooting at nodes. Basal leaves ca. 5; petiole 1–4 cm, subglabrous or sparsely puberulent; blade 3-lobed, reniform or broadly ovate, 0.2–0.8 × 0.3–1 cm, herbaceous, glabrous or abaxially appressed puberulent, base truncate or broadly cuneate, central lobe broadly ovate, entire or 1-crenate; lateral lobes unequally 2-lobed, rarely undivided. Stem leaves similar to basal ones but smaller, short petiolate. Flowers solitary, terminal, ca. 0.5 cm in diam. Pedicel 2–15 mm, subglabrous or appressed puberulent. Receptacle glabrous. Sepals 5, elliptic, ca. 3 mm, glabrous. Petals 5, obovate, ca. 2.5 × 2 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, ca. 4 mm in diam.; carpels numerous. Achene slightly bilaterally compressed, ovoid-globose, ca. 1.2 × 1.2 mm, glabrous, margin with corky thickening; style persistent, ca. 0.1 mm. Fl. and fr. Jun–Aug.

• Marshes, meadows; 800–1000 m. C and NE Nei Mongol.

86. *Ranunculus lingua* Linnaeus, Sp. Pl. 1: 549. 1753.

条叶毛茛 *tiao ye mao gen*

Herbs perennial. Stems ca. 75 cm, to 10 mm thick, strigose, few branched above, rooting near base. Basal leaf withering at anthesis. Lower stem leaves with petiole short, ca. 1.5 cm; blade linear-lanceolate, 10–15 × 0.7–2 cm, papery, appressed puberulent, base attenuate or rounded, margin entire, sparsely glandular. Upper stem leaves sessile. Compound monochasium terminal, corymbose, 3- or 4-flowered; bracts leaflike. Flowers 2.7–3.8 cm in diam. Pedicel 2–13.5 cm. Receptacle glabrous. Sepals 5, elliptic-ovate, ca. 7 mm, abaxially appressed puberulent. Petals 5, flabellate-obovate, 17–20 × 14–17 mm, nectary pit without a scale, apex truncate, often emarginate. Stamens numerous; anthers oblong. Aggregate fruit broadly ovoid, ca. 9 mm in

diam. Achene obliquely obovoid, 2–3 × 1.5–1.8 mm, glabrous; style persistent, very short.

C Xinjiang [Kazakhstan, Russia (Siberia); Europe].

87. *Ranunculus amurensis* Komarov, Trudy Imp. S.-Peterburgsk. Bot. Sada 22: 294. 1903.

长叶毛茛 chang ye mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems 28–60 cm, 4–5 mm thick, strigose, simple or few branched. Basal leaf withering at anthesis; blade lanceolate-linear, 7–15 × 0.3–0.5(–0.7) mm, strigose, Stem leaves sessile, amplexicaul, lanceolate-linear, 7–15 × 0.3–0.5(–0.7) mm, base attenuate, margin entire, apex attenuate. Flowers usually solitary, terminal, 1.7–2.5 cm in diam. Receptacle glabrous. Sepals 5, elliptic, 4–7 mm, abaxially densely strigose. Petals 5, obovate, 8–12 × 5–8 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers ellipsoid.

Aggregate fruit subglobose, ca. 5 mm in diam. Achene obliquely obovoid, ca. 1.8 × 1 mm, glabrous; style persistent, ca. 0.4 mm. Fl. Jul–Sep.

Meadows. Heilongjiang, Nei Mongol [Russia (Far East)].

88. *Ranunculus reptans* Linnaeus, Sp. Pl. 1: 549. 1753.

松叶毛茛 song ye mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems filiform, stoloniferous, to 25 cm, glabrous or sparsely appressed puberulent, rooting at nodes. Basal leaves ca. 6, subsessile; blade narrowly linear, linear-oblancheolate, or narrowly spatulate, 3.5–5.5 × 0.1–0.2 cm, glabrous or sparsely puberulent, base slightly dilated, margin entire, apex obtuse. Stem leaves several at each node, similar to basal ones but smaller. Flowers solitary, terminal or axillary, 0.6–0.9 cm in diam. Pedicel 3–8 cm, puberulent. Receptacle glabrous. Sepals 5, ovate-orbicular, 2–3 mm, abaxially puberulent. Petals 5–7, obovate or narrowly obovate, 3–4.5 × 2–2.5 mm, nectary pit without a scale, apex rounded or truncate. Stamens numerous; anthers ovate-orbicular. Aggregate fruit globose, 2.5–5 mm in diam.; carpels numerous.

Achene obliquely obovoid, 1–1.5 × 0.8–1 mm, glabrous; style persistent, ca. 0.2 mm. Fl. Jul–Sep.

River or lake banks; 200–1500 m. Heilongjiang, NE Nei Mongol, N Xinjiang [N Japan, Kazakhstan, Mongolia, Russia (European part and Siberia); W Europe, North America].

89. *Ranunculus ternatus* Thunberg, Fl. Jap. 241. 1784.

猫爪草 mao zhua cao

Herbs perennial. Root tuber ovoid or fusiform, 3–5 mm. Stems 5–18 cm, sparsely puberulent or glabrous below, branched. Basal leaves 5–10; petiole 2–6 cm; blade ternate, or sometimes simple, pentagonal or broadly ovate in outline, 0.6–1.5 × 1–2.4 cm, thinly papery, subglabrous or abaxially puberulent; leaflets petiolulate, rhombic, 2- or 3-lobed or 2- or 3-partite, sometimes 1–2 × 3-sect and with ultimate segments lanceolate-linear; central lobe rhombic-obovate, 3-lobed or 3-partite. Stem leaves smaller, sessile, 3-sect, ultimate lobes linear, 1–3 mm wide. Flowers solitary, terminal, 1–1.6

cm in diam. Receptacle glabrous. Sepals 5, ovate or broadly ovate, 3–4 mm, abaxially sparsely puberulent or subglabrous. Petals 5, narrowly obovate or obovate, 5.5–7 × 4–5 mm, nectary pit without a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid, 2–4 × 2–3 mm. Achene ovoid, 1–1.2 × 0.7–1 mm, glabrous; style persistent, ca. 0.2 mm. Fl. Mar–May.

Anhui, Fujian, N Guangxi, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, Taiwan, Zhejiang [Japan].

1a. Basal leaves ternate, sometimes simple, leaflets 2- or 3-lobed or 2- or 3-partite, ultimate lobes ovate or narrowly ovate

..... 89a. var. *ternatus*

1b. Basal leaves all ternate, leaflets 1 or 2

× 3-sect, ultimate segments lanceolate-

linear 89b. var. *dissectissimus*

89a. *Ranunculus ternatus* var. *ternatus*

猫爪草(原变种) mao zhua cao (yuan bian zhong)

Ranunculus extorris Hance; *R. formosanus* Masamune;

R. leiocladus Hayata; *R. zuccarinii* Miquel.

Basal leaves with blade ternate, sometimes simple, leaflets 2- or 3-lobed or 2- or 3-partite, ultimate lobes ovate or narrowly ovate.

Fields, grassy slopes, forests; below 500 m. Anhui, Fujian, N Guangxi, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, Taiwan, Zhejiang [Japan].

89b. *Ranunculus ternatus* var. *dissectissimus* (Migo)

Handel-Mazzetti, Acta Horti Gothob. 13: 167. 1939.

细裂毛爪草 xi lie mao zhua cao

Ranunculus zuccarinii var. *dissectissimus* Migo, J.

Shanghai Sci. Inst., Sect. III, 3: 4. 1934.

Basal leaves with blade always ternate; leaflets 1–2 × 3-sect, ultimate segments lanceolate-linear.

• Grassy places. SE Jiangsu (Suzhou Shi), Shanghai.

90. *Ranunculus podocarpus* W. T. Wang, Bull. Bot. Res., Harbin 16: 163. 1996.

柄果毛茛 bing guo mao gen

Herbs perennial. Roots fibrous, robust, subequally thick. Stems 4.5–15 cm, glabrous or sparsely puberulent,

often long branched from base. Basal leaves 4; petiole

1.8–5 cm, glabrous; blade ternate, ovate or rhombic-

ovate in outline, 0.8–4 × 0.8–4 cm, papery, glabrous,

central leaflet rhombic or broadly rhombic, 3-partite or

2 × ternate-dissected, usually long petiolulate, ultimate

lobules narrowly oblong or linear; lateral leaflets

smaller, petiolulate, oblique. Stem leaves similar to

basal ones but smaller, short petiolate. Flowers solitary,

terminal, 1.1–1.6 cm in diam. Receptacle glabrous.

Sepals 5, narrowly elliptic, 4–5 mm, abaxially

subglabrous or sparsely puberulent. Petals 5 (–7),

narrowly obovate or obovate-oblong, 6–9 × 2.5–4.2

mm, nectary pit without a scale, apex rounded. Stamens

numerous; anthers oblong. Aggregate fruit subglobose,

3.5–5 mm in diam. Achene slightly bilaterally

compressed, obliquely elliptic, 1.8–2(–3) × 1–1.2 mm,

sparsely puberulent or glabrous, carpophores 0.3–0.6 mm; style persistent, ca. 0.4 mm. Fl. Mar–Oct.

• Margins of paddy fields, lakes or streams, moist grassy places; 50–200 m. S Anhui, N Jiangxi.

91. *Ranunculus sceleratus* Linnaeus, Sp. Pl. 1: 551. 1753.

石龙芮 shi long rui

Hecatonia palustris Loureiro; *Ranunculus holophyllus* Hance; *R. oryzetorum* Bunge; *R. sceleratus* var. *sinensis* H. Léveillé.

Herbs annual. Roots fibrous, subequally thick. Stems 10–75 cm, glabrous or sparsely puberulent, branched above. Basal leaves 5–13; petiole 1.2–1.5 cm, subglabrous or sparsely pubescent; blade 3-partite, pentagonal, reniform, or broadly ovate, or broadly ovate, 1–4 × 1.5–5 cm, papery or herbaceous, glabrous or abaxially puberulent, base broadly cordate, central lobe cuneate or rhombic, 3-lobed, lobules 1- or 2-denticulate or entire; lateral lobes obliquely broadly obovate or obliquely cuneate, unequally 2-lobed or 2-cleft to middle. Lower stem leaves similar to basal ones; upper stem leaves short petiolate, cuneate at base, 3-sect, segments oblanceolate. Compound monochasium terminal, corymbose; bracts leaflike. Flowers 0.4–0.8 cm in diam. Pedicel 0.5–1.5 cm, glabrous or sparsely puberulent. Receptacle puberulent or glabrous. Sepals 5, ovate-elliptic, 2–3 mm, abaxially appressed puberulent or glabrous. Petals 5, obovate, 2.2–4.5 × 1.4–2.4 mm, nectary pit without a scale, apex rounded. Stamens 10–19; anthers ellipsoid. Aggregate fruit cylindrical, 3–11 × 1.5–4 mm; carpels numerous. Achene slightly bilaterally compressed, obliquely obovoid, 1–1.1 × 0.8–1 mm, glabrous, sometimes transversely 2- or 3-rugose, somewhat turgid along sutures; stigmas persistent, ca. 0.1 mm. Fl. Jan–Jul.

By streams or lakes, paddy fields, wet grassy places; 50–2300 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Yunnan, Zhejiang [Afghanistan, Bhutan, N India, Japan, Kazakhstan, Korea, Nepal, N Pakistan, Russia (Siberia), Thailand; SW Asia, Europe, North America].

92. *Ranunculus melanogynus* W. T. Wang, Bull. Bot. Res., Harbin 15: 301. 1995.

黑果毛茛 hei guo mao gen

Herbs perennial. Roots fibrous, slightly thickened at base. Stems 3–5 cm, glabrous, simple. Basal leaves 3 or 4; petiole 2–4.5 cm, glabrous; blade 3-partite, reniform-pentagonal, 4–6 × 6–11 mm, papery, glabrous, base cordate, central lobe obovate or narrowly obovate, margin entire, apex obtuse; lateral lobes obliquely flabellate, unequally 2-lobed or undivided, lobules ovate, entire or 1-dentate. Stem leaves 1–3, moderately long or short petiolate; blade similar to that of basal leaves but smaller, base subcordate or truncate, margin 3-cleft to middle, lobes entire; uppermost stem leaf

sometimes undivided, broadly elliptic. Flowers solitary, terminal, 1.2–1.4 cm in diam. Receptacle glabrous.

Sepals 5, broadly elliptic or broadly obovate, 3.5–4.5 mm, glabrous. Petals 5, broadly obovate or cuneate-obovate, 5–6 × 5–7 mm, nectary pit without a scale, apex truncate, sometimes emarginate. Stamens numerous; anthers oblong. Carpels numerous, black; ovary broadly ovoid, ca. 1 mm, glabrous; style absent, stigma very small. Fl. Jul.

• Gravelly slopes of mountain tops; ca. 5500 m. S Xizang.

93. *Ranunculus ficariifolius* H. Léveillé & Vaniot in H. Léveillé, Bull. Soc. Bot. France 51: 289. 1904.

西南毛茛 xi nan mao gen

Ranunculus bonatianus Ulbrich; *R. duclouxii* Finet & Gagnepain; *R. ficariifolius* var. *crenatus* H. Léveillé; *R. ficariifolius* var. *erythrosepalus* H. Léveillé; *R. ficariifolius* var. *ovalifolius* H. Léveillé; *R. flaccidus* J. D. Hooker & Thomson (1855), not Persoon (1795); *R. mairei* H. Léveillé (1914), not H. Léveillé (1913); *R. microphyllus* Handel-Mazzetti; *R. repens* Linnaeus var. *loponensis* H. Léveillé; *R. vaniotii* H. Léveillé.

Herbs perennial. Roots fibrous, subequally thick. Stems erect, ascending, or subprostrate, 4–4.5 cm, sparsely puberulent or subglabrous, branched or simple. Basal leaves 1 to several; petiole 1.2–6.5 cm, glabrous; blade triangular-ovate, depressed ovate, suborbicular, rarely cordate, 0.2–1.7 × 0.4–2.2 cm, papery, glabrous, base broadly cuneate or truncate, rarely cordate, margin 2- or 3-dentate on each side, apex obtuse. Lower stem leaves distinctly petiolate, upper stem leaves short petiolate or sessile, reniform-ovate, triangular-ovate, rhombic-ovate, or subrhombic. Flowers leaf-opposed, 0.4–1 cm in diam. Pedicel 0.3–2.5 cm, appressed puberulent. Receptacle puberulent. Sepals 5, elliptic, 2–3 mm, glabrous or abaxially sparsely puberulent. Petals 5, elliptic-ovate or narrowly obovate, 2–4.5 × 1.6–2.4 mm, apex rounded, or emarginate. Stamens numerous; anthers ellipsoid. Aggregate fruit subglobose, 3–4.5 mm in diam.; carpels numerous. Achene slightly bilaterally compressed, 1–1.5 × 0.8–1.2 mm, glabrous, tuberculate; style persistent, 0.2–0.8 mm. Fl. Mar–Aug. By streams, meadows, forest margins; 1100–3200 m. SE Guizhou, W Hubei, S Hunan, W Jiangxi, Sichuan, N and SE Yunnan [Bhutan, Nepal, Sikkim, Thailand].

94. *Ranunculus triangularis* W. T. Wang, Acta Phytotax. Sin. 25: 37. 1987.

