

41. DRABA Linnaeus, Sp. Pl. 2: 642. 1753.

葶苈属 ting li shu

Herbs perennial, rarely annual, biennial (or subshrubs with woody stems). Trichomes simple, forked, stellate, malpighiaceus, or dendritic, stalked or sessile, often more than 1 kind present. Stems erect or ascending, sometimes prostrate, leafy or leafless and plants scapose. Basal leaves petiolate, often rosulate, simple, entire or toothed, rarely lobed. Cauline leaves petiolate or sessile, cuneate or auriculate at base, entire or dentate, sometimes absent. Racemes bracteate or ebracteate, elongated or not in fruit. Fruiting pedicels slender, erect, ascending, or divaricate. Sepals ovate, oblong, or elliptic, base of lateral pair not saccate or subsaccate, margin usually membranous. Petals yellow, white, pink, purple, orange (or rarely red); blade obovate, spatulate, oblong, oblanceolate, orbicular, or linear, apex obtuse, rounded, or rarely emarginate; claw obscurely to strongly differentiated from blade. Stamens 6, tetradynamous; filaments dilated or not at base; anthers ovate or oblong, obtuse at apex. Nectar glands 1, 2, or 4, distinct or confluent and subtending bases of all stamens; median glands present or absent; lateral glands toothlike, semiannular, or annular. Ovules 4 to numerous per ovary. Fruit dehiscent, silicles or rarely siliques, ovate, elliptic, oblong, orbicular, ovoid, globose, lanceolate, or linear, latisepate or terete, sometimes spirally twisted; valves distinctly or obscurely veined, glabrous or pubescent; replum rounded; septum complete, membranous, translucent; style distinct or obsolete, glabrous; stigma capitate, entire or slightly 2-lobed. Seeds biseriate, wingless (or rarely winged), oblong, ovate, or orbicular, flattened; seed coat minutely reticulate, not mucilaginous when wetted; cotyledons accumbent.

About 350 species: primarily in the N hemisphere, especially arctic, subarctic, alpine, and subalpine regions, with about 70 species in South America; 48 species (16 endemic) in China.

Draba is the largest and most taxonomically difficult genus in the Brassicaceae. More than 950 binomials and nearly a fourth as many infraspecific taxa have been proposed. Numerous taxa are based on trivial characters, especially the presence vs. absence of trichomes on the fruit valves. Otto Eugene Schulz (Pflanzenr. 89(IV. 105): 1–396. 1927), hereafter Schulz (without a reference), was the last person to monograph *Draba* on worldwide basis. Although he accorded varietal names to forms with glabrous and pubescent fruits, this variation often occurs within the same population (see discussion under *D. oreades*). By contrast, petal color is taxonomically important and should be recorded in the field rather than from dried specimens because white petals sometimes dry yellow or vice versa. Another taxonomically important character is the number of ovules/seeds per ovary/fruit. This is easily obtained by counting the seeds and aborted ovules in the fruit.

The records from China of *Draba fladnizensis* Wulfen (e.g., FRPS, p. 160; Fl. Qinghai. 1: 443. 1997; Fl. Xinjiang. 2(2): 117. 1995) and *D. hirta* Linnaeus (e.g., FRPS, p. 164; Fl. Xinjiang. 2(2): 127. 1995) cannot be confirmed, and it is likely that these records are based on 19th Century accounts that represent misidentifications of plants of several species, including *D. altaica*, *D. lanceolata*, *D. lasiophylla*, *D. mongolica*, and *D. oreades*.

Draba affghanica Boissier was recorded from Gansu by Pohle (Repert. Spec. Nov. Regni Veg. Beih. 32: 128. 1925), but the present authors have seen no Chinese material of that species.

According to FRPS (p. 168), Fl. Qinghai. (1: 449. 1997), and Fl. Xinjiang. (2(2): 125. 1995), *Draba borealis* de Candolle was said to occur in Qinghai, Shaanxi, Sichuan, and Xinjiang. However, the present authors have seen no material from these provinces. The distribution of *D. borealis* in Asia is restricted to Russia (only the coastal Far East, not Siberia) and Japan. It is highly unlikely that the species occurs in China.

Draba fuhaiensis Z. X. An (Fl. Xinjiang. (2(2): 374. 1995) is not included in the present account because the present authors have not seen the type, which was the single collection cited.

1a. Annuals or rarely biennials.

2a. Cauline leaves absent, very rarely 1; fruit base acute 43. *D. melanopus*

2b. Cauline leaves 2–24(–30); fruit base obtuse.

3a. Seeds and aborted ovules (30–)36–60(–72) per fruit.

4a. Fruit linear, (6–)9–20(–25) mm; petals 3–4 mm 44. *D. stenocarpa*

4b. Fruit oblong or elliptic, (3–)5–8(–10) mm; petals (1.2–)1.7–2.2(–2.5) mm 45. *D. nemorosa*

3b. Seeds and aborted ovules 10–24(–28) per fruit.

5a. Fruit ovate, glabrous, acute at apex; cauline leaves (5–)10–24(–30) 47. *D. eriopoda*

5b. Fruit oblong, oblong-elliptic, or rarely suborbicular, puberulent, obtuse at apex; cauline leaves 3–12.

6a. Petals yellow, (1.2–)1.7–2.2(–2.5) mm; valves with stellate and forked trichomes; racemes

(5–)12–40(–60)-flowered 46. *D. huetii*

6b. Petals white, 0.6–1 mm; valves with exclusively simple trichomes; racemes (2–)4–10(–15)-flowered

..... 48. *D. ellipsoidea*

1b. Perennials, with well-developed caudex often covered with leaf or petiolar remains of previous years.

7a. Flowering stems leafless.

8a. Petals white.

9a. Stems distal half and fruiting pedicels glabrous or rarely glabrescent.

