

- 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. uncinatum*
 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*
- 9b. Style erect, never hooded, stigma conspicuous.
 19a. Sepals reddish pink, 9–13 mm 46. *T. reniforme*
 19b. Sepals white, 3–8 mm.
 20a. Filaments conspicuously dilated distally.
 21a. Achene stipe equaling or longer than body 44. *T. przewalskii*
 21b. Achene stipe obviously shorter than body.
 22a. Styles conspicuous 15. *T. fargesii*
 22b. Styles inconspicuous or very short 1. *T. acutifolium*
- 20b. Filaments uniformly linear or only slightly thickened distally.
 23a. Leaves pubescent on both surfaces.
 24a. Achenes 1–3; stigma not winged 72. *T. viscosum*
 24b. Achenes 4–8; stigma winged 24. *T. glandulosissimum*
 23b. Leaves glabrous, at least adaxially.
 25a. Inflorescence flat topped, few flowered.
 26a. Achenes laterally compressed, crescent-shaped 73. *T. wangii*
 26b. Achenes not laterally compressed, obliquely globose 65. *T. tsawarungense*
 25b. Inflorescence not flat topped, many flowered.
 27a. Stigma not winged.
 28a. Pedicels pubescent 55. *T. shensiense*
 28b. Pedicels glabrous 17. *T. finetii*
 27b. Stigma winged.
 29a. Stigma broadly winged, triangular; achenes laterally compressed, shortly hairy 20. *T. foetidum*
 29b. Stigma narrowly winged, narrowly triangular; achenes only slightly laterally compressed, glabrous 10. *T. cultratum*
- 7b. Plants glabrous.
 30a. Basal leaves absent; cauline leaves ternate; inflorescence few flowered; sepals white 71. *T. virgatum*
 30b. Basal leaves present or absent, when absent, cauline leaves 2–4-pinnately compound; inflorescence few to many flowered; sepals pink, blue, or white.
 31a. Styles reflexed or recurved, often hooded, stigma inconspicuous.
 32a. Achenes stipitate.
 33a. Achenes 6–12, crescent-shaped, strongly compressed 68. *T. uncatum*
 33b. Achenes 10–50, fusiform, not strongly compressed.
 34a. Achenes 30–50 per flower 51. *T. rubescens*
 34b. Achenes 10–25 per flower.
 35a. Achenes 7–9 mm 35. *T. macrorhynchum*
 35b. Achenes 4–6 mm.
 36a. Leaflets leathery 70. *T. urbainii*
 36b. Leaflets herbaceous 43. *T. philippinense*
- 32b. Achenes sessile or subsessile.
 37a. Filaments filiform, sometimes weakly dilated distally .
 38a. Plants 18–30 cm tall; carpels 25–70 53. *T. saniculiforme*
 38b. Plants 9–15 cm tall; carpels 10–13 56. *T. simaoense*

- 37b. Filaments oblanceolate, ± enlarged distally.
- 39a. Leaflets 3–8 mm 38. *T. myriophyllum*
- 39b. Leaflets more than 8 mm.
- 40a. Inflorescence a monochasium.
- 41a. Monochasium elongate, racemelike, densely flowered 4. *T. atriplex*
- 41b. Monochasium not elongate, sparsely flowered.
- 42a. Achenes 3–6, fusiform; sepals 3–4.5 mm; rootlets often enlarged 22. *T. fortunei*
- 42b. Achenes 8–16, narrowly ovoid; sepals ca. 2 mm; rootlets never enlarged 45. *T. ramosum*
- 40b. Inflorescence a panicle or pleiochasium.
- 43a. Leaflets ovate, apex acute or shortly acuminate.
- 44a. Leaflets 3-lobed, base rounded or subcordate; achenes 3–6 14. *T. faberi*
- 44b. Leaflets entire, base broadly cuneate; achenes 10–13 25. *T. grandidentatum*
- 43b. Leaflets cuneate, orbicular, or broadly ovate, apex rounded, truncate, or obtuse.
- 45a. Leaflets 3–7 cm 40. *T. omeiense*
- 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. aquilegifolium*
- 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-ovate 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. *acutilobum* 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 aquilegiifolium* Linnaeus var. ***sibiricum*** Regel & Tiling, Fl. Ajan. 23. 1858.

唐松草 tang song cao

Thalictrum aquilegiifolium subsp. *asiaticum* (Nakai) Kitakawa; *T. aquilegiifolium* var. *asiaticum* Nakai; *T. aquilegiifolium* 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 aquilegiifolium var. *aquilegiifolium*, 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. Tsingling*. 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 chayense* 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 (Zayü 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 hemiovoid, 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 hemiovoid, 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 hemiovoid, 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.-Petersbourg 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, 0.9–2.0–2.0–2.0 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 hemiovoid, 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, equalling 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. 2.5 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

Isopyrum 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 0.8–1.5 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.

• Dry slopes, meadows, field margins. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol.

44. *Thalictrum przewalskii* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg, 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 disally; 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-oblongate, 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 cylindrical, 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 cylindrical, 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 Lecomoy.

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, subequalling 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-obovate, 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-Petersbourg*, 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).