三角叶毛茛 san jiao ye mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems erect, 17–30 cm, sparsely puberulent above, branched. Basal leaves 1 or 2; petiole 2.5–5 cm, glabrous; blade deltoid or triangular, 0.9–2.2 × 0.8–1.6 cm, thinly papery, glabrous, base truncate or truncate-cordate, margin unequally denticulate, apex acute. Lower stem leaves similar to basal ones, upper stem leaves short

petiolate, narrowly triangular or lanceolate, 2.6–4.2 × 0.5–1.4 cm. Compound monochasium terminal, corymbose; bracts narrowly lanceolate. Flowers ca. 0.6 cm in diam. Pedicel 0.6–1.5 cm, appressed puberulent. Receptacle puberulent. Sepals 5, elliptic, ca. 2.2 mm, abaxially pilose. Petals 5, orbicular-ovovate or suborbicular, 2.2–2.5 × ca. 2 mm, apex rounded. Stamens numerous; anthers narrowly ellipsoid. Aggregate fruit broadly ovoid, 2–3 × ca. 2.5 mm; carpels numerous. Achene slightly bilaterally compressed, obliquely obovoid, ca. 1 × 0.8 mm, glabrous, sparsely tuberculate; style persistent, ca. 0.1 mm. Fl. Apr–May, fr. May.

• Grassy places at forest margins; ca. 1200 m. SW Sichuan (Leibo Xian).

95. *Ranunculus cheirophyllus* Hayata, Icon. Pl. Formos. 3: 7. 1913.

掌叶毛茛 *zhang ye mao gen*

Ranunculus kawakamii Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 19. 1911, not Makino (1904).

Herbs perennial. Roots fibrous, subequally thick. Stems ascending or subprostrate, 7–20 cm, strigose, simple or branched, rooting at nodes. Basal leaves ca. 5; petiole 2–5 cm, sparsely puberulent or subglabrous; blade deltoid or semiorbicular, 6–11 × 8–14 mm, herbaceous, glabrous, base subtruncate or broadly cuneate, margin coarsely 5–7-dentate, sparsely ciliate, apex subobtuse. Stem leaves similar to basal ones but gradually reduced upward, sometimes appressed puberulent abaxially. Flowers leaf-opposed, ca. 0.8 cm in diam. Pedicel 1–2.4 cm, appressed puberulent. Receptacle with 1 hair. Sepals 4 or 5, suborbicular, ca. 2 mm, abaxially appressed puberulent. Petals 3–5, white, oblong, ca. 4 mm, nectary pit unknown, apex rounded. Stamens ca. 10; anthers narrowly oblong. Carpels ca. 15; ovary longer than style, ca. 1 mm, glabrous or with 2 or 3 hairs.

• Roadsides; 2000–2200 m. Taiwan.

96. *Ranunculus japonicus* Thunberg, Trans. Linn. Soc. London 2: 337. 1794.

毛茛 *mao gen*

Herbs perennial. Rhizomes short. Stems 12–65 cm, hispid or strigose toward base, rarely subglabrous or glabrous, strigose above, branched. Basal leaves 3–6; petiole 3–22(–25) cm, hispid or strigose; blade 3-partite, rarely 3-sect or ternate, cordate-pentagonal, 1.2–6.5(–10) × 2–10(–16) cm, papery, strigose, base cordate, central segment cuneate-rhombic to broadly rhombic, 3-lobed, margin unequally dentate; lateral segments obliquely flabellate, unequally 2-cleft. Stem leaves smaller, short petiolate or sessile. Compound monochasium terminal, (1–)3–15-flowered. Flowers 1.4–2.4 cm in diam. Pedicel 0.8–10 cm. Receptacle glabrous. Sepals 5, ovate, ca. 5 mm, abaxially strigose. Petals 5, obovate, 7–12 × 6.5–8.5 mm, nectary pit covered by a scale, apex rounded or emarginate.

Stamens numerous; anthers oblong. Aggregate fruit subglobose, 4–6 mm in diam. Achene obliquely broadly obovate, 1.8–2.8 × 1.5–2 mm, glabrous, narrowly marginate; style persistent, triangular, 0.2–0.4 mm. 100–3500 m. Anhui, Fujian, Gansu, N Guangdong, N Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Yunnan, Zhejiang [Japan, Mongolia, Russia (Far East)]. Most Chinese material determined as *Ranunculus acris* Linnaeus belongs here.

- 1a. Upper stem leaves abaxially very densely silvery sericeous-strigose 96d. var. *hsinganensis*
- 1b. Upper stem leaves abaxially not densely sericeous-strigose.
 - 2a. Stems below and petioles strigose 96c. var. *propinquus*
 - 2b. Stems below and petioles hispid.
 - 3a. Basal leaves 3-partite, rarely 3-sect 96a. var. *japonicus*
 - 3b. Basal leaves ternate 96b. var. *ternatifolius*

96a. *Ranunculus japonicus* var. ***japonicus***

毛茛(原变种) *mao gen* (yuan bian zhong)

Ranunculus acris Linnaeus subsp. *japonicus* (Thunberg)

Hultén; *R. acris* var. *japonicus* (Thunberg)

Maximowicz; *R. acris* var. *schizophyllus* H. Léveillé; *R.*

japonicus f. *latissimus* (Kitagawa) Kitagawa; *R.*

japonicus var. *latissimus* Kitagawa; *R. labordei* H.

Léveillé.

Stems toward base and petioles hispid. Basal leaf blade 3-partite, rarely 3-sect. Upper stem leaves not silvery strigose. Fl. Apr–Aug.

Grassy slopes, meadows, by streams, forests; 100–3500 m. Anhui, Fujian, Gansu, N Guangdong, N Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Russia (Far East)].

96b. *Ranunculus japonicus* var. ***ternatifolius*** L. Liao, Bull. Bot. Res., Harbin 12: 375. 1992.

三小叶毛茛 *san xiao ye mao gen*

Stems toward base and petioles hispid. Basal leaf blade ternate. Upper stem leaves not silvery strigose.

• N Jiangxi, E Zhejiang.

96c. *Ranunculus japonicus* var. ***propinquus*** (C. A. Meyer) W. T. Wang, Bull. Bot. Res., Harbin 15: 305. 1995.

伏毛毛茛 *fu mao mao gen*

Ranunculus propinquus C. A. Meyer in Ledebour, Fl. Altaic. 2: 332. 1830; *R. acris* var. *propinquus* (C. A. Meyer) Maximowicz; *Ranunculus acris* var. *stevanii* (Andrzejowski) Regel; *R. japonicus* var. *pratensis* Kitagawa; *R. stevonii* Andrzejowski.

Stems toward base and petioles strigose. Leaf blade 3-partite, rarely 3-sect. Upper stem leaves not silvery strigose. Fl. May–Sep.

Gansu, SW Guizhou, Hebei, Heilongjiang, W Henan, Jilin, Liaoning, Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, N Xinjiang, Yunnan [Mongolia, Russia (Siberia)].

Michio Tamura (pers. comm.) believes that this variety would be better treated as a distinct species.

96d. *Ranunculus japonicus* var. *hsinganensis* (Kitagawa) W. T. Wang, Bull. Bot. Res., Harbin 15: 305. 1995.

银叶毛茛 *yin ye mao gen*

Ranunculus hsinganensis Kitagawa, J. Jap. Bot. 22: 175. 1948.

Leaf blade 3-partite, rarely 3-sect. Upper stem leaves abaxially very densely silvery sericeous-strigose. Fl. Aug.

• *Larix* forests. C Nei Mongol (Bailang Shan, Horqin Youyi Qianqi).

97. *Ranunculus taisanensis* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 20. 1911.

鹿场毛茛 *lu chang mao gen*

Ranunculus geraniifolius Hayata (1913), not Pourret (1788); *R. taisanensis* var. *tripartitus* J. Ohwi. Herbs perennial. Stems 8–20(–26) cm, spreading brownish hispid, few branched or simple. Basal leaves ca. 3; petiole 1.4–7(–10) cm, hispid; blade 3-partite, reniform-pentagonal, 1–1.8 (–2.5) × 1.2–2.8(–4) cm, papery, brownish hispid, base subcordate, central lobe broadly rhombic or obtrapeziform-rhombic, 3-lobed or 3-dentate; lateral lobes obliquely flabellate, unequally 2-lobed, few dentate. Stem leaves similar to basal leaves, uppermost sometimes sessile, 3-sect, segments sublinear. Monochasium 1–3-flowered. Flowers 0.5–0.9 cm in diam. Pedicel 1.5–3 cm, strigose. Receptacle glabrous. Sepals 5, ovate or broadly elliptic, 2.6–3.5 mm, abaxially hispid. Petals 5(–10), narrowly or broadly obovate, 2.2–5 × 1.6–2.2 mm, nectary pit covered by a scale, apex rounded. Stamens 15–17; anthers broadly ellipsoid. Aggregate fruit ovoid or subglobose, 3–4 × 2–3 mm. Achene obliquely obovoid, 1.3–1.8 × 1.2–1.6 mm, glabrous; style persistent, 0.3–0.6 mm. Fl. and fr. Jul–Aug.

• Grassy slopes, forest margins, river banks; 1500–3000 m. Taiwan.

98. *Ranunculus smirnovii* Ovczinnikov, Fl. URSS. 7: 745. 1937.

兴安毛茛 *xing an mao gen*

Ranunculus japonicus Thunberg var. *smirnovii* (Ovczinnikov) L. Liou.

Herbs perennial. Roots fibrous, subequally thick. Stems ca. 50 cm, densely spreading hirsute, branched. Basal leaves ca. 10; petiole 10–20 cm, densely spreading hirsute; blade 3-lobed, cordate-pentagonal, 5–10 × 7–15

cm, papery, abaxially puberulent, base cordate, margin incised-dentate; central lobe rhombic or broadly rhombic, acute, 3-lobed, incised-dentate; lateral lobes obliquely flabellate, unequally 2-cleft slightly beyond middle. Lower stem leaves similar to basal ones; upper stem leaves subsessile or sessile, 3–5-sect, segments oblong-rhombic. Compound monochasium terminal, ca. 10-flowered; bracts leaflike, 3-sect. Flowers 1.6–1.8 cm in diam. Pedicel 1–4 cm, densely appressed puberulent. Receptacle glabrous. Sepals 5, elliptic-ovate, 4–5 mm, abaxially appressed puberulent. Petals 5, broadly obovate, 8–10 × 7–8 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, ca. 5 mm in diam.; carpels numerous. Achene obliquely obovate, ca. 2 × 1.8 mm, glabrous, narrowly marginate; style persistent, ca. 0.3 mm. Fl. Jul–Aug.

Meadows, forests. NE Nei Mongol [Russia (E Siberia)].

99. *Ranunculus distans* Wallich ex Royle, Ill. Bot. Himal. Mts. 1: 53. 1834.

黄毛茛 *huang mao gen*

Ranunculus laetus Royle (1834), not Salisbury (1796); *R. pseudolaetus* Tamura.

Herbs perennial. Roots fibrous, subequally thick. Rhizomes ca. 2 cm. Stems 22–65 cm, hirsute below, strigose above, branched or simple. Basal leaves 1–3; petiole 4–19 cm, hirsute; blade 3-partite, cordate-pentagonal, 1.2–4.8 × 1.7–7.8 cm, herbaceous, strigose, base cordate, central lobe broadly rhombic, 3-lobed, margin irregularly dentate, apex acute; lateral lobes obliquely flabellate, unequally 2-lobed. Lower stem leaves similar to basal ones but petioles shorter, upper stem leaves subsessile or sessile. Monochasium terminal, (1 or)2–4-flowered; bracts leaflike. Flowers 1–2 cm in diam. Pedicel 1–4.5 cm. Receptacle glabrous. Sepals 5, ovate-elliptic or long elliptic, 3–5 mm, abaxially strigose. Petals 5, broadly obovate, 4.5–10 × 3–7.8 mm, nectary pit covered by a scale, apex rounded-truncate. Stamens numerous; anthers oblong. Aggregate fruit globose or broadly ovoid, 5–6 mm in diam.; carpels numerous. Achene bilaterally compressed, obliquely obovate, ca. 2.2 × 1.8 mm, glabrous, inconspicuously marginate; style persistent, ca. 0.6 mm, slightly recurved at apex. Fl. Jun–Oct.

Grassy slopes, forests, by streams; 2000–3800 m. S Xizang, NW Yunnan [Afghanistan, Bhutan, N India, Kazakhstan, Kyrgyzstan, Nepal, N Pakistan, Sikkim].

This species is more widely known as *Ranunculus laetus*, but that name is illegitimate, so the name *R. distans*, published simultaneously, must be used instead. Tamura (Acta Phytotax. Geobot. 19: 109. 1963) treated many Himalayan collections, including material from China, as a distinct species, *R. pseudolaetus*. This was distinguished from *R. distans* by the spreading, yellowish hairs on the stems and petioles

and the more deeply divided leaves which are more densely hairy abaxially.

100. *Ranunculus paishanensis* Kitagawa, Rep. Inst. Sci. Res. Manchoukuo 5: 153. 1941.

白山毛茛 bai shan mao gen

Ranunculus acris Linnaeus var. *monticola* (Kitagawa) Tamura; *R. japonicus* Thunberg var. *monticola* Kitagawa; *R. paishanensis* f. *oreodoxa* (Kitagawa) Kitagawa; *R. paishanensis* var. *oreodoxa* Kitagawa.

Herbs perennial. Roots fibrous, subequally thick. Stems slender, 10–70 cm, strigose, branched or simple. Basal leaves ca. 5; petiole 2.2–23 cm, strigose; blade usually 3-partite, variable in shape, pentagonal or subreniform, 0.8–4.4 × 1.6–5.5 cm, papery, strigose, base cordate or subtruncate; central lobe rhombic or broadly rhombic, 3-lobed, incised-dentate; lateral lobes obliquely flabellate, unequally 2-cleft; leaf blade sometimes 3-sect; central segment rhombic, 3-partite, lateral segments unequally 2-partite, ultimate lobes linear-lanceolate. Lower stem leaves short petiolate, upper ones sessile, 3-sect, segments linear-lanceolate. Monochasium terminal, 2- to many flowered; bracts 3-sect, segments linear. Flowers 1–1.6 cm in diam. Pedicel 1.5–4 cm, strigose. Receptacle glabrous. Sepals 5, elliptic-ovate, 3.6–6 mm, abaxially strigose. Petals 5, obovate or broadly obovate, 5.5–8.5 × 3.7–7 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong or broadly oblong. Aggregate fruit subglobose, 3.5–4.5 mm in diam. Achene obliquely broadly obovate, ca. 2 × 1.6 mm, glabrous, narrowly marginate; style persistent, 0.2–0.3 mm. Fl. Jul–Aug.

•Grassy slopes, meadows, rocks, *Betula* forests; 1400–2500 m. S Jilin (Changbai Shan).

101. *Ranunculus grandifolius* C. A. Meyer in Ledebour, Fl. Altaic. 2: 330. 1830.

大叶毛茛 da ye mao gen

Herbs perennial. Rhizomes robust, ca. 2 cm. Stems 30–45 cm, spreading hispid below, strigose and branched above. Basal leaves 4–8; petiole 4–24 cm, spreading hispid or glabrous; blade 3-partite, reniform-pentagonal, 2–6.5 × 3.5–11 cm, papery, abaxially glabrous or sparsely strigose, base cordate, central lobe rhombic or broadly so, margin 3-lobed, incised-dentate, apex acute; lateral lobes obliquely flabellate, unequally 2-partite. Lower stem leaves similar to basal ones but petioles shorter, upper ones smaller, short petiolate or sessile, 3-sect, segments lobed or partite. Monochasium corymbose, 2–7-flowered; bracts leaflike. Flowers 2–2.7 cm in diam. Pedicel 1.5–6.5 cm, strigose. Receptacle glabrous. Sepals 5, elliptic-ovate, 5–6 mm, abaxially strigose. Petals 5, obovate or broadly obovate,

10–13 × 7–12 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, ca. 7 mm in diam. Achene flattened, obliquely obovate, ca. 3.5 × 2.5 mm, glabrous, narrowly marginate; style persistent, ca. 0.7 mm. Fl. May–Oct.