- 10a. Petals 2.5–3(–3.5) × 1–1.5 mm; fruit base obtuse; fruiting pedicels (1–)2–5(–7) mm; Xinjiang 15. *D. turczaninowii*
- 10b. Petals (3.5–)4–6 × 2–3 mm; fruit base acute; fruiting pedicels 4–13 mm; Jilin 14. *D. ussuriensis*
- 9b. Stems and fruiting pedicels tomentose throughout.
- 11a. Petals 4–7 × 1.5–4.5 mm; fruit often twisted, (3–)5–12 mm; style (0.5–)0.7–1.5 mm.
- 12a. Rachis of infructescence often flexuous; fruit apex acute; petals 1.5–2.5 mm wide; stellate trichomes sessile or subsessile, with some rayed branched 11. *D. winterbottomii*
- 12b. Rachis of infructescence straight; fruit apex obtuse; petals 2.5–4.5 mm wide; stellate trichomes long-stalked, with unbranched rays 13. *D. sikkimensis*
- 11b. Petals 1.5–2.5(–3) × 0.6–1.2 mm; fruit not twisted, 2.5–5 mm; style 0.1–0.4 mm.
- 13a. Sepals sparsely hairy inside; fruit oblong, 1–1.5 mm wide, apex obtuse; petals 1.5–2 mm 12. *D. handelii*
- 13b. Sepals glabrous inside; fruit narrowly ovate or oblong-ovate, 1.5–2.5 mm wide, apex acute; petals 1.8–2.5(–3) mm 10. *D. glomerata*
- 8b. Petals yellow.
- 14a. Leaf margin with exclusively malpighiaceae trichomes; seeds and aborted ovules 24–30 per fruit 40. *D. sibirica*
- 14b. Leaves without malpighiaceae trichomes; seeds and aborted ovules 6–24 per fruit.
- 15a. Style (1–)1.5–3.5; sepals 3–4.5 mm 32. *D. jucunda*
- 15b. Style to 1 mm, if to 1.5 mm then fruits linear to linear-oblong; sepals rarely to 3 mm.
- 16a. Leaf margin ciliate with setose or subsetose trichomes to 1.4 mm.
- 17a. Leaves linear or linear-oblong; petals 3–4 × 1–2 mm.
- 18a. Fruit ovoid to subglobose, inflated, 2.5–4.5 mm; ovules 4–8 per ovary 35. *D. cachemirica*
- 18b. Fruit elliptic-ovate, rarely oblong-lanceolate, flattened, 6–10 mm; ovules 12–16 per ovary 34. *D. setosa*
- 17b. Leaves variously shaped but not linear or linear-oblong; petals 4–7 × 2–3.5 mm.
- 19a. Fruiting pedicels pubescent all around; valves glabrous, base obtuse; racemes 3–7(–12)-flowered; plants surculose 33. *D. senilis*
- 19b. Fruiting pedicels glabrous; valves puberulent, base acute; racemes (6–)10–25(–35)-flowered; plants not surculose 38. *D. olgae*
- 16b. Leaf margin not ciliate or ciliate with nonsetose, shorter trichomes.
- 20a. Fruit inflated at least basally.
- 21a. Fruiting pedicels tomentose all around; ovules 16–24 per ovary; fruit apex obtuse 39. *D. humillima*
- 21b. Fruiting pedicels glabrous at least adaxially; ovules 4–12 per ovary; fruit apex acute to acuminate.
- 22a. Leaves abaxially tomentose with predominantly stellate trichomes; fruit inflated throughout, 2–4 mm, basally semicordate 36. *D. korshinskyi*
- 22b. Leaves abaxially pubescent with predominantly simple trichomes; fruit inflated only basally, (3–)4–9(–12) mm, basally not semicordate 30. *D. oreades*
- 20b. Fruit flattened.
- 23a. Fruit oblong, oblong-linear, or linear-lanceolate; fruiting pedicels (5–)7–18(–22) mm; leaf stellate trichomes 4–6-rayed, at least 1 ray laterally branched.
- 24a. Fruit valves with predominantly stellate trichomes; style 0.4–0.8 mm; seeds and aborted ovules 18–24 per fruit; petals 3.5–5 mm 28. *D. tibetica*
- 24b. Fruit valves with predominantly simple trichomes; style 0.7–1.5 mm; seeds and aborted ovules 10–16 per fruit; petals 4.5–6 mm 29. *D. alajica*
- 23b. Fruit ovate, suborbicular, or elliptic; fruiting pedicels 1–7(–10) mm; leaf stellate trichomes 3- or 4-rayed, all rays unbranched.
- 25a. Leaf trichomes predominantly simple, very rarely absent; fruit apex acute to acuminate; fruiting pedicels glabrous at least adaxially 30. *D. oreades*
- 25b. Leaf trichomes predominantly stellate; fruit apex obtuse; fruiting pedicels tomentose all around 31. *D. involucrata*
- 7b. Flowering stems 1- to many leaved.
- 26a. Petals white.

- 27a. Seeds and aborted ovules 24–60 per fruit.
- 28a. Fruit linear, 1–1.5 mm wide; fruiting pedicels divaricate, not appressed to rachis 1. *D. ladyginii*
- 28b. Fruit oblong-elliptic, oblong, lanceolate, or lanceolate-linear, 1.5–3 mm wide; fruiting pedicels erect to ascending, often subappressed to rachis.
- 29a. Stems and pedicels hirsute with simple trichomes; leaf stellate trichomes with unbranched rays 3. *D. parviflora*
- 29b. Stems and pedicels tomentose with primarily stellate and forked trichomes; leaf stellate trichomes with at least 1 ray laterally branched.
- 30a. Fruit oblong-elliptic to narrowly oblong, 2–3 mm wide; cauline leaves (2 or)3–5(–7) per stem; petals 3.5–7 mm 4. *D. subamplexicaulis*
- 30b. Fruit lanceolate to lanceolate-linear, 1.5–2 mm wide; cauline leaves 6–12(–16) per stem; petals 2.5–3.5 mm 2. *D. lanceolata*
- 27b. Seeds and aborted ovules 6–20(–22) per fruit.
- 31a. Petals broadly obovate, 2.5–4.5 mm wide; sepals 2.5–3 mm; fruit apex obtuse; basal leaves subfluclose with long, slender trichomes 13. *D. sikkimensis*
- 31b. Petals spatulate to narrowly obovate, 1–2(–3) mm wide; sepals 1–2(–2.5) mm; fruit apex acute to acuminate; basal leaves pubescent, pilose, or tomentose with short trichomes.
- 32a. Abaxial surface of basal leaves with predominantly simple trichomes, stellate trichomes with unbranched rays.
- 33a. Fruiting pedicels 1–4 mm; fruit not twisted; cauline leaves (1 or)2–6(–8); Gansu, Qinghai, Sichuan, Xinjiang, Xizang, Yunnan 7. *D. altaica*
- 33b. Fruiting pedicels 4–12 mm; fruit slightly twisted; cauline leaves 1–3; Taiwan 9. *D. sekiyana*
- 32b. Abaxial surface of basal leaves with predominantly stellate trichomes 1 to all 4 rays of with laterally branched.
- 34a. Stems distal half and fruiting pedicels glabrous or rarely glabrescent.
- 35a. Petals 2.5–3(–3.5) × 1–1.5 mm; fruit base obtuse; fruiting pedicels (1–)2–5(–7) mm; Xinjiang 15. *D. turczaninowii*
- 35b. Petals (3.5–)4–6 × 2–3 mm; fruit base acute; fruiting pedicels 4–13 mm; Jilin 14. *D. ussuriensis*
- 34b. Stems and fruiting pedicels tomentose throughout.
- 36a. Fruit (5–)6–11 mm, narrowly oblong-ellipsoid to lanceolate-linear; seeds and aborted ovules 12–22 per fruit.
- 37a. Fruiting pedicel erect to ascending, often subappressed to rachis; cauline leaves 1–4(or 5) per stem; fruit twisted 2 or 3 turns, rarely untwisted; base of cauline leaves often ciliate with simple trichomes 5. *D. lasiophylla*
- 37b. Fruiting pedicel divaricate, not appressed to rachis; cauline leaves 6–14(–17) per stem; fruit twisted 1 turn or untwisted; base of cauline leaves not ciliate with simple trichomes 6. *D. mongolica*
- 36b. Fruit 2–4(–5) mm, ovate, elliptic, or rarely oblong-ovate; seeds and aborted ovules 6–12 per fruit.
- 38a. Fruiting pedicels divaricate; racemes bracteate at least basally, slightly elongated in fruit 8. *D. lichiangensis*
- 38b. Fruiting pedicels erect to ascending; racemes ebracteate, distal half not elongated in fruit 10. *D. glomerata*
- 26b. Petals yellow.
- 39a. Racemes bracteate throughout or only basally.
- 40a. Racemes 2–10(–12)-flowered; fruiting pedicels glabrous or pubescent throughout, if glabrous adaxially then style 1.5–3 mm.
- 41a. Petals 2.5–3.5 × 0.8–1.5 mm; style 0.2–0.5 mm; lowermost fruiting pedicels filiform, to 4 cm, strongly recurved 41. *D. gracillima*
- 41b. Petals 6–8 × 3–6 mm; style longer; lowermost pedicels not filiform, to 1.8 cm, rarely recurved.
- 42a. Racemes bracteate basally; ovary and fruit hirsute; basal leaves ciliate 26. *D. bhutanica*
- 42b. Racemes bracteate throughout; ovary and fruit glabrous or puberulent; basal leaves not ciliate.
- 43a. Style ca. 1 mm; ovules ca. 4 per ovary; racemes 8–12-flowered; pedicels divaricate 22. *D. serpens*
- 43b. Style 2–3.5 mm; ovules 18–22 per ovary; racemes 2–6-flowered; pedicels recurved 25. *D. remotiflora*