Grassy slopes, by streams; 1000–2000 m. Xinjiang [Kazakhstan, Russia (W Siberia)].

102. *Ranunculus submarginatus* Ovczinnikov, Fl. URSS. 7: 745. 1937.

棱边毛茛 leng bian mao gen

Herbs perennial. Roots fibrous, subequally thick. Stems (8–)18–25 cm, spreading puberulent or subglabrous below, appressed puberulent above, branched. Basal leaves ca. 4; petiole 5–8.5 cm, puberulent or subglabrous; blade 3-partite, pentagonal-cordate or reniform-cordate, 2–4.5 × 2.6–7.5 cm, papery, strigose, base broadly cordate or subtruncate, central lobe cuneate-rhombic, 3-lobed, lobules entire or incised; lateral lobes obliquely flabellate, unequally 2-lobed or 2-partite. Lower stem leaves similar to basal ones; upper stem leaves short petiolate or sessile, palmatisect, segments linear. Monochasium terminal, (1-or)2- or 3-flowered; bracts leaflike. Flowers 1.7–2 cm in diam. Pedicel 1–4 cm, puberulent. Receptacle densely pubescent. Sepals 5, ovate, ca. 5 mm, abaxially sparsely pubescent. Petals 5, broadly obovate or obovate, 9–10 × 5–9 mm, nectary pit covered by a scale, apex truncate-rounded or rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, 5–7 mm in diam.; carpels numerous. Achene bilaterally compressed, obliquely obovate, 2.8–3 × 2–2.5 mm, glabrous, narrowly marginate; style persistent, 0.7–1 mm. Fl. Aug. Grassy places in valley; ca. 1300 m. W and N Xinjiang [Russia (W Siberia)].

103. *Ranunculus grandis* Honda, Bot. Mag. (Tokyo) 43: 657. 1929.

大毛茛 da mao gen

Herbs perennial. Roots fibrous, subequally thick. Stolons elongated, 1.5–2 mm in diam. Stems 20–70 cm, hispid, branched above. Basal leaves ca. 5; petiole 6–22.5 cm, hispid; blade 3-partite, cordate, 3–8 × 4.8–14 cm, papery, strigose, base cordate, central lobe obtrapeziform-rhombic, acute, 3-lobed, few dentate; lateral lobes obliquely flabellate, unequally 2-lobed, incised-dentate. Stem leaves ca. 2, short petiolate or subsessile, 3-sect, segments incised-dentate. Compound monochasium terminal, ca. 4-flowered; bracts leaflike. Flowers 1–1.6 cm in diam. Pedicel ca. 2 cm, strigose. Receptacle glabrous. Sepals 5, ovate, 4–5.5 mm, abaxially densely strigose. Petals 5 or 6, obovate, 6–9 × 4–7 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit broadly ovoid, 5–6 mm in diam.; carpels numerous. Achene bilaterally compressed, obliquely broadly obovate, 2.2–3 × 1.8–2.5 mm, glabrous, narrowly

marginate; style persistent, ca. 0.4 mm. Fl. May–Sep, fr. Jun–Sep.

• Below 1700 m. Heilongjiang, Jilin.

1a. Stems spreading hispid below, strigose above; petioles of basal leaves spreading hispid 103a. var. *grandis*

1b. Stems and petioles of basal leaves strigose 103b. var. *manshuricus*

103a. *Ranunculus grandis* var. *grandis*

大毛茛(原变种) da mao gen (yuan bian zhong)

Ranunculus subcorymbosus Komarov subsp. *grandis* (Honda) Tamura; *R. subcorymbosus* subsp. *grandis* var. *ovczinnikovii* Tamura; *R. subcorymbosus* var. *grandis* (Honda) Kitagawa.

Stems spreading hispid below, strigose above. Basal leaves with petiole spreading hispid.

E Jilin (Hunchun Xian) [Japan].

103b. *Ranunculus grandis* var. *manshuricus* H. Hara, J. Jap. Bot. 19: 360. 1943.

帽儿山毛茛 mao er shan mao gen

Ranunculus subcorymbosus var. *manshuricus* (H. Hara) Kitagawa.

Stems and petioles of basal leaves strigose.

• Meadows, moist places in valleys; below 1700 m. S Heilongjiang (Acheng Xian, Shangzhi Xian).

104. *Ranunculus borealis* Trautvetter, Bull. Soc. Imp. Naturalistes Moscou 33: 72. 1860.

北毛茛 bei mao gen

Herbs perennial. Rhizomes short, inconspicuous. Stems ca. 58 cm, sparsely spreading hispid, branched. Basal leaf 1; petiole ca. 17 cm, sparsely spreading hispid; blade 3-partite to near base, reniform-pentagonal, ca. 3 × 5 cm, papery, appressed pubescent, base cordate, central lobe rhombic-obovate, 3-lobed, lobules unequally few dentate; lateral lobes obliquely flabellate, unequally 2-partite. Lowermost stem leaf similar to basal leaf, but short petiolate; upper ones 5-sect, segments linear. Monochasium ca. 2-flowered; bracts 3-sect. Flowers ca. 2 cm in diam. Pedicel 4.5–7 cm, appressed puberulent. Receptacle glabrous. Sepals 5, oblong, ca. 6 mm, abaxially appressed pubescent. Petals 5, obovate, ca. 10 × 8 mm, nectary pit covered by a scale, apex truncate-rounded. Stamens numerous; anthers broadly oblong. Aggregate fruit broadly ovoid, ca. 6 mm in diam. Achene obliquely obovate, ca. 2 × 1.8 mm, glabrous, narrowly marginate; style persistent, ca. 0.8 mm, recurved. Fl. Jun.

Meadows; ca. 1600 m. Xinjiang (Tian Shan) [Kazakhstan, Russia (Siberia); E Europe].

105. *Ranunculus kunmingensis* W. T. Wang, Bull. Bot. Res., Harbin 15: 309. 1995.

昆明毛茛 kun ming mao gen

Herbs perennial. Rhizomes short. Stems 20–45 cm, strigose or hispid, branched. Basal leaves 2–5; petiole 4–12.5 cm, strigose or hispid; blade 3-partite, pentagonal, 1.3–4 × 1.8–4.5 cm, papery, strigose, base truncate or

cordate-truncate, sometimes rounded or broadly cuneate, central lobe cuneate-obovate or cuneate, 3-lobulate, ultimate lobules ovate-triangular, 1- or 2-denticulate or entire; lateral lobes oblique flabellate-obovate, unequally 2-partite. Stem leaves smaller, short petiolate. Monochasium terminal, 2–5-flowered; bracts leaflike or linear. Flowers 1.3–1.8 cm in diam.

Pedicel 1.5–6.5 cm, strigose. Receptacle glabrous.

Sepals 5, elliptic, 3.5–4.5 mm, abaxially strigose. Petals 5, obovate, 7–10 × 4.5–6 mm, nectary pit covered by a scale, apex truncate-rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit subglobose, ca. 4 mm in diam. Achene obliquely broadly obovate, ca. 2 × 1.7 mm, glabrous, smooth, indistinctly narrow marginate; style persistent, triangular, ca. 0.2 mm.

• 1500–2700 m. W Guizhou, SW Sichuan, Yunnan.

1a. Stems and petiole strigose 105a. var. *kunmingensis*

1b. Stems and petiole spreading hispid 105b. var. *hispidus*

105a. *Ranunculus kunmingensis* var. *kunmingensis*

昆明毛茛(原变种) kun ming mao gen (yuan bian zhong)

Ranunculus kunmingensis f. *leipoensis* (L. Liou) W. T.

Wang; *R. laetus* Royle var. *leipoensis* L. Liou.

Stems and petiole strigose. Fl. Mar–Aug.

• Sparse forests, scrub, by streams; 1500–2600 m. SW Sichuan, Yunnan.

105b. *Ranunculus kunmingensis* var. *hispidus* W. T. Wang, Bull. Bot. Res., Harbin 15: 310. 1995.

展毛昆明毛茛 zhan mao kun ming mao gen

Stems and petiole spreading hispid. Fl. Jul–Oct.

• Slopes, forest margins; 1900–2700 m. W Guizhou, Yunnan.

106. *Ranunculus changpingensis* W. T. Wang, Acta Phytotax. Sin. 32: 475. 1994.

昌平毛茛 chang ping mao gen

Herbs perennial. Rhizomes short. Stems robust, ca. 70 cm, densely strigose, branched. Basal leaf 1; petiole ca. 17 cm, strigose; blade 3-partite, depressed pentagonal, ca. 8.8 × 10 cm, thinly leathery, strigose, base truncate or truncate-cuneate, central lobe narrowly cuneate, ca. 2 cm wide, margin 3-lobulate, denticulate distally, apex acute; lateral lobes obliquely broadly cuneate, unequally 2-partite, lobulate-dentate distally. Stem leaves ca. 8, smaller, short petiolate or sessile.

Compound monochasium terminal, ca. 20 cm, ca. 9-flowered; bracts leaflike or linear. Flowers ca. 1.4 cm in diam. Pedicel 1.5–8 cm, strigose. Receptacle glabrous.

Sepals 5, elliptic, ca. 6.5 mm, abaxially pilose. Petals 5, broadly obovate, ca. 13 × 8–10 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit globose, ca. 5 mm in diam. Achene obliquely broadly obovate, 2.2–2.5 × ca. 2 mm, glabrous; style persistent, triangular, 0.3–0.4 mm. Fl. and fr. Jul.

• By streams in fields. Beijing (Changping Xian).

107. *Ranunculus cuneifolius* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg, Sér. 3, 23: 306. 1877.

楔叶毛茛 *xie ye mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 12–60 cm, strigose, branched or simple. Basal leaves ca. 3; petiole 3.5–25 cm, strigose; blade 3-partite, broadly rhombic, 3–8 × 3–8 cm, papery, strigose, base broadly cuneate, central lobe linear to cuneate, margin 2–10-denticulate; lateral lobes linear or 1- or 2-denticulate or entire, or obliquely cuneate and unequally 2-cleft.

Lower stem leaves similar to basal ones, upper stem leaves subsessile. Monochasium terminal, 2- to several flowered; bracts leaflike. Flowers 1.2–2 cm in diam. Pedicel 2.4–6 cm, short strigose. Receptacle glabrous. Sepals 5, ovate, 5–6 mm, abaxially strigose. Petals 5, obovate, 6–11 × 4–9 mm, nectary pit covered by a scale, apex subtruncate or rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, ca. 5 mm in diam.; carpels numerous. Achene bilaterally compressed, obliquely broadly obovate, ca. 2.2 × 1.8 mm, glabrous, narrowly marginate; style persistent, ca. 0.3 mm. Fl. Jul–Sep.

• Below 1300 m. Heilongjiang, Liaoning, Nei Mongol.

- 1a. Central lobe of leaf linear or cuneate-linear, 0.4–1.2 cm wide, distally 2-denticulate; lateral lobes linear, 5–6 mm wide and 1- or 2-denticulate or entire, or oblique cuneate, 0.9–2.2 cm wide, unequally 2-cleft, lobules lanceolate-linear 107a. var. *cuneifolius*
- 1b. Central lobe of leaf cuneate, 1.5–2 cm wide, ca. 10-denticulate; lateral lobes oblique obovate, ca. 3 cm wide, unequally 2-cleft 107b. var. *latisectus*

107a. *Ranunculus cuneifolius* var. *cuneifolius*

楔叶毛茛(原变种) *xie ye mao gen* (yuan bian zhong)

Central lobe of leaf linear or cuneate-linear, 0.4–1.2 cm wide, distally 2-denticulate; lateral lobes linear, 5–6 mm wide and 1- or 2-denticulate or entire, or oblique cuneate, 0.9–2.2 cm wide, unequally 2-cleft, lobules lanceolate-linear.

• Meadows, moist places; below 1300 m. Heilongjiang, Liaoning, Nei Mongol.

107b. *Ranunculus cuneifolius* var. *latisectus* S. H. Li & Y. H. Huang, Fl. Pl. Herb. Chin. Bor.-Orient. 3: 230. 1975.

宽楔叶毛茛 *kuan xie ye mao gen*

Central lobe of leaf cuneate, 1.5–2 cm wide, ca. 10-denticulate; lateral lobes oblique obovate, ca. 3 cm wide, unequally 2-cleft.

• Moist places by streams. SW Liaoning (Huludao).

108. *Ranunculus trigonus* Handel-Mazzetti, Symb. Sin. 7: 304. 1931.

棱喙毛茛 *leng hui mao gen*

Herbs perennial. Roots fibrous, subequally thick. Stems 4.5–48 cm, spreading brownish pubescent, sometimes appressed pubescent above or strigose, usually branched. Basal leaves 3–6; petiole 1.4–18 cm, spreading pubescent or strigose; blade simple, rarely ternate, 3-partite or 3-sect, pentagonal or broadly ovate, 1.2–4.5(–5) × 1.5–4.6(–6) cm, papery, strigose, base subtruncate or cordate-truncate, central segment rhombic-cuneate or rhombic-obovate, 3-lobed, incised-dentate; lateral lobes rhombic-cuneate or rhombic-obovate, 3-lobed, incised-dentate; lateral segments oblique rhombic or oblique flabellate, unequally 2-cleft; central leaflet of ternate leaves broadly rhombic, 3-partite, petiolulate; lateral leaflets unequally 2-partite, petiolulate. Lower stem leaves similar to basal ones; upper stem leaves 3-sect. Monochasium terminal, 2- or 3-flowered; bracts leaflike. Flowers 0.6–1(–1.5) cm in diam. Pedicel 0.5–6 cm, densely appressed puberulent. Receptacle puberulent. Sepals 5, ovate or oblong, 4–5 mm, abaxially pubescent. Petals (3–)5, oblong or obovate-oblong, 3.2–6(–8) × 1.6–4 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, 4.5–7 mm in diam.; carpels numerous. Achene flat, obliquely broadly obovate, 2–3.5 × 1.8–2.8 mm, glabrous, narrowly marginate; style persistent, 0.5–0.8 mm. Fl. Mar–Sep.

• 1300–3300 m. SW Sichuan, SE Xizang, Yunnan.

The authors have seen no material of *Ranunculus shuichengensis* L. Liao (Acta Phytotax. Sin. 35: 57. 1997), described from Guizhou, but the protologue suggested that it is very closely related to *R. trigonus*. It was distinguished by the more broadly obovate petals, 5–6 × 4–5 mm, more compressed, narrowly marginate, suborbicular achenes, and the crenate-serrate leaf margins.

- 1a. Stems spreading pubescent, sometimes appressed pubescent above; petiole spreading pubescent; petals 3.2–6 mm 108a. var. *trigonus*
- 1b. Stems and petiole densely strigose; petals 7–8 mm 108b. var. *strigosus*

108a. *Ranunculus trigonus* var. *trigonus*

棱喙毛茛(原变种) *leng hui mao gen* (yuan bian zhong)

Stems spreading pubescent, sometimes appressed pubescent above. Petiole spreading pubescent. Petals 3.2–6 mm.

• Grassy slopes, meadows, woods, by streams or lakes; 1300–3300 m. SW Sichuan, SE Xizang (Zayü Xian), Yunnan.

108b. *Ranunculus trigonus* var. *strigosus* W. T. Wang, Bull. Bot. Res., Harbin 16: 164. 1996.

伏毛棱喙毛茛 *fu mao leng hui mao gen*

Stems and petioles densely strigose. Petals 7–8 mm.

• Scrub; ca. 1700 m. SW Yunnan (Gengma Xian).

109. *Ranunculus meyerianus* Ruprecht, Fl. Cauc. 1: 25. 1869.