- 40b. Racemes (12–)15–60(–140)-flowered; fruiting pedicels glabrous adaxially, pubescent abaxially.
- 44a. Fruit pilose; abaxial leaf surface with primarily simple and forked trichomes; lateral pair of sepals not saccate at base 24. *D. matangensis*
- 44b. Fruit glabrous; abaxial leaf surface with stellate trichomes; lateral pair of sepals subsaccate at base.
- 45a. Abaxial surface of basal and lowermost cauline leaves with 5–8-rayed stellate trichomes.
- 46a. Cauline leaves auriculate to amplexicaul, acute, dentate or denticulate; stems often branched; plants not canescent 18. *D. amplexicaulis*
- 46b. Cauline leaves not auriculate or amplexicaul, obtuse, entire; stems simple; plants canescent at least basally 16. *D. yunnanensis*
- 45b. Abaxial surface of basal and lowermost cauline leaves with simple, forked, or 3- or 4-rayed stellate trichomes.
- 47a. Cauline leaves neither auriculate nor amplexicaul; fruit 4–7 mm 23. *D. oreodoxa*
- 47b. Cauline leaves auriculate or amplexicaul; fruit (7–)10–15 mm.
- 48a. Caudex branches surculose; stems few to several from base; seeds and aborted ovules 8–12 per fruit 17. *D. surculosa*
- 48b. Caudex not surculose; stems simple at base; seeds and aborted ovules (12–)16–22(–24) per fruit 19. *D. polyphylla*
- 39b. Racemes ebracteate.
- 49a. Midvein of basal leaves prominent, persistent and often spinelike; leaf margin ciliate with setose or subsetose with simple trichomes to 1.5 mm.
- 50a. Fruit elliptic-ovate, rarely oblong-lanceolate; stems glabrous distally; leaves glabrous adaxially, midvein narrower than blade on each side 34. *D. setosa*
- 50b. Fruit linear-lanceolate; stems pubescent throughout; leaves hirsute adaxially, midvein wider than blade on each side 37. *D. linearifolia*
- 49b. Midvein of basal leaves obscure or evident, not persistent and spinelike, leaf margin not ciliate or ciliate with slender, nonsetose trichomes.
- 51a. Petals 1–1.5 mm; seeds and aborted ovules 24–38 per fruit; style absent 42. *D. zangbeiensis*
- 51b. Petals 2.5–8 mm; seeds and aborted ovules 4–20(–24); style 0.1–2 mm.
- 52a. Fruit ovate, suborbicular, or ovate-lanceolate.
- 53a. Cauline leaves 3–6(–9); fruiting pedicels 6–13(–17) mm; seeds and aborted ovules 16–20 per fruit; fruit valves pilose, flat 20. *D. elata*
- 53b. Cauline leaves 1(or 2); fruiting pedicels 1–7(–10) mm; seeds and aborted ovules 4–12 per fruit; fruit valves glabrous or rarely puberulent, inflated basally 30. *D. oreades*
- 52b. Fruit linear, linear-lanceolate, linear-elliptic, to oblong.
- 54a. Racemes (20–)30–90-flowered; fruiting pedicels glabrous adaxially, pubescent abaxially 21. *D. calcicola*
- 54b. Racemes 2–18(–20)-flowered; fruiting pedicels either glabrous throughout or pubescent all around.
- 55a. Cauline leaves 2–6; fruiting pedicels filiform, lowermost often recurved; abaxial surface of basal leaves with forked or 4-rayed stellate trichomes with unbranched rays.
- 56a. Petals 6–8 × 3–4 mm; fruit 1.5–2.2 cm; style 1.5–2 mm 27. *D. cholaensis*
- 56b. Petals 2.5–3.5 × 0.8–1.5 mm; fruit (0.5–)0.7–1.3(–1.8) cm; style 0.2–0.5 mm 41. *D. gracillima*
- 55b. Cauline leaves 1 or very rarely 2; fruiting pedicels not filiform, suberect to divaricate, straight; abaxial surface of basal leaves with 4–6-rayed stellate trichomes 1 or more rays of which forked or with a lateral branch on each side.
- 57a. Fruit valves with predominantly stellate trichomes; style 0.4–0.8 mm; seeds and aborted ovules 18–24 per fruit; petals 3.5–5 mm 28. *D. tibetica*

- 57b. Fruit valves with predominantly simple trichomes; style 0.7–1.5 mm; seeds and aborted ovules 10–16 per fruit; petals 4.5–6 mm 29. *D. alajica*

1. *Draba ladyginii* Pohle, Izv. Imp. Bot. Sada Petra Velikago 14: 472. 1914.

苞序葶苈 *bao xu ting li*

Draba incana Linnaeus var. *flaccida* Maximowicz; *D. incana* var. *microphylla* W. W. Smith; *D. lanceolata* Royle var. *chingii* O. E. Schulz; *D. lanceolata* var. *latifolia* O. E. Schulz.

Herbs perennial, (7–)15–45(–60) cm tall, caespitose. Caudex slender, few branched, ultimate branches terminated in rosettes, covered with petiolar remains of previous years. Stems erect, simple or rarely branched above middle, sparsely to densely pubescent with subsessile stellate trichomes, often glabrescent distally. Basal leaves rosulate, persistent; petiole 5–10(–15) mm, sometimes undifferentiated; leaf blade elliptic, oblong, or lanceolate, (0.3–)1–2.5(–4) cm × (1–)2–7(–10) mm, abaxially pubescent with sessile or short-stalked, 4-rayed stellate trichomes 1 or 2 rays of which often branched, adaxially pubescent with similar stellate trichomes or with a mixture of stellate and simple ones, base attenuate to cuneate, margin entire or denticulate, apex acute. Cauline leaves (4–)6–19(–26), sessile; leaf blade ovate, oblong, or elliptic, 0.4–2.5(–4) cm × 1.5–7(–15) mm, pubescent as basal leaves or adaxially strigose with simple trichomes, base cuneate to obtuse, margin entire or 1–4(–7)-toothed on each side, apex acute. Racemes (8–)14–35(–45)-flowered, bracteate basally, not elongated in fruit. Fruiting pedicels 2–10(–12) mm, divaricate, straight, glabrous or pubescent all around with subsessile, forked or stellate trichomes sometimes mixed with simple ones. Sepals oblong or ovate, 1–1.5 × 0.5–0.6 mm, erect, abaxially pilose with simple trichomes, base of lateral pair not saccate, margin membranous. Petals white, broadly spatulate, 2–3 × 0.8–1.1 mm, apex emarginate; claw absent. Filaments 0.9–2 mm; anthers ovate, 0.2–0.3 mm. Ovules (28–)32–52(–60) per ovary. Fruit linear, (5–)7–12(–17) × 1–1.5 mm, erect or rarely divaricate, latiseptate, rarely slightly twisted; valves glabrous, base and apex obtuse, with a distinct midvein; style obsolete, rarely to 0.1 mm. Seeds brown, ovate, 0.6–0.8 × 0.4–0.5 mm. Fl. and fr. Jun–Aug.

• Sunny roadsides, sandy damp places, scrub, alpine turf, wood margins; 2100–4700 m. Gansu, Hebei, Hubei, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan.

Except for not having fully mature fruits, the type collection of *Draba lanceolata* var. *chingii*, R. C. Ching 497 (holotype, B; isotypes, E, GH, P, PE, US), is indistinguishable from that of *D. ladyginii*, Ladygin 381 (holotype, LE; photos, MO, PE).