短喙毛茛 *duan hui mao gen*

Ranunculus pseudoparviflorus H. Léveillé.

Herbs perennial. Stems 25–70 cm, retrorse hispid below, strigose above, branched. Basal leaves ca. 4; petiole 10–23 cm, retrorse hispid or subglabrous; blade 3-sect, reniform-pentagonal, 3–8 × 5–10 cm, papery, strigose, base cordate, central segment rhombic, 3-partite, rarely 3-lobed; lobes 2 × dissected, ultimate lobules linear-lanceolate or ovate; lateral segments obliquely flabellate, unequally 2-partite, lobes 2 or 3 × dissected. Stem leaves 2 or 3, shortly petiolate or sessile, palmatisect; segments dissected or undivided, linear. Monochasium 2–5-flowered. Flowers 1.9–2.6 cm in diam. Pedicel 1–4 cm, strigose. Receptacle puberulent. Sepals 5, ovate, 5–7 mm, abaxially villous. Petals 5, broadly obovate, 9–13 × 9–12 mm, nectary pit covered by a scale, apex rounded-truncate. Stamens numerous; anthers oblong. Aggregate fruit subglobose, 6–7 mm in diam. Achene elliptic, 2–3 × 1.5–2.8 mm, glabrous; style persistent, triangular, 0.8–1 mm, straight or slightly curved at apex. Fl. and fr. Jul.

Forests; ca. 1500 m. N Xinjiang [Kazakhstan; SW Asia, E Europe].

110. *Ranunculus polyanthemus* Linnaeus, Sp. Pl. 1: 554. 1753.

多花毛茛 *duo hua mao gen*

Herbs perennial. Stems 20–65 cm, hispid or subglabrous, branched. Basal leaves ca. 5; petiole 7–14 cm; blade 3-sect, reniform-pentagonal, 3–6 × 4–9 cm, papery, strigose, base cordate, central segment rhombic, 3-partite, lobes 1 or 2 × lobed or partite, ultimate lobules oblique ovate or linear; lateral segments oblique flabellate, unequally 2-partite. Stem leaves shortly petiolate or sessile, 3-sect. Monochasium 3- or 4-flowered. Flowers ca. 1.8 cm. Pedicel 3–8 cm, sparsely strigose. Receptacle puberulent. Sepals 5, ovate, ca. 7 mm, abaxially villous. Petals 5, obovate, ca. 10 × 7 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit subglobose, ca. 7 mm in diam. Achene obliquely obovate, ca. 3 × 2 mm, glabrous, narrowly marginate; style persistent, triangular, ca. 1 mm, hooked at apex. Fl. and fr. Aug.

By streams, swamps. NW Xinjiang [Kazakhstan, Russia (Siberia); Europe].

111. *Ranunculus sinovaginatus* W. T. Wang, Bull. Bot. Res., Harbin 6(1): 34. 1986.

褐鞘毛茛 *he qiao mao gen*

Ranunculus vaginatus Handel-Mazzetti, Symb. Sin. 7: 303. 1931, not Sommerauer (1833).

Herbs perennial. Roots fibrous, subequally thick. Stems ascending or erect, 2–28 cm, appressed or spreading hispid, strigose above, branched or simple. Basal leaves ternate; petiole 3–9.5 cm, spreading or appressed hispid; blade pentagonal or broadly ovate, 1–4 × 1.4–7.6 cm, papery, strigose, central leaflet petiolulate, less often sessile, rhombic or broadly so, margin 3-lobed or 3-partite, few dentate, apex acute; lateral leaflets obliquely flabellate, unequally 2-partite. Stem leaves similar to basal ones, with shorter petioles. Flowers solitary, terminal, 1.1–1.5 cm in diam. Receptacle sparsely pilose. Sepals 5, reflexed, narrowly ovate, 4–6 mm, abaxially strigose. Petals 5, narrowly obovate or narrowly elliptic, 6.5–11 × 3–4.2 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers broadly oblong. Aggregate fruit subglobose, 5–6 mm in diam.; carpels 10–17. Achene flat, obliquely broadly obovate, 2.2–3 × 2–3.3 mm, glabrous, narrowly marginate; style persistent, 1.7–2 mm. Fl. Apr–Sep.

• Grassy places, forests, by streams; 1500–3200 m. S Gansu, S Shaanxi, W Sichuan, NW Yunnan.

112. *Ranunculus diffusus* de Candolle, Prodr. 1: 38. 1824.
铺散毛茛 *pu san mao gen*

Ranunculus diffusus f. *mollis* Wallich.

Herbs perennial. Roots fibrous, subequally thick. Stems ascending or prostrate, 10–40 cm, spreading pubescent, branched, rooting at lower nodes. Basal leaves 1–3; petiole 4–9 cm, spreading pubescent; blade simple or ternate, 3-partite or 3-sect, simple leaf pentagonal, 1.4–2.6 × 2–4 cm, papery, appressed puberulent, base cordate, central segment rhombic-obovate or cuneate-obovate, irregularly dentate; lateral segments obliquely flabellate, unequally 2-lobed; ternate leaves with blade 2.8–4.5 × 3–5.5 cm, petiolules short; central leaflet ovate, 3-lobed; lateral leaflets unequally 2-lobed. Lower stem leaves similar to basal ones, upper stem leaves with shorter petioles. Flowers leaf-opposed, 0.8–1.5 cm in diam. Pedicel 1–5.5 cm, puberulent. Receptacle puberulent. Sepals 5, elliptic-ovate, 4–6 mm, abaxially puberulent. Petals 5 (or 6), narrowly obovate or oblong-obovate, 5–7 × 2–4 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong or ellipsoid. Aggregate fruit subglobose, 4–9 mm in diam.; carpels numerous. Achene flat, broadly elliptic or obovate, 2.5–3 × 1.8–2 mm, glabrous, punctate, narrowly marginate; style persistent, ca. 0.8 mm. Fl. Mar–Jun.

Grassy places, rocks, by streams; 1100–3100 m. S Xizang, W and N Yunnan [Afghanistan, Bhutan, N India, N Myanmar, Nepal, N Pakistan, Sikkim].

113. *Ranunculus sieboldii* Miquel, Ann. Mus. Bot. Lugduno-Batavi 3: 5. 1876.

扬子毛茛 yang zi mao gen

Ranunculus arcuans S. S. Chien; *R. cantoniensis* de Candolle var. *sieboldii* (Miquel) Kitamura ex Hatusima; *R. pensylvanicus* Linnaeus var. *sieboldii* (Miquel) Ito; *R. sardous* Crantz var. *monanthos* Finet & Gagnepain; *R. sieboldii* var. *arcuans* (S. S. Chien) H. Hara.

Herbs perennial. Roots fibrous, subequally thick. Stems ascending or subprostrate, 8–50 cm, hirsute, branched, rarely simple, rooting at lower nodes. Basal leaves 3–7; petiole 2.5–14 cm, hirsute; blade ternate, ovate in outline, 1.5–5.4 × 2.6–7 cm, papery, strigose; central leaflet petiolulate, broadly rhombic or broadly rhombic-ovate, margin 3-cleft to middle, few dentate; lateral leaflets petiolulate, obliquely broadly obovate, unequally 2-lobed or 2-partite. Stem leaves similar to basal ones, with shorter petioles. Flowers leaf-opposed, 0.9–1.8 cm in diam. Pedicel 0.7–4.6 cm, densely strigose. Receptacle puberulent. Sepals 5, reflexed, narrowly ovate, 4–6 mm, abaxially strigose. Petals 5, narrowly obovate or long elliptic, 5–9 × 2.5–4 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, 8–10 mm in diam.; carpels numerous. Achene flat, obliquely obovate, 3–4 × 2.2–3 mm, glabrous, broadly marginate; style persistent, ca. 1 mm, curved at apex. Fl. Mar–Oct.

Grassy places, scrub, by rivers; 50–2500 m. S Anhui, Fujian, S Gansu, W and N Guangxi, Guizhou, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, N Shandong, Sichuan, Taiwan, NE Yunnan, Zhejiang [Japan].

Ranunculus taiwanensis Y. C. Liu & F. Y. Lu (Quart. J. Chin. Forest. 11 (3): 108. 1978), is known only from the type, which could not be located. The protologue, particularly the description of 4 mm long achenes, suggests a relationship to *R. sieboldii*. However, the leaves of *R. taiwanensis* are more divided, and Michio Tamura (pers. comm.) believes that it is a distinct species.

114. *Ranunculus cantoniensis* de Candolle, Prodr. 1: 43. 1824.

禺毛茛 yu mao gen

Hecatonia pilosa Loureiro, Fl. Cochinch. 1: 303. 1790, not *Ranunculus pilosus* Humboldt (1821); *R. brachyrhynchus* S. S. Chien.

Herbs perennial. Roots fibrous, subequally thick. Stems 20–65 cm, hirsute, branched. Basal and lower stem leaves with petiole 4.5–20 cm, hirsute; blade ternate, broadly ovate in outline, 3–14 × 3.8–17 cm, thinly papery, sparsely strigose; leaflets petiolulate; central leaflet rhombic-ovate or broadly ovate, broadly cuneate or rounded-base truncate, margin 3-partite, denticulate; lateral leaflets obliquely broadly ovate, unequally 2-sect or 2-partite. Upper stem leaves smaller, shortly petiolate. Compound monochasium terminal, corymbose, 4–10-flowered; bracts leaflike. Flowers 0.9–1.3 cm in diam. Pedicel 1–4 cm, strigose. Receptacle hirtellous. Sepals 5, reflexed, narrowly ovate, 3–4 mm, strigose. Petals 5, narrowly elliptic or

obovate, 4–7.5 × 2–3.8 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, 7–9 mm in diam.; carpels numerous. Achene flat, obliquely obovate, 2.5–3 × 2.2–3 mm, glabrous, narrowly marginate; style persistent, triangular, ca. 1 mm, straight or uncinat at apex. Fl. Mar–Sep, fr. Apr–Nov.

By streams, grassy slopes, forest margins; 100–1700 m. S and W Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, W Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, SE Yunnan, Zhejiang [Bhutan, Japan, S Korea, Nepal].

Material of this species has been incorrectly named as *Ranunculus fibrosus* Wallich. There has also been confusion with *R. chinensis*, which was treated as a synonym of *R. cantoniensis* in Fl. Pakistan.

115. *Ranunculus silerifolius* H. Léveillé, Repert. Spec. Nov. Regni Veg. 7: 257. 1909.

钩柱毛茛 gou zhu mao gen

Herbs perennial. Roots subequally thick. Stems 28–95 cm, hirsute below, strigose above, branched. Basal and lower stem leaves with petiole 7–30 cm, hirsute; blade ternate, occasionally biternate, or 3-partite, pentagonal in outline, 2.6–5 × 2.6–7 cm, papery, strigose, base cordate, leaflets petiolulate; central leaflet rhombic-ovate or ovate, base broadly cuneate or rounded, margin 3-partite or 3-lobed, denticulate; lateral leaflets obliquely broadly ovate, unequally 2- or 3-cleft. Upper stem leaves smaller, shortly petiolate. Compound monochasium terminal, 4- to many flowered; bracts leaflike. Flowers ca. 0.9 cm in diam. Pedicel 0.5–3 cm, strigose. Receptacle hirtellous. Sepals 5, reflexed, elliptic-ovate, 3.5–4 mm, abaxially strigose. Petals 5, obovate, 4–10 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, 5–8 mm in diam.; carpels numerous. Achene flat, obliquely obovate, 2–2.8 × 1.8–2 mm, glabrous, narrowly marginate; style persistent, narrowly triangular or subulate, 0.7–1.2 mm, hooked at apex. Fl. Apr–Oct, fr. Apr–Nov.

By streams, forests, grassy slopes; 100–2500 m. Fujian, N Guangdong, N and E Guangxi, Guizhou, SW Hubei, Hunan, S Jiangxi, W and SE Sichuan, Taiwan, S and E Yunnan [Bhutan, NE India, Indonesia, Japan, Korea].

1a. Basal leaf blades ternate to biternate.

Petals 4–5 mm. 115a. var. *silerifolius*

1b. Basal leaf blades 3-partite. Petals

6–10 mm 115b. var. *dolichanthus*

115a. *Ranunculus silerifolius* var. *silerifolius*

钩柱毛茛(原变种) gou zhu mao gen (yuan bian zhong)

Ranunculus ternatus Thunberg var. *hirsutus* H.

Boissieu.

Roots fibrous. Basal leaf blades ternate to biternate.

Petals 4–5 × ca. 2 mm. Fl. Apr–Oct, fr. Apr–Nov.

By streams, forests, grassy slopes; 100–2500 m. Fujian, N Guangdong, N and E Guangxi, Guizhou, SW Hubei, Hunan, S Jiangxi, W and SE Sichuan, Taiwan, S and E Yunnan [Bhutan, NE India, Indonesia, Japan, Korea].

115b. *Ranunculus silerifolius* var. *dolichanthus* L. Liao, Acta Phytotax. Sin. 35: 59. 1997.

长花毛茛 chang hua mao gen

Roots thickened. Basal leaf blades 3-partite. Petals 6–10 mm. Fl. May

• Grassy slopes near cultivation; 1200–1300 m. Guizhou.

The authors have seen no material of this variety.

116. *Ranunculus tachiroei* Franchet & Savatier, Enum. Pl. Jap. 2: 267. 1876.

长嘴毛茛 chang zui mao gen

Ranunculus cantoniensis de Candolle subsp. *tachiroei* (Franchet & Savatier) Kitamura.

Herbs perennial. Roots fibrous, subequally thick. Stems 70–80 cm, spreading hispid below, strigose and branched above. Basal and lower stem leaves with petiole 7–18 cm, spreading hispid; blade biternate, ca. 12 × 16 cm, papery, strigose; central leaflet petiolulate, broadly rhombic, ca. 5 × 4.5 cm, 3-partite, tertiary lobes cuneate, 2- or 3-lobed and few denticulate; lateral leaflets subsessile, smaller, oblique. Upper stem leaves shortly petiolate, ternate or simple, 3-sect. Compound monochasium terminal, corymbose, lax flowered; bracts 3-sect, segments lanceolate-linear. Flowers 1.1–1.3(–1.8) cm in diam. Pedicel 1.1–1.2 cm, strigose. Receptacle hirtellous. Sepals 5, reflexed, broadly ovate, ca. 4 mm, abaxially strigose. Petals 5(or 6), oblong or obovate, 5–7(–9) × 2–5(–6.2) mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit subglobose, 8–9 mm in diam.; carpels numerous. Achene bilaterally compressed, obliquely broadly obovate, ca. 3 × 2.6 mm, glabrous, narrowly marginate; style persistent, 1.2–1.6 mm. Fl. Jul.

Moist grassy places. E Jilin, SE Liaoning [Japan, Korea].

117. *Ranunculus repens* Linnaeus, Sp. Pl. 1: 554. 1753.

匍枝毛茛 fu zhi mao gen

Ranunculus repens var. *brevistylus* Maximowicz; *R. repens* f. *polypetalus* S. H. Li & Y. H. Huang.

Herbs perennial. Stolons present. Stems ascending or suberect, 10–60 cm, subglabrous or sparsely puberulent, branched above. Basal leaves with petiole 7–20 cm; blade ternate, 3-partite, rarely 3-sect, central leaflet broadly rhombic, 2–4.2 × 1.8–3.8 cm, glabrous or adaxially appressed puberulent, base broadly cuneate, secondary lobes lobed or more deeply divided; lateral leaflets oblique, unequally 2- or 3-lobed or -partite. Stem leaves similar to basal ones, smaller and shortly petiolate upward. Monochasium terminal, 2- to several flowered; bracts 3-sect or undivided, lanceolate-linear. Flowers 1.5–2.2 cm in diam. Pedicel 1–8 cm, appressed puberulent. Receptacle puberulent. Sepals 5, elliptic-ovate, 5–7 mm, abaxially appressed pubescent or subglabrous. Petals 5 (7–22 in f. *polypetalus*), obovate, 7–10 × 5–7 mm, nectary pit covered by a scale, apex rounded or rounded-truncate. Stamens numerous; anthers oblong. Aggregate fruit ovoid, 5–7 mm in diam.;

carpels numerous. Achene bilaterally compressed, obliquely obovate, 2.2–3 × 1.8–2.1 mm, glabrous, narrowly marginate; style persistent, 0.5–0.8 mm. Fl. Apr–Aug, fr. May–Aug.

Meadows, moist places, by streams; 300–3300 m. Heilongjiang, Jilin, Liaoning, Nei Mongol, Shanxi, Xinjiang, NW Yunnan [Japan, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia (Siberia); Europe, North America].

118. *Ranunculus chinensis* Bunge, Enum. Pl. China Bor. 3. 1833.

茴茴蒜 hui hui suan

Ranunculus pensylvanicus Linnaeus var. *chinensis* (Bunge) Maximowicz.

Herbs perennial or annual. Roots fibrous, subequally thick. Stems 10–50 cm, densely hispid, simple or branched. Basal leaves several; petiole 4–20 cm, hispid; blade ternate, ovate in outline, 4–8 × 4–10.5 cm, papery, strigose; central leaflet stalked, rhombic or broadly rhombic, 3-partite, secondary lobes rhombic-cuneate, 2- or 3-lobed; lateral leaflets smaller, shortly stalked, oblique flabellate, unequally 2-partite. Lower stem leaves similar to basal ones, upper stem leaves smaller, shortly petiolate, 3-sect. Compound monochasium terminal, 3- to several flowered; bracts leaflike. Flowers 0.7–1.2 cm in diam. Pedicel 0.5–2 cm, strigose. Receptacle densely puberulent. Sepals 5, reflexed, elliptic-ovate, 3–5 mm, abaxially strigose. Petals 5, obovate or ovate, 5–6 × 2.8–3 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers oblong. Aggregate fruit ovoid-cylindric or ovoid, 6–10 × 4–6 mm; carpels numerous. Achene bilaterally compressed, obliquely obovate, 2–2.5 × 1.6–2 mm, glabrous, narrowly marginate; style persistent, ca. 0.2 mm. Fl. Apr–Sep.

By streams and rivers, wet grassy places, grassy slopes, meadows; below 3000 m. Anhui, Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jilin, Liaoning, Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shandong, Shanxi, W Sichuan, Xinjiang, E Xizang, Yunnan, E Zhejiang [Bhutan, N India, Japan, Kazakhstan, Korea, Mongolia, N Pakistan, Russia (Siberia), Thailand]. Chinese material named as *Ranunculus pensylvanicus* Linnaeus belongs here.

119. *Ranunculus sardous* Crantz, Stirp. Austr. Fasc. 2: 84. 1763.

欧毛茛 ou mao gen

Herbs annual. Stems ca. 40 cm, strigose, branched. Basal leaves ca. 6; petiole 6–7 cm; blade mostly ternate, ovate or broadly ovate, 1.8–2.6 × 1.6–2.9 cm, papery; central leaflet subpentagonal, petiolule 1–8 mm, base broadly cuneate, margin 3-partite, incised-lobulate; lateral leaflets smaller, subsessile or shortly petiolulate, oblique, unequally 3-cleft, simple, 3-lobed, to nearly 3-sect. Stem leaves long or shortly petiolate, ternate or 3-sect. Compound monochasium 2–5-

flowered. Flowers ca. 1.8 cm in diam. Pedicel 1.5–4.5 cm, strigose. Receptacle pubescent. Sepals 5, narrowly ovate, ca. 6 mm, abaxially hispid. Petals 5, obovate, ca. 10 × 7 mm, nectary pit covered by a scale, apex rounded. Stamens numerous. Aggregate fruit ovoid, ca. 7 × 6 mm. Achene complanate, orbicular-obovate, ca. 2.5 × 2 mm, glabrous, verrucose along margin, narrowly marginate; style persistent, ca. 0.5 mm. Fl. May.

Recently naturalized in waste places. Shanghai [native to Europe].

120. *Ranunculus trachycarpus* Fischer & C. A. Meyer, Index Seminum (St Petersburg) 3: 46. 1836.

疣果毛茛 *you guo mao gen*

Herbs annual. Stems ca. 25 cm, sparsely hispid below, strigose above. Basal leaves ca. 6; petiole 6–12 cm, sparsely hispid; blade ternate, ovate in outline, 2.2–5 × 1.8–5 cm, papery, sparsely strigose or glabrescent; central leaflet long petiolulate, pentagonal-ovate, 3-partite, lobe margin incised-dentate, central lobe broadly rhombic-obovate, lateral lobes oblique obovate; lateral leaflets smaller, shortly petiolulate. Stem leaves petiolate or subsessile, ternate. Monochasium 1–4-flowered; bracts 3-sect. Flowers ca. 1.6 cm in diam. Pedicel 1.5–4.5 cm, strigose. Receptacle puberulent. Sepals 5, ovate, ca. 6 mm, abaxially sparsely strigose. Petals 5, obovate, ca. 8 × 7 mm, nectary pit covered by a scale, apex rounded. Stamens numerous. Aggregate fruit cylindrical, ca. 8 × 5 mm. Achene complanate, broadly obovate or orbicular-obovate, 2.2–2.5 × ca. 2 mm, glabrous, verrucose, narrowly marginate; style persistent, ca. 0.1 mm. Fl. Apr.

Naturalized on grassy slopes. C Hunan (Shaoyang Xian) [native to SE Europe and W Asia].

121. *Ranunculus muricatus* Linnaeus, Sp. Pl. 1: 555. 1753.

刺果毛茛 *ci guo mao gen*

Herbs annual. Stems 5–28 cm, glabrous, branched. Basal leaves 6–9; petiole 3.4–12 cm, subglabrous; blade 3-lobed, broadly ovate or orbicular-ovate, 1.6–5.5 × 1.8–4.2 cm, papery, glabrous, base subtruncate or truncate-cuneate; central lobe rhombic-obtrapeziform, 3-lobed or few dentate; lateral lobes obliquely ovate, unequally 2-lobed, incised-dentate. Lower stem leaves similar to basal leaves; upper ones shortly petiolate, broadly ovate. Flowers solitary, leaf-opposed, 1–1.6 cm in diam. Pedicel 1–3 cm, glabrous or pilose. Receptacle pilose. Sepals 5, narrowly ovate, 5–6 mm, abaxially sparsely pilose. Petals 5, narrowly obovate, 3–8 × 2.5–4 mm, nectary pit covered by a scale, apex rounded. Stamens numerous. Aggregate fruit subglobose, ca. 1.2 cm in diam. Achene complanate, elliptic or obovate, 4–5 × ca. 3 mm, glabrous, narrowly marginate, spiny, spines 0.5–1 mm; style persistent, ca. 2 mm. Fl. Mar–Apr.

Naturalized in grassy places, paddy fields, yards. Anhui, S Jiangsu, Zhejiang [native to W Asia and Europe].

122. *Ranunculus arvensis* Linnaeus, Sp. Pl. 1: 555. 1753.

田野毛茛 *tian ye mao gen*

Herbs annual. Stems ca. 30 cm, sparsely appressed puberulent, branched. Basal leaves 3–5; petiole 1.6–6 cm, sparsely puberulent; blade 3-lobed, 3-partite, or 3-sect, obovate or broadly rhombic, 1.5–3.5 × 1.5–4 cm, papery, sparsely appressed puberulent, base cuneate or broadly cuneate, lobes narrowly cuneate, 2- or 3-dentate at apex. Stem leaves petiolate or sessile, 1- or 2-ternate, ultimate lobes narrowly cuneate or linear-lanceolate. Flowers leaf-opposed, ca. 1 cm in diam.

Pedicel 2–4 cm, appressed puberulent. Receptacle puberulent. Sepals 5, narrowly ovate, ca. 5 mm, abaxially appressed puberulent. Petals 5, obovate, ca. 5 × 3.8 mm, nectary pit covered by a scale, apex rounded. Stamens numerous. Aggregate fruit subglobose, ca. 1.2 cm in diam. Achene complanate, elliptic, ca. 5 × 3.5 mm, glabrous, spiny, spines up to 2 mm; style persistent, ca. 2.6 mm. Fl. Apr–May.

Naturalized in sandy places along roads. Anhui, Hubei [native to W Asia and Europe].

123. *Ranunculus platyspermus* Fischer, Prodr. 1: 37. 1824.

宽翅毛茛 *kuan chi mao gen*

Herbs perennial. Roots fibrous and tuberous. Stems 19–25 cm, puberulent, branched. Basal leaves 5; petiole 2–3 cm, puberulent; blade pinnate, subrhombic in outline, 2.5–4 × 2.5–4 cm, papery, abaxially sparsely appressed puberulent, adaxially subglabrous; pinnae 3 pairs, 1 or 2 × dissected, ultimate lobes lanceolate or linear. Stem leaves smaller, shortly petiolate or sessile, 3-sect, segments dissected or undivided and linear. Inflorescence terminal, 3–5-flowered. Flowers ca. 1.5 cm in diam. Pedicel 1.5–4.5 cm, sparsely puberulent. Receptacle glabrous. Sepals 5, ovate, ca. 5 mm, abaxially puberulent. Petals 5, obovate, 7–8 × 4.5–6 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers narrowly oblong. Aggregate fruit ovoid, ca. 6 × 7 mm. Achene orbicular-ovate, 3–3.2 × 3.2–3.8 mm, glabrous; style persistent, triangular, ca. 0.5 mm, slightly curved at apex. Fl. and fr. Apr.

Meadows; ca. 700 m. W Xinjiang [Kazakhstan, Russia (W Siberia)]. *Ranunculus gobicus* Maximowicz (Enum. Pl. Mong. 15. 1889), was described from W Mongolia and might occur within Xinjiang. It is close to *R. platyspermus*, but differs by the 3-partite leaf blade with shallowly lobed lobes.

124. *Ranunculus regelianus* Ovczinnikov, Bjull. Moskovsk. Obsc. Isp. Prir., Otd. Biol. 44: 269. 1935.

扁果毛茛 *bian guo mao gen*

Herbs perennial. Roots fibrous and tuberous. Stems 13–22 cm, puberulent, simple or 1- or 2-branched above. Basal leaves 4–6; petiole 2–4 cm, puberulent; blade pinnate, broadly ovate or rhombic in outline, 1.5–5 × 0.8–3.8 cm, papery, sparsely puberulent; pinnae 3 pairs, lower ones petiolulate, 1–3 × dissected, ultimate lobes narrowly lanceolate or linear. Stem leaves 1 or 2, shortly petiolate or sessile, 3-sect, lobes linear, entire. Flowers terminal, solitary, 1.6–2.5 cm in diam.

Receptacle glabrous. Sepals 5, ovate, 5–7 mm, abaxially pubescent. Petals 5, obovate, 8–15 × 6–10 mm, nectary pit covered by a scale, apex rounded. Stamens numerous; anthers narrowly oblong. Carpels numerous, ca. 1.2 mm, glabrous; style persistent, ca. 0.5 mm, hooked. Fl. Apr–May.

Meadows, river banks; 700–1100 m. NW Xinjiang [Kazakhstan].

125. *Ranunculus angustisepalus* W. T. Wang, Bull. Bot. Res., Harbin 15: 320. 1995.

狭萼毛茛 xia e mao gen

Small perennial herb. Stems 1 or 2, ca. 10 cm, mostly glabrous, sparsely puberulent below flower, simple.

Basal leaves ca. 7; petiole 2–5 cm, glabrous; blade 3-lobed, pentagonal, 6–9 × 8–13 mm, papery, glabrous,

base truncate-cordate; central lobe low obtuse-trapeziform, 3-dentate; lateral lobes unequally 3- or 4-dentate or 3-lobulate. Stem leaves 1 or 2, linear, ca. 7 mm, entire, glabrous. Flowers solitary, terminal, ca. 1.2 cm in diam. Receptacle glabrous. Sepals 4, navicular-linear or oblong, ca. 5 mm, glabrous, abaxially saccate-appendiculate at base. Petals 5, oblanceolate, ca. 6 × 0.3 mm, nectary pit without a scale. Androgynophore present, ca. 0.6 mm, glabrous. Stamens ca. 4; anthers elliptic. Carpels numerous; ovary 0.8 mm, glabrous; style ca. 0.3 mm. Fl. Aug.

• Grassy slopes; ca. 3600 m. SE Xizang (Bomi Xian).

35. *BATRACHIUM* (de Candolle) Gray, Nat. Arr. Brit. Pl. 2: 720. 1821.

水毛茛属 shui mao gen shu

Wang Wencai (王文采 Wang Wen-tsai); Michio Tamura

Ranunculus sect. *Batrachium* de Candolle, Syst. Nat. 1: 233. 1817.

Herbs perennial or annual, aquatic or semiterrestrial, with stems and leaves often submersed. Leaves alternate, subsessile to long petiolate, leaf blade usually submersed, 2–5 × dissected, ultimate segments filiform or narrowly linear, sometimes floating and then blade 3-lobed, not finely dissected. Inflorescence a solitary, leaf-opposed flower. Flowers bisexual, actinomorphic. Receptacle conical or subulate. Sepals (4 or)5, caducous. Petals (4 or)5, usually white, with yellow base, rarely entirely yellow, obovate, base shortly clawed, with a nectary pit above claw, apex rounded. Stamens few or numerous; anthers latrorse. Carpels numerous; ovule 1 per carpel. Style with adaxial stigmatic surface. Aggregate fruit ovoid or globose; achenes obovoid, slightly bilaterally compressed, transversely rugose.

About 20 species: S Africa, Asia, SE Australia, Europe, North and South America; eight species (one endemic) in China.

The separation of *Batrachium* from *Ranunculus* is not clear-cut and many botanists prefer to include the former genus within the latter. All species are aquatic or grow on wet mud.

- 1a. Leaves dimorphic: submerged leaves 3–4 × sect with filiform segments, floating leaves ca. 2 × sect with linear-lanceolate segments 1. *B. pekinense*
- 1b. Leaves all similar, usually submerged, with filiform segments.
 - 2a. Receptacle glabrous 2. *B. kauffmanii*
 - 2b. Receptacle puberulent.
 - 3a. Receptacle subulate in fruit 8. *B. rionii*
 - 3b. Receptacle conical in fruit.
 - 4a. Ultimate leaf segments soft, collapsing out of water 4. *B. bungei*
 - 4b. Ultimate leaf segments rigid, ± divaricate out of water.
 - 5a. Leaf blade orbicular in outline 7. *B. foeniculaceum*
 - 5b. Leaf blade flabellate or semiorbicular in outline.
 - 6a. Herbs terrestrial or growing in shallow water, not submersed, ± erect; stems 1.5–14 cm 6. *B. eradicatum*
 - 6b. Herbs submerged; stems up to 40 cm.
 - 7a. Stem and petiole sheath glabrous 3. *B. divaricatum*
 - 7b. Stem usually sparsely puberulent; petiole sheath abaxially strigose 5. *B. trichophyllum*

1. *Batrachium pekinense* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 363. 1980.

北京水毛茛 bei jing shui mao gen

Ranunculus pekinensis (L. Liou) Lufarov.

Herbs perennial, submersed. Stems 30 cm or more, branched, glabrous or sparsely puberulent on nodes.