2. *Draba lanceolata* Royle, Ill. Bot. Himal. Mts. 1: 72. 1839.

锥果葶苈 *zhui guo ting li*

Draba lanceolata var. *brachycarpa* O. E. Schulz; *D. lanceolata* var. *leiocarpa* O. E. Schulz; *D. lanceolata* var. *sonamargensis* O. E. Schulz; *D. nichanaica* O. E.

Schulz; *D. stylaris* J. Gay ex E. A. Thomas var. *leiocarpa* L. L. Lou & T. Y. Cheo.

Herbs perennial, 10–30(–40) cm tall, caespitose. Caudex slender, few branched, ultimate branches terminated in rosettes, covered with petiolar remains of previous years. Stems erect, simple, tomentose with subsessile stellate trichomes. Basal leaves rosulate, persistent; petiole to 1.5 cm, often undifferentiated; leaf blade elliptic, oblong, or lanceolate, (0.4–)1–2(–3) cm × (1–)2–6 mm, tomentose with sessile or short-stalked, 4-rayed stellate trichomes 1 or 2 rays of which often branched, base attenuate to cuneate, margin entire or denticulate, apex acute. Cauline leaves 6–12(–16), sessile; leaf blade ovate, oblong, elliptic, or lanceolate, 0.7–2.6(–3.5) cm × 2–7(–10) mm, pubescent as basal leaves, often adaxially pilose with predominantly simple trichomes, base cuneate to obtuse, margin 2–5(–9)-toothed on each side, rarely entire, apex acute. Racemes (7–)14–32(–47)-flowered, ebracteate or lowermost flowers bracteate, elongated in fruit. Fruiting pedicels 2–4.5(–7) mm, erect or ascending, often appressed to rachis, straight, tomentose all around with subsessile, stellate trichomes sometimes mixed with simple ones. Sepals oblong or ovate, 1–2 × 0.5–0.8 mm, erect, abaxially pilose, base of lateral pair not saccate, margin membranous. Petals white, spatulate, 2.5–3.5 × 1–2 mm, apex subemarginate or rounded; claw absent or to 1 mm. Filaments 1.5–2 mm; anthers ovate, 0.2–0.3 mm. Ovules (26–)30–48(–56) per ovary. Fruit lanceolate to lanceolate-linear, (6–)7–11(–12) × 1.5–2 mm, erect and often appressed to rachis, latiseptate, rarely slightly twisted; valves tomentose or very rarely glabrous, obscurely veined, apex acute; style 0.1–0.6 mm. Seeds brown, ovate, 0.8–1.1 × 0.5–0.6 mm. Fl. and fr. Jun–Aug. $2n = 32$.

Mountain slopes, meadows, scrub, gravelly streambanks, roadsides; 1100–4900 m. Gansu, Qinghai, Xinjiang, Xizang [Afghanistan, India, Kashmir, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Sikkim, Tajikistan, E Turkmenistan, Uzbekistan].

Schulz confused the limits of *Draba ladyginii*, *D. lanceolata*, *D. lasiophylla*, and *D. mongolica*, as evidenced from the varieties he described originally under certain species and in his monograph transferred to others. The first two species are easily separated from the latter two by having usually more than 30 instead of less than 24 ovules/seeds per fruit. Other characters that distinguish the four species are given in the key above.

The records of *Draba incana* Linnaeus and *D. stylaris* J. Gay ex E. A. Thomas from China (e.g., FRPS 168–171; Fl. Qinghai. 1: 449. 1995; Fl. Sichuan. 14: 74. 1999; Fl. Xinjiang. 2(2): 123–126. 1995; Fl. Xizang. 2: 354–355. 1985) are based on misidentified plants of *D. lanceolata*. True *D. incana* (including *D. stylaris*) occurs only in Europe and North America (Canada and N United States). It differs from *D. lanceolata* in being biennial (instead of perennial with a

distinct caudex) and in having fruits elliptic to oblong and glabrous (instead of almost always lanceolate to lanceolate-linear and tomentose).

3. *Draba parviflora* (Regel) O. E. Schulz in Engler, *Pflanzenr.* 89(IV. 105): 273. 1927.

小花葶苈 xiao hua ting li

Draba hirta Linnaeus var. *leiocarpa* Regel f. *parviflora* Regel, *Nouv. Mém. Soc. Imp. Naturalistes Moscou* 11: 51. 1859; *D. subamplexicaulis* C. A. Meyer var. *hirsutifolia* Pohle.

Herbs perennial, (3–)6–20(–25) cm tall, compactly caespitose. Caudex few branched, ultimate branches terminated in rosettes, covered with leaf remains of previous years. Stems erect, simple, hirsute throughout with simple and coarse, forked trichomes. Basal leaves rosulate, persistent; petiole to 7 mm, ciliate; leaf blade oblong or oblanceolate, (0.3–)0.7–2(–2.5) cm × (1–)2–5 mm, abaxially hirsute with sessile or subsessile, 3- or 4-rayed stellate trichomes with unbranched rays, adaxially and ciliate margin with simple, stoutish trichomes to 1 mm, base attenuate to cuneate, margin entire or 1–3-denticulate, apex acute. Cauline leaves 2–4(–8), sessile; leaf blade ovate or oblong, 0.4–1.8 cm × 1–6 mm, pubescent as basal leaves, margin entire or 1–3-toothed on each side, apex subacute. Racemes 4–20-flowered, ebracteate, elongated in fruit. Fruiting pedicels 2–4 mm, erect, often appressed to rachis, straight, hirsute all around with simple trichomes. Sepals oblong-ovate, 1.5–2 × 0.5–0.8 mm, erect, abaxially pilose, base of lateral pair not saccate, margin not membranous. Petals white, spatulate, 2–3.5 × 1–1.5 mm, apex subemarginate or rounded; claw absent. Filaments 1–1.5 mm; anthers ovate, 0.2–0.3 mm. Ovules 24–30 per ovary. Fruit oblong-elliptic to oblong, 6–11 × 1.5–2(–2.5) mm, erect, often appressed to rachis, latiseptate, not twisted; valves glabrous, obscurely veined, base and apex subobtuse; style 0.1–0.3 mm. Seeds brown, ovate, 0.9–1.1 × 0.5–0.6 mm. Fl. and fr. Jun–Aug.

Stony meadows of alpine areas, streambanks; 2700–4100 m. Gansu, Qinghai, Xinjiang [Kazakhstan, Kyrgyzstan, Russia, Tajikistan].

The illustration of *Draba stylaris* J. Gay ex E. A. Thomas in *Fl. Xinjiang*. (2(2): 124. 1995) is based on misidentified plants of *D. parviflora*.

4. *Draba subamplexicaulis* C. A. Meyer in Ledebour, *Fl. Altaic*. 3: 77. 1831.

半抱茎葶苈 ban bao jing ting li

Draba dasycarpa C. A. Meyer; *D. hirta* Linnaeus var. *subamplexicaulis* (C. A. Meyer) Regel.