Petiole 3.5–14 mm, glabrous or sheath abaxially sparsely puberulent, base narrowly vaginate; leaf

blades dimorphic: submerged blades finely 3 or 4 × divided with filiform segments; floating leaves flabellate or broadly cuneate, 1–3 × 1.2–3.5 cm, glabrous, 3-partite or 3-sect, segments 1–3(–4) × partite, ultimate lobules lanceolate-linear. Flower 1–1.3 cm in diam. Pedicel 2–4 cm, glabrous. Receptacle conical in flower and fruit, puberulent. Sepals 5, ovate-elliptic, 3.5–4 mm, glabrous. Petals 5, white with yellow base, obovate, 5–6.5 × 3–5 mm, apex rounded. Stamens 22–

25; anthers oblong, ca. 1 mm. Aggregate fruit broadly ovoid, 3–4 × 4–5 mm; achenes obliquely obovoid, 1–1.2 × ca. 0.8 mm, with 7 transverse wrinkles. Persistent style ca. 0.1 mm. Fl. May–Aug, fr. Jul–Sep.

• Streams in valleys; 100–500 m. Beijing.

2. *Batrachium kauffmannii* (Clerc) Kreczetowicz, Fl. URSS. 7: 343. 1937.

长叶水毛茛 *chang ye shui mao gen*

Ranunculus kauffmannii Clerc, Zap. Ural'sk. Obshch.

Lyubit. Estestv. 4: 107. 1878.

Herbs perennial, submersed. Stems ca. 25 cm, branched, glabrous. Petiole 5–12 mm, glabrous, base broadly vaginate; leaf blade flabellate in outline, 3–6 × 3–7 cm, glabrous, 3-sect; segment 3–4 × sect; ultimate lobules filiform, soft, collapsing out of water. Flower 0.8–1 cm in diam. Pedicel 2–9 cm, glabrous. Receptacle conical in flower and fruit, glabrous. Sepals 5, elliptic, ca. 3 mm, glabrous. Petals 5, white with yellow base, apex rounded. Stamens ca. 11; anthers oblong, ca. 0.8 mm. Aggregate fruit subglobose, ca. 4 mm in diam.; achenes obliquely narrowly obovoid, ca. 1.5 × 1 mm, glabrous, with 6 or 7 transverse wrinkles. Persistent style ca. 0.1 mm. Fl. Jun–Sep, fr. Jul–Oct.

Streams, rivers, swamps; ca. 900 m. Heilongjiang, E Jilin, Nei Mongol [Mongolia, Russia (Far East, Siberia); Europe].

3. *Batrachium divaricatum* (Schrank) Schur, Enum. Pl. Transsilv. 12. 1866.

歧裂水毛茛 *qi lie shui mao gen*

Ranunculus divaricatus Schrank, Baier. Fl. 2: 104. 1789.

Herbs perennial, submersed. Stems ca. 40 cm, branched, glabrous. Petiole 8–12 mm, glabrous, base vaginate; leaf blade flabellate in outline, ca. 1.5 × 2.8 cm, glabrous, 3-sect, segments ca. 3 × sect; ultimate lobules filiform, ± collapsing out of water. Flower ca. 1.2 cm in diam. Pedicel 2.5–5 cm, glabrous. Receptacle conical in flower and fruit, puberulent. Sepals 5, elliptic, ca. 3.5 mm, glabrous. Petals 5, white with yellow base, obovate, ca. 5.5 × 3.5 mm, apex rounded. Stamens ca. 12; anthers oblong, ca. 0.8 mm. Aggregate fruit subglobose, ca. 5 mm in diam.; achenes obliquely narrowly obovoid, 1.2–1.8 × 1–1.2 mm, sparsely puberulent above or glabrous, with 5–7 transverse wrinkles. Persistent style ca. 0.1 mm. Fl. May–Jun.

Lakes. Xinjiang [Kazakhstan, Russia (Siberia); Europe].

4. *Batrachium bungei* (Steudel) L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 341. 1980.

水毛茛 *shui mao gen*

Herbs perennial, submersed. Stems ca. 30 cm or more, branched, glabrous or sparsely puberulent on nodes. Petiole 4–12(–18) mm, glabrous or sheath abaxially sparsely puberulent; leaf blade flabellate or semiorbicular in outline, 1–2.5 × 1.8–3.5 cm, glabrous, 3-sect; segments 4 or 5 × sect, ultimate lobules filiform, soft, ± collapsing out of water. Flower 0.5–1.8 cm in

diam. Pedicel 2.2–3.5 cm, glabrous. Receptacle conical in flower and fruit, puberulent. Sepals (4 or)5, elliptic, 1.6–5.5 mm, glabrous. Petals (4 or)5, white with yellow base or yellow throughout, obovate, 2.5–10 × 1.4–7 mm, apex rounded. Stamens 5–20; anthers oblong, ca. 1 mm. Aggregate fruit subglobose or broadly ovoid, 4–5 × 4–5 mm; achenes obliquely obovoid, 1.2–1.4 × ca. 1 mm, glabrous, with ca. 6 transverse wrinkles. Persistent style ca. 0.1 mm.

Ponds, lakes, streams, swamps; near sea level–4900 m. Gansu, N Guangxi, Hebei, SW Hubei, Hunan, N and S Jiangsu, Liaoning, E Qinghai, Shanxi, W and NW Sichuan, Xizang, NW Yunnan, Zhejiang [Kashmir].

1a. Petals yellow throughout 4c. var. *flavidum*

1b. Petals white with yellow base.

2a. Flowers 10–18 mm in diam.; stamens

(12–)15–20 4a. var. *bungei*

2b. Flowers 5–6 mm in diam.; stamens

5–7 4b. var. *micranthum*

4a. *Batrachium bungei* var. *bungei*

水毛茛(原变种) *shui mao gen* (yuan bian zhong)

Ranunculus bungei Steudel, Nomencl. Bot., ed. 2, 2:

432. 1841, based on *R. hydrophilus* Bunge, Enum. Pl.

China Bor. 2. 1833, not Gaudichaud-Beaupré ex Mirbel

(1825); *R. hydrocharis* f. *bungei* (Steudel) Hiern; *R.*

trichophyllus var. *chanetii* H. Léveillé.

Flower 1–1.8 cm in diam. Sepals 5, 4–5.5 mm. Petals 5,

white with yellow base, 5–9 × 4.5–7 mm. Stamens (12–)15–20. Fl. May–Sep.

• Ponds, lakes, streams; near sea level to 4800 m. Gansu, N Guangxi, Hebei, SW Hubei, S Jiangsu, Liaoning, E Qinghai, Shanxi, W Sichuan, Xizang, NW Yunnan, Zhejiang.

4b. *Batrachium bungei* var. *micranthum* W. T. Wang, Guihaia 15: 105. 1995.

小花水毛茛 *xiao hua shui mao gen*

Flower 0.5–0.6 cm in diam. Sepals 4 or 5, 1.6–2.4 mm.

Petals 4 or 5, white with yellow base, 2.5–3.5 × 1.4–2.2

mm. Stamens 5–7. Fl. Apr–Jun.

• Ponds, streams; 200–2300 m. C Hunan, N Jiangxi, NW Yunnan (Lijiang Naxi Zu Zizhixian).

4c. *Batrachium bungei* var. *flavidum* (Handel-Mazzetti) L.

Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 341. 1980.

黄花水毛茛 *huang hua shui mao gen*

Batrachium flavidum Handel-Mazzetti, Acta Horti

Gothob. 13: 168. 1939; *Ranunculus flavidus* (Handel-

Mazzetti) C. D. K. Cook.

Flower 1–1.8 cm in diam. Sepals 5, 4–5 mm. Petals 5, yellow throughout, 7–10 × 4–7 mm. Stamens 19–22. Fl. Jun–Sep.

Streams, swamps; 1700–4900 m. Gansu, NW Sichuan, Xizang [Kashmir].

This is the only yellow-flowered *Batrachium*.

5. *Batrachium trichophyllum* (Chaix ex Villars) Bosch, Prodr. Fl. Bat. 7. 1850.

毛柄水毛茛 *mao bing shui mao gen*

Herbs perennial, submersed. Stems 10–40 cm, branched, sparsely puberulent or glabrous. Petiole 2–15 mm, sheath abaxially strigose; leaf blade nearly semiorbicular in outline, 0.5–1.5 × 1.4–3.5 cm, glabrous or sparsely puberulent, 3-sect; segments 3 or 4 × sect, ultimate lobules filiform, ± rigid, remaining divaricate out of water. Flower 0.4–1.5 cm in diam.

Pedicel 1.6–4 cm, glabrous. Sepals (4 or)5, elliptic, 1.5–4 mm, glabrous. Petals (4 or)5, white with yellow base, obovate, 2–7 × 1–5 mm, apex rounded. Stamens 6–25; anthers oblong, 0.4–1 mm. Aggregate fruit globose-ovoid, 2–3 × 2.5–4 mm; achenes obliquely obovoid, 1–1.5 × 0.7–1 mm, sparsely puberulent above or glabrous, with 5–7 transverse wrinkles. Persistent style 0.1–0.2 mm.

Swamps, ponds, rivers; 100–3600 m. Gansu, Heilongjiang, W Liaoning, Nei Mongol, Qinghai, N Shaanxi, NW Sichuan, Xinjiang, Xizang [Kazakhstan, N Pakistan, Russia (Far East, Siberia)].

- 1a. Flowers 4–6 mm in diam.; sepals 4, 1.5–2 mm; petals 4, 2–3 mm; stamens 6–8 5c. var. *jingpoense*
- 1b. Flowers 6–15 mm in diam.; sepals 5, 2–4 mm; petals 5, 3–7 mm; stamens 10–25.
 - 2a. Stem nodes sparsely puberulent or glabrous; petiole sheath abaxially sparsely strigose; leaf blade glabrous or very sparsely puberulent 5a. var. *trichophyllum*
 - 2b. Stem puberulent; leaf sheath abaxially densely strigose; leaf blade sparsely puberulent 5b. var. *hirtellum*

5a. *Batrachium trichophyllum* var. *trichophyllum*

毛柄水毛茛(原变种) *mao bing shui mao gen* (yuan bian zhong)

Ranunculus trichophyllus Chaix ex Villars, Hist. Pl. Dauphiné 1: 335. 1786.

Stem nodes sparsely puberulent or glabrous. Petiole sheath abaxially usually sparsely strigose. Flower 0.6–1.5 cm in diam. Sepals 5, 2–4 mm. Petals 5, 3–7 mm. Stamens 10–25. Fl. Jun–Aug.

Swamps, ponds, rivers; 100–3600 m. Gansu, Heilongjiang, W Liaoning, Nei Mongol, Qinghai, N Shaanxi, Xinjiang, Xizang [Kazakhstan, N Pakistan, Russia (Far East, Siberia); N Africa, Europe, North America].

5b. *Batrachium trichophyllum* var. *hirtellum* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 363. 1980.

多毛水毛茛 *duo mao shui mao gen*

Stems sparsely puberulent. Petiole sheath abaxially densely strigose; leaf blade sparsely puberulent. Flower ca. 1.2 cm in diam. Sepals 5, ca. 4 mm. Petals 5, ca. 6 mm. Stamens ca. 20. Fl. Jun.

•Streams; ca. 3500 m. NW Sichuan (Hongyuan Xian).

5c. *Batrachium trichophyllum* var. *jingpoense* (G. Y. Chang) W. T. Wang, Phytologia 79: 387. 1996.

镜泊水毛茛 *jing bo shui mao gen*

Batrachium jingpoense G. Y. Chang, Bull. Bot. Res., Harbin 12: 241. 1992.

Stems sparsely puberulent at least on nodes. Petiole sheath abaxially densely strigose. Flower 0.4–0.6 cm in diam. Sepals 4, 1.5–2 mm. Petals 4, 2–3 mm. Stamens 6–8. Fl. Jun–Jul.

•Swamps. S Heilongjiang (Ning'an Xian: Jingbo Hu).

6. *Batrachium eradicatum* (Laestadius) Fries, Bot. Not. 1843: 114. 1843.

小水毛茛 *xiao shui mao gen*

Ranunculus aquatilis Linnaeus var. *eradicatus*

Laestadius, Nova Acta Regiae Soc. Sci. Upsal. 11: 242. 1839; *Batrachium trichophyllum* (Chaix ex Villars)

Bosch var. *paucistamineum* (Tausch) Handel-Mazzetti;

B. trichophyllum var. *paucistamineum* f. *terrestre*

(Grenier & Godron) Handel-Mazzetti; *R. paucistamineus* Tausch; *R. trichophyllum* Chaix ex Villars var. *terrestris* Grenier & Godron.

Herbs perennial, small, terrestrial or in shallow water.

Stems 1.5–8(–14) cm, simple or branched, glabrous. Petiole 5–16 mm, glabrous, sometimes broad sheath abaxially sparsely strigose; leaf blade flabellate in outline, 4–13 × 7–25 mm, glabrous, 3-sect; segment 2 or 3(or 4) × sect, ultimate lobules filiform, ± rigid, remaining divaricate out of water. Flower 0.6–1.2 cm in diam. Pedicel 1–2 cm, glabrous. Receptacle conical in flower and fruit, puberulent. Sepals 5, elliptic, 2–4 mm, glabrous. Petals 5, white with yellow base, obovate or narrowly obovate, 2.5–7.2 × 1.5–4 mm, apex rounded. Stamens 4–12; anthers oblong, 0.5–0.9 mm. Aggregate fruit broadly ovoid, ca. 2.5 × 4 mm; achenes obliquely narrowly obovoid, 1.2–1.5 × 0.8–1 mm, glabrous or sparsely puberulent, with ca. 6 transverse wrinkles. Persistent style ca. 0.2 mm. Fl. May–Sep.

Ponds, shallow water, swamps; 500–3900 m. N Heilongjiang, N Nei Mongol, W Sichuan, N Xinjiang, SE Xizang, NW Yunnan (Lijiang Naxi Zu Zizhixian) [Kazakhstan, Russia (Siberia); Europe, North America].

7. *Batrachium foeniculaceum* (Gilibert) Kreczetowicz, Fl. URSS. 7: 338. 1937.

硬叶水毛茛 *ying ye shui mao gen*

Ranunculus foeniculaceus Gilibert, Fl. Lit. Inch. 5: 261. 1782; *Batrachium circinatum* (Sibthorp) Spach; *R. circinatus* Sibthorp.

Herbs perennial, submersed. Stems up to 50 cm, branched, glabrous. Petiole 2–4 mm, sheath abaxially sparsely puberulent or glabrous; leaf blade orbicular in outline, 1–2.5 cm in diam., glabrous, 3-sect; segments 2 or 3 × sect, ultimate lobules filiform, ± rigid, remaining divaricate out of water. Flower 1–1.8 cm in diam.

Pedicel 2.5–6.5 cm, glabrous. Receptacle conical in flower and fruit, puberulent. Sepals 5, elliptic, 3–4 mm, glabrous. Petals 5, white with yellow base, obovate, 5–

10 × 4–6 mm, apex rounded. Stamens 17–25; anthers oblong, 0.7–1 mm. Aggregate fruit broadly ovoid, 3–4 × ca. 4 mm; achenes obliquely obovoid, ca. 1.2–1 mm, above sparsely puberulent or glabrous, with ca. 7 transverse wrinkles. Persistent style ca. 0.2 m. Fl. May–Sep.

Swamps, lakes; 300–3600 m. Gansu, Heilongjiang, Nei Mongol, N Shanxi, N Xinjiang, NW Yunnan (Zhongdian Xian) [Kazakhstan, N Mongolia, Russia (Siberia); Europe].

8. *Batrachium rionii* (Lagget) Nyman, Bot. Not. 98. 1852.

钻托水毛茛 *zuan tuo shui mao gen*

Ranunculus rionii Lagget, Flora 31: 49. 1848;
Batrachium trichophyllum (Chaix ex Villars) Bosch subsp. *rionii* (Lagget) C. D. K. Cook; *R. flaccidus* Persoon var. *rionii* (Lagget) Hegi; *R. trichophyllum* Chaix ex Villars subsp. *rionii* (Lagget) Soó.