Herbs perennial, (4–)10–25(–35) cm tall, caespitose. Caudex slender, few branched, ultimate branches terminated in rosettes, covered with leaf remains of previous years. Stems erect, simple, tomentose with sessile, stellate and forked trichomes occasionally mixed with fewer, slender, simple ones. Basal leaves rosulate, persistent; petiole to 6 mm, sometimes ciliate; leaf blade oblong, or oblanceolate, 0.5–3(–3.6) cm ×

(1–)2–6(–10) mm, tomentose with sessile, 4-rayed stellate trichomes 1 to all rays of which with 1 or 2 lateral branches, base attenuate to cuneate, margin 1–5-toothed on each side, rarely subentire, apex acute. Cauline leaves (2 or)3–5(–7), sessile; leaf blade ovate to oblong, rarely elliptic or lanceolate, 0.7–2.6(–4) cm × 2–6(–10) mm, pubescent as basal leaves, base obtuse or subamplexicaul, margin 1–5-toothed on each side, rarely entire, apex acute. Racemes (3–)7–18(–20)-flowered, ebracteate, elongated in fruit. Fruiting pedicels 2–8(–12) mm, erect-ascending, straight, glabrous or tomentose all around with subsessile, forked and stellate trichomes sometimes mixed with simple ones. Sepals oblong or ovate, 2–2.7 × 1–1.3 mm, erect, abaxially pilose, base of lateral pair not saccate, margin narrowly membranous. Petals white, spatulate, 3.5–5 × 1.5–2.5 mm, apex emarginate; claw 1–2 mm. Filaments 1.5–3 mm; anthers ovate, 0.4–0.5 mm. Ovules 30–40 per ovary. Fruit oblong-elliptic to narrowly oblong, 5–14 × 2–3 mm, erect and often appressed to rachis, latiseptate, not twisted; valves glabrous or puberulent with simple and forked trichomes, not veined, base and apex obtuse to acute; style 0.1–0.5 mm. Seeds brown, ovate, 0.9–1.1 × 0.5–0.6 mm. Fl. and fr. Jun–Jul.

Rocky slopes, gravelly areas; 2300–4600 m. Qinghai, Shaanxi, Sichuan, Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia, Uzbekistan].

5. *Draba lasiophylla* Royle, *Ill. Bot. Himal. Mts.* 1: 71. 1839.

毛叶葶苈 mao ye ting li

Draba glomerata Royle var. *leiocarpa* Pampanini; *D. ladiyginii* Pohle var. *trichocarpa* O. E. Schulz; *D. lasiophylla* var. *leiocarpa* (Pampanini) O. E. Schulz; *D. lasiophylla* var. *royleana* Pohle; *D. torticarpa* L. L. Lou & T. Y. Cheo.

Herbs perennial, 4–20(–28) cm tall, caespitose. Caudex slender, few branched, ultimate branches terminated in rosettes, covered with petiolar remains of previous years. Stems erect, simple, tomentose with subsessile stellate trichomes. Basal leaves rosulate; petiole to 6 mm, often undifferentiated; leaf blade lanceolate or elliptic-oblong, (3–)4–15(–18) × 1–4(–5) mm, tomentose with sessile, 4-rayed stellate trichomes the rays of which with 1 or 2 lateral branches, base attenuate to cuneate, margin entire or 1–3-toothed on each side, often ciliate at least near base, apex acute. Cauline leaves 1–4(or 5), sessile; leaf blade ovate, oblong, or elliptic, (4–)6–10(–20) × 1.5–4(–7) mm, pubescent as basal leaves, base cuneate to obtuse, margin entire or 1–5-toothed on each side, often subsetose ciliate at base, apex acute. Racemes (5–)7–20(–25)-flowered, ebracteate or lowermost flowers bracteate, at least lowermost portion elongated in fruit. Fruiting pedicels (1–)2–6(–10) mm, erect or ascending, straight, often subappressed to rachis, tomentose all

around with subsessile, stellate trichomes rarely mixed with fewer simple ones. Sepals oblong, 1.2–1.8 × 0.5–0.9 mm, erect, abaxially pilose, base of lateral pair not saccate, margin membranous. Petals white, spatulate, 2–3.5 × 0.8–1.1 mm, apex subemarginate or rounded; claw absent. Filaments 1–1.8 mm; anthers ovate, ca. 0.2 mm. Ovules 12–20(–22) per ovary. Fruit narrowly oblong-ellipsoid to lanceolate-linear, (5–)7–10(–11) × 1.5–2 mm, erect to ascending, sometimes appressed to rachis, latiseptate, often twisted 2 or rarely 3 turns, rarely untwisted; valves tomentose or glabrous, obscurely veined, base obtuse, apex acute or acuminate; style 0.1–0.5 mm. Seeds brown, ovate, 0.8–1.1 × 0.4–0.5 mm. Fl. Jun–Aug, fr. Jul–Oct.

Mountain slopes, crevices, *Kobresia* turf; 3000–5200 m. Gansu, Hubei, Qinghai, Shaanxi, Sichuan, Xinjiang, Xizang [Bhutan, India, Kashmir, Kazakstan, Kyrgyzstan, Nepal, Sikkim, Tajikistan, Uzbekistan].

The above first records of *Draba lasiophylla* from Hubei, Sichuan, and Xinjiang are based on *Wilson 2069* (A, E, K, NY, P, W), *Harry Smith 11182* (UPS), and *Wu, Ohba, Wu & Fei 2108* (KUN, TI), respectively.

6. *Draba mongolica* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 15: 256. 1842.

蒙古葶苈 *meng gu ting li*

Draba incana Linnaeus var. *mongolica* (Turczaninow) Regel; *D. mongolica* var. *chinensis* Pohle; *D. mongolica* var. *elongata* Pohle; *D. mongolica* var. *trichocarpa* O. E. Schulz; *D. mongolica* var. *turczaninoviana* Pohle.

Herbs perennial, (3–)5–15(–20) cm tall, caespitose. Caudex slender, few branched, ultimate branches terminated in rosettes, covered with petiolar remains of previous years. Stems erect, simple, tomentose with subsessile stellate trichomes. Basal leaves rosulate; petiole absent or to 1.2 cm; leaf blade lanceolate, 0.8–3 cm × 1–5 mm, tomentose with sessile, 4-rayed stellate trichomes the rays of which with 1 or 2 lateral branches, base attenuate to cuneate, margin entire or dentate, not ciliate, apex acute. Cauline leaves 6–14(–17), sessile; leaf blade ovate, oblong, or elliptic, 0.6–1.5 cm × 2–7 mm, pubescent as basal leaves, base cuneate to obtuse, margin entire or 1–6-toothed on each side, not ciliate at base, apex acute. Racemes 7–20-flowered, ebracteate or lowermost flowers bracteate, elongated slightly in fruit. Fruiting pedicels 1–5(–6) mm, divaricate, straight, tomentose all around with subsessile, stellate trichomes. Sepals oblong, 1–1.8 × 0.5–0.9 mm, erect, abaxially pilose, base of lateral pair not saccate, margin membranous. Petals white, spatulate, 2–3.5 × 1–1.3 mm, apex subemarginate or rounded; claw absent. Filaments 1–1.8 mm; anthers ovate, 0.1–0.2 mm. Ovules 12–18(–20) per ovary. Fruit narrowly oblong-ellipsoid to lanceolate-linear, (5–)6–8(–9) × (1–)1.5–2.5 mm, erect, latiseptate, flat or twisted to 1 turn; valves tomentose or glabrous,

obscurely veined, base obtuse, apex acute or acuminate; style 0.1–0.3 mm. Seeds brown, ovate, 0.9–1.1 × 0.5–0.6 mm. Fl. and fr. Jun–Aug.

Crevices, grassy areas, slopes, river banks; 1700–4000 m. Gansu, Hebei, Heilongjiang, Jilin, Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang [Mongolia, Russia].

The above first record from Jilin is based on *Anonymous 986* (PE), collected from Antu Xian. *Draba mongolica* was recorded from Xizang in FRPS and by Pohle (Repert. Spec. Nov. Regni Veg. Beih. 32: 78. 1925), but the present authors have not examined material from that autonomous region.

7. *Draba altaica* (C. A. Meyer) Bunge, Delect. Seminum Hort. Bot. Dorpat. 1841: 8. 1841.

阿尔泰葶苈 *a er tai ting li*

Draba rupestris R. Brown var. *altaica* C. A. Meyer in Ledebour, Fl. Altaic. 3: 71. 1831; *D. altaica* var. *foliosa* O. E. Schulz; *D. altaica* var. *glabrescens* Lipsky; *D. altaica* var. *microcarpa* O. E. Schulz; *D. altaica* prol. *modesta* (W. W. Smith) O. E. Schulz; *D. altaica* var. *modesta* (W. W. Smith) W. T. Wang; *D. altaica* var. *racemosa* O. E. Schulz; *D. modesta* W. W. Smith; *D. rupestris* var. *pusilla* Karelina & Kirilov.

Herbs perennial, (1–)2–8(–10) cm tall, caespitose. Caudex few branched, ultimate branches terminated in rosettes and covered with petiolar remains of previous years. Stems erect, simple from caudex, rarely branched above, sparsely to densely hirsute with simple, straight or crisped trichomes to 0.7 mm, these sometimes mixed with forked and stellate ones, rarely glabrescent. Basal leaves rosulate, persistent; petiole (2–)5–12 mm, becoming stramineous; leaf blade linear-lanceolate or lanceolate, rarely oblanceolate or subspatulate, (0.3–)0.6–2(–3) cm × 1–4(–7) mm, pubescent exclusively or predominantly with simple trichomes, stellate or forked trichomes mainly on midvein, base attenuate to cuneate, margin entire or 1–3(–6)-toothed on each side, often ciliate, apex acute. Cauline leaves (1 or)2–6(–8), sessile; leaf blade ovate, oblong, elliptic, or lanceolate, (3–)4–13(–20) × 1–4.5(–6) mm, pubescent as basal leaves, base cuneate or obtuse, margin entire or 1–5(–7)-toothed on each side, apex acute. Racemes 5–15(–24)-flowered, bracteate basally, rarely ebracteate, not or only slightly elongated and subumbellate in fruit. Fruiting pedicels 1–4 mm, ascending to divaricate, straight, glabrous or sparsely to densely pubescent. Sepals oblong, 1–1.5 × 0.4–0.6 mm, erect, abaxially sparsely pubescent with simple trichomes, base of lateral pair not saccate, margin not membranous. Petals white, spatulate, (1.2–)1.5–2.5 × (0.5–)0.7–1 mm, apex emarginate; claw to 0.7 mm. Filaments (0.6–)1–1.5 mm; anthers ovate, 0.1–0.2 mm. Ovules 10–20 per ovary. Fruit ovate to oblong, (3–)4–7(–8) × 1.5–2 mm, latiseptate, not twisted; valves glabrous, not veined, base obtuse, apex acute; style 0.1–0.2 mm. Seeds brown, ovate, 0.7–0.9 × 0.5–0.6 mm. Fl. Jun–Aug, fr. Jul–Sep.

Rocky slopes, gravelly areas, moraine, streamsides, *Kobresia* mats, *Juniperus* forests, grassy slopes; 2000–5600 m. Gansu, Qinghai, Sichuan, Xinjiang, Xizang, Yunnan [Afghanistan, India, Kashmir, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Sikkim, Tajikistan].

A widespread and highly variable species divided by Schulz into seven infraspecific taxa that were based primarily on minor, continuous differences in plant height, number and size of cauline leaves, density of indumentum, and fruit size. However, a critical examination of the types of these taxa reveals that none of them merits recognition.

8. *Draba lichiangensis* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 11: 208. 1919.

丽江葶苈 *li jiang ting li*

Draba daochengensis W. T. Wang; *D. hicksii* Grierson; *D. lichiangensis* var. *microcarpa* O. E. Schulz; *D. lichiangensis* var. *trichocarpa* O. E. Schulz.

Herbs perennial, (1–)2–5(–8) cm tall, often densely caespitose, scapose. Caudex many branched, ultimate branches terminated in rosettes and covered with petiolar remains of previous years. Stems erect, simple, sparsely to densely tomentose with stellate trichomes. Basal leaves rosulate, persistent; petiole to 4 mm, persistent, ciliate with simple trichomes or not ciliate; leaf blade spatulate, oblanceolate, or rarely oblong, (2–)4–8 (–12) cm × (0.5–)1–2.5(–3) mm, abaxially tomentose with stellate trichomes the rays of which with 1 or 2 lateral branches, adaxially subglabrous or with simple or stellate trichomes, base attenuate, margin entire or minutely 1–4-toothed, apex obtuse to acute. Cauline leaves (1 or)2–8(–11), sessile; leaf blade ovate, oblong, or elliptic, similar in indumentum to basal leaves. Racemes (3–)5–10(–13)-flowered, lowermost flower(s) bracteate, very rarely bracteate throughout, slightly elongated in fruit. Fruiting pedicels (1–)2–8(–15) mm, divaricate, straight, sparsely to densely tomentose all around with stellate and forked trichomes. Sepals oblong, 1–1.8 × 0.6–0.8 mm, erect, abaxially sparsely pubescent, base of lateral pair not saccate, margin not membranous. Petals white, narrowly obovate to oblanceolate, 2–3 × 0.7–1.3 mm, apex subemarginate. Filaments 1–1.8 mm; anthers ovate, 0.2–0.3 mm. Ovules 8–12 per ovary. Fruit ovate to elliptic, 2–4(–5) × 1.5–2.5 mm, not inflated, latiseptate, not twisted; valves glabrous or rarely pubescent, obscurely veined, base obtuse to acute, apex acute; style 0.1–0.4 mm. Seeds brown, ovate, 0.9–1.3 × 0.6–0.9 mm. Fl. May–Jul, fr. Jun–Aug.

Mountain slopes, gravelly areas, crevices of limestone cliffs, scree, grassy hillsides, stony moist meadows; 3500–5000 m. Qinghai, Sichuan, Xizang, NW Yunnan [Bhutan, Nepal].

The above first record from Nepal is based on *Einarsson, Skåfby & Wetterhall 2727* (UPS). The above record from Bhutan is based on the holotype and paratype of *D. hicksii*, *Ludlow, Sherriff & Hicks 21111* (BM) and *Ludlow, Sherriff & Hicks 20348* (BM), respectively.

A comparison of the type collections of *Draba lichiangensis*, *Forrest 5698* (holotype, E; isotype, BM), and *D. daochengensis*, *Qinghai-Xizang Team 5091* (holotype, PE; isotypes, KUN, PE), shows that the

latter species is indistinguishable from plants of the former that grow in shaded rock crevices.

9. *Draba sekiyana* Ohwi, Repert. Spec. Nov. Regni Veg. 36: 51. 1934.

台湾葶苈 *tai wan ting li*

Herbs perennial, 3–6 cm tall, densely caespitose. Caudex several branched, ultimate branches terminated in sterile shoots or rosettes, covered with leaf remains of previous years. Stems erect, simple, moderately pilose or puberulent with crisped, primarily simple trichomes. Basal leaves rosulate, persistent; petiole to 5 mm, ciliate with simple trichomes; leaf blade lanceolate to oblanceolate, 4–10 × 1–2 mm, sparsely to moderately pilose with simple and much fewer, short-stalked forked trichomes, base attenuate, margin entire, apex obtuse to acute. Cauline leaves 1–3, sessile; leaf blade oblong to narrowly ovate, similar in indumentum to basal leaves. Racemes 4–8-flowered, ebracteate or rarely lowermost flower bracteate, elongated in fruit. Fruiting pedicels 4–12 mm, ascending to suberect, straight or slightly curved, slender, pilose or puberulent all around with simple trichomes. Sepals oblong, 1.5–2 × 0.6–0.8 mm, erect, abaxially sparsely pilose with simple trichomes sometimes mixed with much fewer ones, base of lateral pair not saccate, margin not membranous. Petals white, narrowly obovate, 2.5–3 × 0.9–1.1 mm, apex rounded. Filaments 1–1.7 mm; anthers ovate, 0.3–0.4 mm. Ovules 14–20 per ovary. Fruit oblong to elliptic, 5–10 × 1.5–2.5 mm, not inflated, latiseptate, slightly twisted; valves glabrous, obscurely veined, base obtuse, apex acute; style 0.1–0.4 mm. Seeds brown, oblong, ca. 1.1 × 0.6 mm. Fl. and fr. Aug–Sep.