Herbs annual, terrestrial or aquatic. Stems ca. 20 cm, branched, glabrous. Petiole 5–18 mm, glabrous or sheath abaxially sparsely strigose; leaf blade flabellate

in outline, 0.6–1 × 0.8–1.5 cm, glabrous, 3-sect; segments 2 or 3 × sect, ultimate lobules filiform, remaining divaricate out of water. Flower ca. 0.8 cm in diam. Pedicel ca. 1.5 cm, glabrous. Receptacle subulate in fruit, puberulent. Sepals 5, elliptic, ca. 2.5 mm, glabrous. Petals 5, white with yellow base, obovate, ca. 4 × 2 mm, apex rounded. Stamens ca. 15; anthers oblong, ca. 0.5 mm. Aggregate fruit subglobose, ca. 4.5 mm in diam.; achenes obliquely narrowly obovoid, 0.8–1.2 × 0.6–0.8 mm, glabrous, with 4–7 transverse wrinkles. Persistent style ca. 0.1 mm. Fl. May.

Lakes; below 100 m. Beijing [Afghanistan, Kazakhstan, N Pakistan; S Africa, W Asia, Europe].

Cook (Mitt. Bot. Staatssamml. München 6: 142. 1966) reported that this species is distributed in Xizang and N China. However, we have seen only one specimen from Beihai Park in the city of Beijing collected by Liou Ying in 1936. The flower of this specimen has about 30 carpels but Cook (loc. cit.) stated that typical *Batrachium rionii* has 60–90 carpels per flower. Vegetatively this species is indistinguishable from *B. trichophyllum*.

36. OXYGRAPHIS Bunge, Verz. Altai Pfl. 46. 1836.

鸦跖花属 *ya zhi hua shu*

Wang Wencai (王文采 Wang Wen-tsai); Michio Tamura, Michael G. Gilbert

Herbs perennial, stemless, with short rhizomes. Leaves all basal, simple, petiolate, leaf blade undivided, indistinctly 3-lobed, or rarely 3-partite, margin crenate or entire, 3–5-veined. Inflorescence a solitary, scapose, terminal flower, rarely a 2- or 3-flowered monochasium. Flowers bisexual, actinomorphic. Sepals 5–8, enlarged after flowering, green, persistent or rarely deciduous. Petals 5–19, yellow, oblong, shortly clawed, with a small nectary pit above base. Stamens numerous; filaments narrowly linear; anthers ellipsoid or oblong. Carpels numerous, spirally arranged on a convex receptacle; ovule 1 per carpel, erect. Style shorter than ovary; stigmatic surface adaxial. Aggregate fruit broadly ovoid; achenes ± bilaterally compressed, narrowly rhombic or subfusiform, longitudinally 1- or more veined on each side, with a persistent style at apex.

Four species: Bhutan, China, India, Kashmir, Kazakhstan, Mongolia, Nepal, Pakistan, Russia; four species (two endemic) in China. *Oxygraphis* is often included within *Ranunculus*.

- 1a. Scapes puberulent apically; sepals papery, deciduous 1. *O. delavayi*
- 1b. Scapes glabrous; sepals leathery or subleathery, persistent.
 - 2a. Leaf blade orbicular, reniform, or ovate, base subcordate or truncate, margin crenate 2. *O. endlicheri*
 - 2b. Leaf blade ovate, elliptic, or linear, base broadly cuneate or attenuate, margin entire or rarely crenate.
 - 3a. Leaf blade ovate, broadly ovate, or elliptic, 0.5–3 × 0.5–3 cm, base broadly cuneate; flowers 1.5–3 cm in diam.; petals 12–19 3. *O. glacialis*
 - 3b. Leaf blade linear, linear-lanceolate, or lanceolate, 0.8–1.5 × 0.2–0.4 cm, base attenuate; flowers ca. 1 cm in diam.; petals 9–11 4. *O. tenuifolia*

1. *Oxygraphis delavayi* Franchet, Bull. Soc. Bot. France 33: 374. 1886.

脱萼鸦跖花 *tuo e ya zhi hua*

Oxygraphis delavayi var. *ningchiensis* W. L. Zheng.

Basal leaves 3–5, glabrous; petiole 1.6–10 cm, vaginate at base; leaf blade reniform to orbicular or ovate-orbicular, 0.8–3.8 × 0.9–3.8 cm, base cordate or

subcordate, margin crenate, indistinctly 7–9-lobed or 3-lobed, rarely 3-partite, apex rounded. Scapes 1–3, more than 4 cm, elongating to 15 cm in fruit, glabrous, except for appressed puberulent apical part. Flowers solitary or 2 or 3 in a monochasium, 1–2 cm in diam.; bracts linear or ovate. Sepals 5, oblong, ovate-oblong, or sublinear, 4–8 mm, papery, glabrous, deciduous. Petals 5–10, long elliptic or oblong, 4.5–10 × 1.8–4 mm, apex rounded.

Anthers oblong; 0.6–0.9 mm. Aggregate fruit broadly ovoid, ca. 5 mm in diam.; achenes obliquely obovate or narrowly obliquely ovate, 1.8–2 × 1–1.1 mm, glabrous. Persistent style 0.5–0.8 mm, Fl. Apr–Aug, fr. Jul–Aug. $2n = 16^*$.

• Alpine meadows, grassy slopes, gravelly places; 3500–5000 m. NW Sichuan, SE Xizang (Bomi Xian), NW Yunnan.
2. *Oxygraphis endlicheri* (Walpers) Bennet & Sumer Chandra, Indian Forester 108: 374. 1982.

圆齿鸦跖花 yuan chi ya zhi hua

Callianthemum endlicheri Walpers, Repert. Bot. Syst. 1: 33. 1842; *Oxygraphis polypetala* J. D. Hooker & Thomson; *Ranunculus polypetalus* Royle (1834), not Rafinesque (1817).

Basal leaves ca. 5, glabrous; petiole 3–5 cm, vaginate at base; leaf blade orbicular, reniform, or ovate, 0.5–1.6 × 0.7–1.4 cm, base subcordate or truncate, margin crenate, apex obtuse or rounded-obtuse. Scapes 1–4, more than 1.5 cm, elongating to 6 cm in fruit, glabrous. Flowers solitary, 1.2–1.7 cm in diam. Sepals 5, ovate or oblong, 3–6 mm, leathery, glabrous, persistent. Petals ca. 12, spatulate-linear, 7–10 × 1.2–2 mm, apex slightly acute. Anthers oblong, 0.5–0.8 mm. Aggregate fruit ovoid, ca. 8 mm in diam.; achenes subfusiform or ovate-oblong, 2–2.5 × ca. 1 mm, glabrous. Persistent style 0.2–0.5 mm. Fl. and fr. May–Jun.

Alpine meadows, forest margins; 3900–4100 m. S Xizang (Yadong Xian) [Bhutan, N India, Kashmir, Nepal, N Pakistan].

3. *Oxygraphis glacialis* (Fischer ex de Candolle) Bunge, Verz. Altai Pfl. 47. 1836.

鸦跖花 ya zhi hua

Ficaria glacialis Fischer ex de Candolle, Prodr. 1: 305. 1817; *Caltha glacialis* (Fischer ex de Candolle) Sprengel; *C. kamchatica* (de Candolle) Sprengel; *Ranunculus kamchaticus* de Candolle.

Basal leaves 5–10, glabrous; petiole 1–8 cm, narrowly vaginate at base; leaf blade ovate, broadly ovate, obovate, or elliptic, 0.5–3 × 0.5–3 cm, base broadly cuneate, margin entire, or rarely crenate, apex obtuse. Scapes 1–8, more than 2 cm, elongating to 10 cm in fruit, glabrous. Flowers solitary, 1.5–3 cm in diam. Sepals 5, orbicular-obovate or elliptic-ovate, 3–5 mm, subleathery, glabrous, persistent, accrescent after anthesis to 10–18 mm. Petals 12–19, oblanceolate or oblong, 7–12 × 1.5–3 mm. Anthers oblong, 0.6–1 mm. Aggregate fruit subglobose, ca. 1 cm in diam.; achenes narrowly obovate-rhombic, 2.2–3 × 1.2–1.8 mm, glabrous. Persistent style 1.5–2 mm. Fl. Apr–Sep, fr. Jun–Oct. $2n = 16^*$.

Alpine meadows, often on level wet stony areas, grassy slopes, scrub, by rivers; 2700–5000 m. S Gansu, Qinghai, S Shaanxi (Taibai Shan), W Sichuan, Xinjiang, Xizang, NW Yunnan [Bhutan, N India, Kazakhstan, Mongolia, Nepal, Russia (Siberia)].

If *Oxygraphis* is included within *Ranunculus*, the correct name for this species is *R. kamchaticus* because the epithet “*glacialis*” was already used in 1753 for the alpine European species *Ranunculus glacialis* Linnaeus.

4. *Oxygraphis tenuifolia* W. E. Evans, Notes Roy. Bot. Gard. Edinburgh 13: 172. 1921.

小鸦跖花 xiao ya zhi hua

Basal leaves 8–25, glabrous; petiole 1–3.6 cm, narrowly vaginate at base; leaf blade linear to lanceolate, 0.8–1.5 cm × 2–4 mm, base attenuate, margin entire, apex obtuse. Scapes 1–3, more than 2 cm, elongating to 4.5 cm in fruit, glabrous. Flowers solitary, ca. 1 cm in diam. Sepals 5, broadly ovate or orbicular-ovate, 2–3 mm, subleathery, glabrous, persistent. Petals 9–11, lanceolate-linear, 4.5–5.5 × 0.8–1.2 mm, apex acute. Anthers elliptic, 0.3–0.5 mm. Aggregate fruit broadly ovoid, ca. 6 mm in diam.; achenes subfusiform, ca. 1.8 × 0.8 mm, glabrous. Persistent style ca. 0.6 mm. $2n = 16^*$.

• Alpine meadows, grassy slopes; 3400–4300 m. W Sichuan, NW Yunnan (Zhongdian Xian).

37. HALERPESTES E. L. Greene, Pittonia 4: 207. 1900.

碱毛茛属 jian mao gen shu

Wang Wencai (王文采 Wang Wen-tsai); Michio Tamura

Herbs perennial, small, usually with slender creeping stolons. Leaves all basal or at nodes of stolons, leaf blade simple, undivided, dentate or 3-lobed to 3-sect. Scapes naked or with a linear bract. Inflorescence a solitary terminal flower or a 2- or 3-flowered monochasium. Flowers bisexual, actinomorphic. Sepals 5, deciduous. Petals 5–12, yellow, narrowly obovate, shortly clawed at base, with a nectary pit above base. Stamens numerous or few; anthers ellipsoid. Carpels numerous, spirally arranged on a conical receptacle; ovules 1 per carpel. Aggregate fruit globose or ovoid; achenes bilaterally compressed, with 2 or 3 longitudinal thin ribs on each side; style persistent, straight or curved.

About ten species: temperate Asia, North & South America; five species (one endemic) in China.

Halerpestes is sometimes placed within *Ranunculus*.

1a. Gynoecium and aggregate fruit ovoid.

- 2a. Scape 3–16 cm; leaf blade 0.5–2 cm; petals 5; stamens (6–)14–20 4. *H. sarmentosa*
- 2b. Scape 6–24 cm; leaf blade 1.2–4.8 cm; petals 6–12; stamens 50–78 5. *H. ruthenica*

1b. Gynoecium and aggregate fruit globose.

3a. Stolons absent; basal leaves ovate, 3-sect, lateral segments unequally 2-sect, ultimate segments linear 3. *H. filisecta*

3b. Stolons present; basal leaves 3-lobed to 3-sect, or undivided, if 3-sect then lateral segments usually undivided

or sometimes with a short lobule.

4a. Basal leaves all or some rhombic, broadly cuneate, or pentagonal, 3-lobed, to 3-sect 1. *H. tricuspis*

4b. Basal leaves oblanceolate, oblong, or linear, undivided, margin 3-dentate near apex or entire 2. *H. lancifolia*

1. ***Halerpestes tricuspis*** (Maximowicz) Handel-Mazzetti, Acta Horti Gothob. 13: 135. 1939.

others undivided, linear, entire 1b. var. *heterophylla*

三裂碱毛茛 san lie jian mao gen

Stolons (2–)7–35 cm. Basal leaves 5–16; petiole (0.6–)1–6.5 cm, narrowly vaginate at base; leaf blade variable in shape and in division, rhombic, broadly cuneate, pentagonal, or elliptic, rarely linear, (0.3–)0.5–2.6 × (1–)0.5–2.2 cm, glabrous, base cuneate, broadly cuneate, truncate, or attenuate, 3-sect, 3-partite, 3-fid, 3-lobed, or rarely undivided. Scapes (0.3–)1–13 cm, usually glabrous, sometimes sparsely puberulent. Flowers usually solitary or 2 in a monochasium, (6–)7–12 mm in diam.; bracts linear, 3–5 mm, vaginate at base. Pedicel 0.3–1.9 cm. Sepals 4 or 5, narrowly ovate or elliptic, 3–5 mm, abaxially glabrous or puberulent. Petals 5(or 6), narrowly obovate or oblong, (3.5–)5–6.5 × (1.1–)2–3 mm. Stamens 13–36; anthers broadly elliptic, rarely oblong, 0.5–0.8 mm. Aggregate fruit globose, 3–5.5 mm in diam.; achenes obliquely narrowly obovate, 1–2.4 × 0.6–1.4 mm, glabrous. Persistent style 0.3–0.5 mm.

Meadows, swamps, slopes, damp places, by rivers; 1700–5100 m. SW Gansu, Ningxia, Qinghai, W Sichuan, S Xinjiang, Xizang [Bhutan, N India, Mongolia, Nepal, N Pakistan].

1a. Basal leaves 3-lobed, sometimes 3-cleft, pentagonal-obovate, base truncate, truncate-rounded, or broadly cuneate 1d. var. *intermedia*

1b. Basal leaves all or some 3-cleft, 3-partite, or 3-sect.

2a. Basal leaves pentagonal or obovate-pentagonal, base truncate or broadly cuneate, 3-partite, 3-sect, or 3-cleft 1c. var. *variifolia*

2b. Basal leaves all or some rhombic or broadly cuneate, base cuneate, 3-cleft to 3-sect.

3a. Scapes 1–13 cm, above puberulent or glabrous; stolons 7–35 cm; basal leaves all 3-cleft to 3-sect 1a. var. *tricuspis*

3b. Scapes 0.3–1 cm, glabrous; stolons 2–7 cm; some basal leaves rhombic or broadly cuneate, 3-cleft to 3-sect, and

1a. ***Halerpestes tricuspis*** var. ***tricuspis***

三裂碱毛茛(原变种) san lie jian mao gen (yuan bian zhong)

Ranunculus tricuspis Maximowicz, Fl. Tangut. 12. 1889; *Halerpestes haiyanica* D. Z. Ma; *H. tricuspis* var. *linearisecta* L. H. Zhou.

Stolons 7–35 cm. Basal leaves 5–16; petiole 0.6–5.5 cm, glabrous, rarely sparsely puberulent; leaf blade rhombic or broadly cuneate, 0.5–2.6 × 0.5–2.2 cm, glabrous, base cuneate or broadly cuneate, 3-cleft to 3-sect; central segment cuneate, 3-cleft or linear, undivided; lateral segments lanceolate-linear, usually undivided. Scapes 1–13 cm, above puberulent or glabrous. Flowers 1, or 2, 7–11 mm in diam. Pedicel 2.5–10 mm. Receptacle puberulent or glabrous. Sepals abaxially puberulent or glabrous. Petals 5–6 × 2–3 mm. Stamens 13–25. Fl. May–Aug.