• Mountain summits; 3000–3900 m. Taiwan.

10. *Draba glomerata* Royle, Ill. Bot. Himal. Mts. 1: 71. 1839.

球果葶苈 *qiu guo ting li*

Draba glomerata var. *dasycarpa* O. E. Schulz.

Herbs perennial, (1–)2–8(–10) cm tall, densely caespitose, often scapose. Caudex slender, often many branched, ultimate branches terminated in rosettes, covered with leaf remains of previous years. Stems erect, simple, tomentose with subsessile stellate trichomes. Basal leaves rosulate; petiole absent, rarely to 4 mm, rarely ciliate; leaf blade obovate, oblong, or lanceolate, 2–8 × (0.7–)1–2 mm, densely tomentose with sessile or subsessile, very fine, 4-rayed stellate trichomes the rays of which with 1 or 2 lateral branches on each side, base attenuate to cuneate, margin entire, not ciliate, apex obtuse. Cauline leaves (0 or)1–3(–5), sessile; leaf blade ovate, oblong, or elliptic, 2–5 × 0.5–2 mm, pubescent as basal leaves, base cuneate to obtuse, margin entire or rarely with 1 or 2 minute teeth on each side, not ciliate, apex subobtuse. Racemes 3–10-flowered, ebracteate or rarely lowermost flower

bracteate, basally slightly elongated, remainder often subumbellate in fruit; rachis straight. Fruiting pedicels 1–3(–4) mm, ascending, straight, tomentose all around with subsessile, stellate trichomes. Sepals oblong, 1–2 × 0.6–0.8 mm, erect, abaxially sparsely tomentose, base of lateral pair not saccate, margin narrowly membranous. Petals white, spatulate, 1.8–2.5(–3) × 0.8–1.2 mm, apex submarginate. Filaments 1–1.5 mm; anthers ovate, ca. 0.2 mm. Ovules (6–)8–12 per ovary. Fruit ovate, rarely oblong-ovate, (2.5–)3–4(–5) × 1.5–2.5 mm, not inflated, latiseptate, not twisted; valves glabrous or rarely puberulent, obscurely veined, base obtuse, apex acute; style obsolete or 0.1–0.2(–0.4) mm. Seeds brown, ovate, 0.7–1 × 0.5–0.7 mm. Fl. Jun–Aug, fr. Jul–Oct.

Grassy areas, sandy river banks, gravelly slopes; 2900–5500 m. Gansu, Sichuan, Qinghai, Xinjiang, Xizang [India, Kashmir, Nepal, Pakistan].

Accounts of *Draba dasyastra* in FRPS (p. 161–163), Fl. Qinghai. (1: 443–444. 1987), and Fl. Xizang. (2: 352–353. 1985) are based partly on misidentified plants of *D. glomerata* and partly on *D. winterbottomii*.

11. *Draba winterbottomii* (J. D. Hooker & Thomson) Pohle, Repert. Spec. Nov. Regni Veg. Beih. 32: 138. 1925.

棉毛葶苈 mian mao ting li

Draba tibetica J. D. Hooker & Thomson var. *winterbottomii* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 5: 152. 1861; *D. dasyastra* Gilg & O. E. Schulz; *Ptilotrichum wageri* Jafri.

Herbs perennial, (1–)2–7(–12) cm tall, densely or laxly cespitose, scapose. Caudex slender, often many branched, ultimate branches terminated in rosettes, covered with stramineous petiolar remains of previous years. Stems erect, simple, tomentose with subsessile stellate trichomes. Basal leaves rosulate; petiole absent, rarely to 6 mm, rarely ciliate; leaf blade obovate, oblong, spatulate, or lanceolate, 2–10 × 0.5–2 mm, densely tomentose with sessile or subsessile, very fine, 4-rayed stellate trichomes the rays of which with 1 or 2 lateral branches on each side, base attenuate to cuneate, margin entire, not ciliate, apex obtuse. Cauline leaves absent. Racemes 5–12-flowered, ebracteate, lax and elongated in fruit; rachis often flexuous, slender. Fruiting pedicels (3–)5–12(–15) mm, divaricate or rarely ascending, straight, tomentose all around with subsessile, stellate trichomes. Sepals oblong, 2–3 × 1–1.5 mm, erect, abaxially sparsely tomentose, base of lateral pair not saccate, margin narrowly membranous. Petals white, spatulate, 4–5 × 1.5–2.5 mm, apex submarginate or rounded. Filaments 2–3 mm; anthers ovate, 0.4–0.5 mm. Ovules (10–)12–20 per ovary. Fruit narrowly elliptic, lanceolate, or oblong, (3–)5–9 × 1.5–2.3(–2.8) mm, not inflated, latiseptate, often twisted; valves glabrous or rarely puberulent, obscurely veined, base obtuse, apex acute; style (0.5–)0.7–1.3(–1.5) mm.

Seeds brown, ovate, 0.9–1 × 0.7–0.8 mm. Fl. Jun–Aug, fr. Jul–Sep.

Grassy slopes, gravelly areas, glacial terraces; 4000–5900 m. Qinghai, Xizang [Kashmir, Pakistan].

Ptilotrichum wageri was recognized as a distinct species in FRPS (p. 127), Fl. Xinjiang. (2(2): 105–107. 1995), and Fl. Xizang. (2: 344. 1985). However, an examination of its holotype, *Wager 13* (K), clearly reveals that it is a synonym of *Draba winterbottomii*. No perennial species of *Alyssum* (including *Ptilotrichum*) has leafless scapes and more than four ovules per ovary. In his protologue of *P. wageri* (Notes Roy. Bot. Gard. Edinburgh 22: 208. 1957), Jafri erroneously stated that the ovary is 4-ovuled, though his hand-written comment on the holotype sheet correctly indicated that the ovary is 10-ovuled. The illustrations in Fl. Xinjiang. of two species of *Ptilotrichum* represent two forms of *Alyssum canescens*.

The record in FRPS (p. 141) of *Draba incompta* Steven from Xizang is based on misidentified plants of *D. winterbottomii*. True *D. incompta* is endemic to the Caucasus.

12. *Draba handelii* O. E. Schulz in Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 63: 97. 1926.

矮葶苈 ai ting li

Herbs perennial, 1.5–3 cm tall, densely cespitose, scapose. Caudex several and compactly branched, ultimate branches terminated in rosettes and covered with leaf remains of previous years. Stems erect, simple, tomentose with stellate trichomes. Basal leaves rosulate, persistent; petiole to 2 mm, ciliate with simple trichomes; leaf blade oblanceolate, 2–10 × 0.5–2.5 mm, densely tomentose with stellate trichomes the rays of which with 1 or 2 lateral branches, base attenuate, margin entire, apex obtuse or subacute. Cauline leaves absent. Racemes 3–10-flowered, ebracteate or lowermost flower bracteate, slightly elongated in fruit. Fruiting pedicels 1–3 mm, divaricate, straight or slightly recurved, tomentose all around with stellate trichomes. Sepals oblong, 1–1.2 × ca. 0.6 mm, erect, densely tomentose outside, sparsely tomentose inside, base of lateral pair not saccate, margin not membranous. Petals white, narrowly obovate, 1.5–2 × 0.6–0.8 mm, abaxially sparsely tomentose, apex rounded. Filaments 0.8–1.2 mm; anthers ovate, ca. 0.2 mm. Ovules 6–12 per ovary. Fruit oblong, 3–5 × 1–1.5 mm, not inflated, latiseptate, not twisted; valves densely puberulent with simple and forked trichomes, obscurely veined, base and apex obtuse; style 0.1–0.4 mm. Seeds brown, ovate, 0.6–0.8 × 0.4–0.5 mm. Fl. and fr. Jul.