By rivers or lakes, swamps, alpine meadows; 1700–4800 m. SW Gansu, S Ningxia, Qinghai, SE Xinjiang, NE and S Xizang [Nepal].

1b. ***Halerpestes tricuspis*** var. ***heterophylla*** W. T. Wang, Guihaia 15: 100. 1995.

异叶三裂碱毛茛 yi ye san lie jian mao gen

Stolons 2–7 cm. Basal leaves ca. 5; petiole 0.7–1.4 cm, glabrous; leaf blade rhombic, 3–11 × 1–17 mm, glabrous, base cuneate, 3-cleft to 3-sect and with linear entire segments, or leaves linear, undivided and attenuate at base. Scapes 3–10 mm, glabrous or sparsely puberulent. Flowers 1, 6–7 mm in diam. Receptacle puberulent or glabrous. Sepals glabrous. Petals 3.5–4 × 1.1 mm. Stamens 14–20. Fl. Jun–Jul.

• Meadows, swamps, by rivers; 4700–5100 m. S Xinjiang, C and N Xizang.

1c. ***Halerpestes tricuspis*** var. ***variifolia*** (Tamura) W. T. Wang, Guihaia 15: 100. 1995.

变叶三裂碱毛茛 bian ye san lie jian mao gen

Halerpestes lancifolia (Bertoloni) Handel-Mazzetti var. *variifolia* Tamura, J. Geobot. 26: 69. 1978; *H. variifolia* (Tamura) Tamura.

Stolons 4–17 cm. Basal leaves 5–11; petiole 1–6 cm, glabrous; leaf blade pentagonal or obovate-pentagonal, 4–15 × 4–12 mm, glabrous, base truncate, or blade

obovate-oblong, 3-lobed, 1- or 2-dentate, or entire; lateral segments usually unequally 2-lobed. Scapes 1–5.5 mm, glabrous. Flowers 1, 1–12 mm in diam. Receptacle glabrous, rarely puberulent. Sepals glabrous. Petals 5–7 × 2–2.8 mm. Stamens 13–36. Fl. May–Jul.

Rivers or streams, swamps, damp places, meadows; 2000–5000 m. SW Gansu, Ningxia, SW Sichuan (Daocheng Xian), S Xizang [Nepal].

1d. *Halerpestes tricuspis* var. *intermedia* W. T. Wang, Guihaia 15: 101. 1995.

浅三裂碱毛茛 qian san lie jian mao gen

Stolons 8–22 cm. Basal leaves 5–15; petiole 1.5–6.5 cm, glabrous; leaf blade pentagonal-obovate or pentagonal, rarely elliptic, 4–10(–20) × 3–10(–12) mm, glabrous, base truncate, truncate-rounded, or truncate-cordate, 3-lobed or obtusely 3(–5)-dentate at top, sometimes 3-cleft. Scapes 2.5–4.5 cm, glabrous. Flowers 1, 7–12 mm in diam. Receptacle glabrous or puberulent. Sepals glabrous. Petals 3–5 × ca. 1.8 mm. Stamens 15–18. Fl. Jun–Jul, fr. Jun–Aug.

• By rivers or lakes, swamps, slopes; 2400–4600 m. SW Gansu (Xiahe Xian), NE and SC Qinghai, NW Sichuan, E and SC Xizang.

2. *Halerpestes lancifolia* (Bertoloni) Handel-Mazzetti, Acta Horti Gothob. 13: 136. 1939.

狭叶碱毛茛 xia ye jian mao gen

Ranunculus lancifolius Bertoloni, Mem. Reale Accad. Sci. Ist. Bologna, ser. 2, 3: 423. 1862; *R. palifolius* Dunn; *R. tricuspis* Maximowicz var. *lancifolius* (Bertoloni) H. Hara.

Stolons 3–10 cm. Basal leaves ca. 7, glabrous; petiole 1.8–2.2 cm, narrowly vaginate at base; leaf blade linear, lanceolate, or narrowly ovate, 3–12 × 1–2 mm, base cuneate or broadly cuneate, margin 2- or 3-dentate near apex or entire. Scapes 1.2–2.5 cm, glabrous or sparsely puberulent near apex, leafless with a linear bract below flower. Flowers 1, 8–9 mm in diam. Receptacle puberulent. Sepals 5, ovate, 4–5 mm, glabrous. Petals 5, oblong, 4–5 × 1.2–1.8 mm. Anthers broadly elliptic, 0.5–0.7 mm. Aggregate fruit globose, ca. 5 mm in diam.; achenes obliquely ovate, 1.8–2 × 1.1–1.5 mm, glabrous. Persistent style 0.6–0.8 mm, recurved at apex. Fl. Jun–Jul, fr. Jul–Aug.

By lakes or rivers, damp alpine meadows; 3700–5100 m. W Xizang [Kashmir, Nepal].

3. *Halerpestes filisecta* L. Liou in W. T. Wang, Fl. Reipubl. Popularis Sin. 28: 338. 1980.

丝裂碱毛茛 si lie jian mao gen

Stolons absent. Basal leaves 5–10, glabrous; petiole 0.7–1.4 cm, vaginate at base; leaf blade ovate, 2–9 × 3–10 mm, base broadly cuneate or subtruncate, 3-sect; central segment narrowly linear, entire, rarely 1- or 2-lobulate; lateral segments usually unequally 2-sect, with linear ultimate lobules, rarely undivided. Scapes 6–11

mm, glabrous, naked. Flowers 1, ca. 8 mm in diam. Receptacle glabrous. Sepals 5, broadly oblong, ca. 3 mm, glabrous. Petals 5, oblong or narrowly elliptic, 3.8–4.2 × ca. 1.2 mm, apex rounded-obtuse. Stamens ca. 10; anthers broadly ellipsoid, ca. 0.6 mm. Aggregate fruit globose, 3.5–4 mm in diam.; achenes elliptic or narrowly obovate, 1.2–2 × 0.8–1 mm, glabrous. Persistent style 0.6–0.8 mm, uncinatate at apex or nearly straight. Fl. and fr. Aug.

• Grassy places by saline lakes; ca. 4800 m. W Xizang (Gè'gyai).

4. *Halerpestes sarmentosa* (Adams) Komarov & Alissova, Key Pl. Far East. URSS 1: 550. 1931.

碱毛茛 jian mao gen

Stolons 10–20 cm. Basal leaves 8–25; petiole 1–10 cm, glabrous or sparsely puberulent; leaf blade obovate, reniform, or orbicular-ovate, sometimes pentagonal, 0.5–2 × 0.4–2.6 cm, glabrous, base broadly cuneate, truncate, or subcordate, margin with 3–9 teeth at top, or 3-lobed; central lobe entire; lateral lobes 1- or 2-dentate or entire, sometimes 3-cleft to middle part or 3-partite. Scapes 3–16 cm, glabrous or sparsely puberulent. Flowers 1, sometimes 2–4 in a monochasium, terminal, 6–10(–14) mm in diam.; bracts linear, 3–5 mm, glabrous, vaginate at base. Sepals 5, elliptic, 2–4.5 mm, glabrous. Petals 5, oblong, 2.8–6.5 × 1–2.5 mm, apex rounded. Stamens (6–)14–20; anthers ellipsoid, 0.6–0.8 mm. Aggregate fruit ovoid, 3.5–6 × 2.2–3.2 mm; achenes obliquely narrowly obovate, 1–1.8 × 0.6–0.8 mm, glabrous. Persistent style ca. 0.3 mm, straight.

Saline damp sandy places by rivers or lakes, meadows, slopes; near sea level–2000 m. Gansu, N and W Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, S Ningxia, Qinghai, N Shaanxi, Shanxi, NW Sichuan, Xinjiang, Xizang [Kazakhstan, N Korea, Mongolia, N Pakistan, Russia (Siberia), Sikkim].

- 1a. Leaf blade oblate, reniform, or orbicular-ovate, undivided or 3-lobed 4a. var. *sarmentosa*
- 1b. Leaf blade pentagonal, 3-cleft to middle or 3-partite 4b. var. *multisecta*

4a. *Halerpestes sarmentosa* var. *sarmentosa*

碱毛茛(原变种) jian mao gen (yuan bian zhong)

Ranunculus sarmentosus Adams, Nouv. Mém. Soc. Imp. Naturalistes Moscou 3: 244. 1834; *Halerpestes salsuginosa* E. L. Greene; *R. cymbalaria* Pursh subsp. *sarmentosus* (Adams) Kitagawa; *R. salsuginosus* Pallas (1776), not Georgi (1775).

Leaf blade oblate, reniform, or orbicular-ovate, base broadly cuneate, truncate or subcordate, margin undivided, 3–9-dentate distally, or 3-lobed, central lobe entire, lateral lobes 1- or 2-dentate or entire. Fl. May–Aug, fr. Jun–Aug.

Saline damp sandy places by rivers or lakes, meadows, slopes; near sea level–2000 m. Gansu, N and W Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, N Shaanxi, Shanxi, NW Sichuan, Xinjiang, Xizang [Kazakhstan, Korea, Mongolia, N Pakistan, Russia (Siberia), Sikkim].

4b. *Halerpestes sarmentosa* var. *multisecta* (S. H. Li & Y. H. Huang) W. T. Wang, *Guihaia* 15: 102. 1995.

裂叶碱毛茛 *lie ye jian mao gen*

Ranunculus cymbalaria f. *multisectus* S. H. Li & Y. H. Huang, *Fl. Pl. Herb. Chin. Bor.-Orient.* 3: 230. 1975.

Leaf blade pentagonal, base truncate or cordate-truncate, 3-cleft to middle or 3-partite, central lobe 1- or 2-denticulate or entire, lateral lobes unequally 2-lobed. Fl. Jun.

• Damp places by lakes. W Liaoning (Beizhen Xian).

5. *Halerpestes ruthenica* (Jacquin) Ovczinnikov, *Fl. URSS.* 7: 331. 1937.

长叶碱毛茛 *chang ye jian mao gen*

Ranunculus ruthenicus Jacquin, *Hort. Bot. Vindob.* 3: 19. 1776; *Oxygraphis plantaginifolia* (Murray) Prantl; *R. plantaginifolius* Murray; *R. ruthenicus* f. *multidentatus* S. H. Li & Y. H. Huang.

Stolons 15–65 cm, subglabrous. Basal leaves 8–15, glabrous; petiole 2.2–17 cm, vaginate at base; leaf blade ovate-trapeziform or broadly oblong, 1.2–4.8 × 0.7–2.2 cm, base subtruncate, cordate-truncate, or broadly obtuse, 3–6-dentate. Scapes 1–4, 6–24 cm, sparsely puberulent or glabrescent. Flowers 1, sometimes 2 in monochasium, 1.4–2.4 cm in diam.; bracts lanceolate-linear, 4–13 mm, membranous vaginate at base. Pedicel 2–7.5 cm, sparsely puberulent. Sepals 5, elliptic, 5–7 mm, abaxially puberulent. Petals 6–12, narrowly obovate or obovate-oblongate, 0.8–1.2 cm × 3–5 mm, apex rounded. Stamens 50–78; anthers broadly ellipsoid, 0.8–1 mm. Aggregate fruit ovoid, 8–11 × 5–9 mm; achenes obliquely obovate, 2–2.5 × 1.8–2 mm, glabrous. Persistent style 0.5–0.8 mm, straight. Fl. May–Aug, fr. Aug.

Damp grassy places, by streams or lakes; near sea level–1400 m. N Gansu, N Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Ningxia, N Shaanxi, N Shanxi, Xinjiang [Kazakhstan, Mongolia, Russia (Siberia)].

38. CERATOCEPHALA Moench, Methodus, 218. 1794.

角果毛茛属 *jiao guo mao gen shu*

Wang Wencai (王文采 Wang Wen-tsai); Michio Tamura

Herbs annual, erect. Leaves all basal, a few sessile, undivided and linear, others petiolate; leaf blade 3-sect, segments undivided or 1 or 2 × dissected into linear lobules. Scapes naked. Inflorescence a solitary terminal flower. Flowers bisexual, actinomorphic. Sepals 5, deciduous. Petals 3–5, yellow, narrowly obovate, clawed at base, with a nectary pit covered by a scale above claw. Stamens few to 10; filaments linear; anthers ellipsoid. Carpels 10 to numerous; ovule 1 per carpel; ovary attenuate into a subulate style. Aggregate fruit globose or cylindrical; achenes 10 to numerous, spirally attached to elongated receptacle, with 2 hard hollow protuberances at base; style persistent, forming flattened spinelike beak.

Four species: N Africa, W Asia, Europe, SW Pacific Islands (New Zealand); two species in China.

- 1a. Persistent style falcate, ca. 7–10 × 1–1.2 mm 1. *C. falcata*
- 1b. Persistent style straight, 1.5–5 × 0.7–0.9 mm 2. *C. testiculata*

1. *Ceratocephala falcata* (Linnaeus) Persoon, *Syn. Pl.* 1: 341. 1805.

弯喙角果毛茛 *wan hui jiao guo mao gen*

Ranunculus falcatus Linnaeus, *Sp. Pl.* 1: 556. 1753; *Ceratocephala falcata* var. *orthoceras* (de Candolle) Aitchison & Hemsley; *C. orthoceras* de Candolle.

Petiole to 5 cm; leaf blade palmately or furcately divided into linear segments to 2 mm wide. Scapes to 10 cm. Flowers to 1.4 cm in diam. Sepals elliptic to narrowly ovate-oblong, 3–4 mm, densely lanuginose. Petals oblong-obovate, 5–7 mm. Carpels numerous. Aggregate fruit ovate to shortly cylindrical, 1–3 cm; achenes 2–3 mm. Persistent style 7–10 mm, falcate, tomentose or rarely glabrous on lower part. Fl. and fr. Apr–May.

Dry places, dry stones, often a weed of cultivation. C Xinjiang [Kazakhstan, N Pakistan; SW Asia, Europe].

Some authors have treated this and the following species as members of a single, continually variable species.

2. *Ceratocephala testiculata* (Crantz) Roth, *Enum.* 1: 1014. 1827.

角果毛茛 *jiao guo mao gen*

Ranunculus testiculatus Crantz, *Stirp. Austr. Fasc.* 2: 97. 1763.

Outermost ca. 4 basal leaves sessile; leaf blade linear, 4–7 × 1–1.5 mm, glabrous or subglabrous; other basal leaves 4–11; petiole 0.3–2 cm, sparsely arachnoid; leaf blade broadly cuneate or flabellate-rhombic, 3–12 × 3–20 mm, sparsely arachnoid, base cuneate or broadly cuneate, 3-sect; segments unequally 1 or 2 × 2-sect, ultimate lobules linear. Scapes 1–5.8 cm, arachnoid. Flowers 6–9 mm in diam. Receptacle glabrous. Sepals long elliptic, 2.5–4.5 mm, abaxially densely puberulent. Petals narrowly obovate or ligulate, 4–6 × 1.2–1.8 mm, apex rounded; scale ligulate, ca. 0.3 mm. Stamens 4–10, ca. 2.5 mm; anthers ca. 0.8 mm. Carpels 10–60, ca. 2 mm; ovary densely arachnoid, longer than style.

Aggregate fruit subglobose to oblong, 0.3–2 × 0.5–1 cm; achenes 1.5–2 mm, arachnoid. Persistent style 1.5–5 × 0.7–0.9 mm, straight, sparsely arachnoid. Fl. Apr–May, fr. May.

River banks, dry slopes, deserts; 600–1600 m. C and W Xinjiang [Kazakhstan, Kyrgyzstan, N Pakistan, Russia (W Siberia); SW Asia, Europe].