• Granitic rock crevices; 4000–4100 m. NW Yunnan.

Draba handelii is unique among all Chinese species of the genus in having sepals sparsely tomentose adaxially and petals with a few stellate trichomes abaxially. Except for the type collection, *Handel-Mazzetti 9502* (holotype, WU; isotype, W), the present authors have seen no other material of *D. handelii*. The records and illustrations in FRPS (p. 162, 164) and Fl. Xizang. (2: 352, 354. 1985) of *Draba handelii* from Xizang are based on misidentified plants of *D. glomerata*.

13. *Draba sikkimensis* (J. D. Hooker & Thomson) Pohle, Repert. Spec. Nov. Regni Veg. Beih. 32: 144. 1925.

锡金葶苈 xi jin ting li

Draba tibetica J. D. Hooker & Thomson var. *sikkimensis* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 5: 152. 1861; *D. sikkimensis* f. *thoroldii* O. E. Schulz.

Herbs perennial, (4–)7–20(–26) cm tall, densely caespitose, scapose. Caudex several branched, ultimate branches terminated in rosettes and covered with leaves or petiolar remains of previous years. Stems erect, simple, densely tomentose proximally, sparsely so distally. Basal leaves rosulate, persistent; petiole 2–10 mm, persistent; leaf blade spatulate, oblanceolate, oblong, or rarely obovate, (0.3–)0.5–1.5(–2) cm × (1–)2–4(–6) mm, densely subfloccose with fine, stalked, stellate trichomes with simple or branched slender rays, sometimes fewer, slender, simple trichomes also present, base attenuate to cuneate, margin entire, apex obtuse to subacute. Cauline leaves absent or 1–4, sessile; leaf blade ovate to oblong, 4–15 × 2–4 mm, indumentum as basal leaves, margin entire, apex obtuse. Racemes (2–)5–16 (–20)-flowered, ebracteate, often elongated considerably in fruit; rachis straight. Fruiting pedicels (0.2–)0.7–1.7(–2) cm, erect and subappressed to rachis, or ascending, straight, tomentose all around. Sepals oblong, 2.5–3 × 1–1.5 mm, erect, abaxially sparsely pubescent, base of lateral pair not saccate, margin narrowly membranous. Petals white, broadly obovate, 5–7 × 2.5–4.5 mm, apex rounded; claw ca. 1 mm. Filaments 2.5–3; anthers ovate, 0.5–0.6 mm. Ovules 8–14 per ovary. Fruit oblong to elliptic, 6–12 × 2.5–3 mm, not inflated, latiseptate, twisted to 2 turns, very rarely not twisted; valves tomentose, not veined, base and apex obtuse; style (0.6–)1–1.5 mm. Seeds brown, ovate, 1–1.5 × 0.7–1 mm. Fl. Jun–Jul, fr. Aug–Sep.

Shady grassy slopes, stony slopes; 4800–5500 m. Xizang [Bhutan, Nepal, Sikkim].

The above first record from Nepal is based on *Miyamoto et al.* 9592300 (MO, TI).

14. *Draba ussuriensis* Pohle, *Izv. Imp. Bot. Sada Petra Velikago* 14: 470. 1914.

乌苏里葶苈 *wu su li ting li*

Herbs perennial, 3–15 cm tall, loosely caespitose, scapose. Caudex several branched, ultimate branches terminated in rosettes and covered with leaf remains of previous years. Stems erect, simple, sparsely pubescent with stellate trichomes, glabrous distally. Basal leaves rosulate, persistent; petiole to 5 mm, ciliate with simple trichomes; leaf blade oblong-obovate, spatulate, or oblanceolate, 0.6–1.6 cm × 2–4 mm, pubescent with subsessile stellate trichomes 1 or 2 rays of which forked or with a lateral branch, base attenuate, margin entire or 1–3-toothed on each side, ciliate with simple trichomes, apex obtuse to acute. Cauline leaves absent or 1 or 2(or 3), sessile; leaf blade ovate to oblong, 2–9 × 1–3 mm, pubescent as basal leaves, base obtuse, margin entire or 1–3-toothed, apex acute. Racemes 5–17-flowered, ebracteate, elongated in fruit. Fruiting pedicels 4–13 mm, divaricate, straight, slender, glabrous. Sepals

ovate-oblong, 1.8–2.5 × 0.9–1.3 mm, erect, abaxially sparsely pubescent, base of lateral pair not saccate, margin not membranous. Petals white, narrowly obovate, (3.5–)4–6 × 2–3 mm, apex subemarginate. Filaments 1.5–2.5 mm; anthers ovate, 0.2–0.3 mm. Ovules 12–16 per ovary. Fruit oblong-ovate to elliptic, 5–8(–10) × 2–2.5 mm, not inflated, latiseptate, not twisted; valves glabrous or pilose, not veined, base and apex acute; style ca. 1 mm. Mature seeds not seen. Fl. and fr. Jul–Aug. $2n = 16, 32$.

Sunny roadsides, hot springs, alpine moss plains; 2100–2600 m. Jilin [Japan, Russia].

Draba ussuriensis is very rare in China and is known to the present authors from a few collections made primarily in Changbai Shan, including *Hong et al.* 32754 (PE). The record in FRPS of *D. ussuriensis* from China is probably based on misidentified plants of *D. mongolica*.

15. *Draba turczaninowii* Pohle & N. Busch, *Izv. Rossijsk. Akad. Nauk* 15: 1633. 1918.

屠氏葶苈 *tu shi ting li*

Herbs perennial, (1–)2–8(–10) cm tall, caespitose, scapose. Caudex few to several branched, ultimate branches terminated in rosettes and covered with petiolar remains of previous years. Stems erect, simple or rarely branched, sparsely pubescent basally, glabrous in distal half. Basal leaves rosulate, persistent; petiole 1–5 mm, often ciliate with simple trichomes; leaf blade oblong to narrowly lanceolate, (0.3–)0.5–1.5 cm × 1–3 mm, sparsely to densely pubescent with stellate trichomes 1–4 rays of which with a lateral branch on each side, these sometimes mixed with fewer simple or forked trichomes, base cuneate, margin entire or minutely 1- or 2-toothed on each side, apex obtuse to acute. Cauline leaves 1 or 2, rarely absent or 3, sessile; leaf blade ovate to oblong, 3–12 × 1–4 mm, pubescent as basal leaves, base obtuse, margin entire or denticulate, apex obtuse or acute. Racemes 3–14-flowered, ebracteate, elongated in fruit. Fruiting pedicels (1–)2–5(–7) mm, ascending to erect-ascending, straight, stout, glabrous or rarely glabrescent. Sepals ovate-oblong, 1.4–1.8 × 0.6–1 mm, erect, abaxially sparsely pubescent with simple and forked trichomes, base of lateral pair not saccate, margin narrowly membranous. Petals white, narrowly obovate, 2.5–3(–3.5) × 1–1.5 mm, apex subemarginate. Filaments 1–1.5 mm; anthers ovate, 0.2–0.3 mm. Ovules 12–16 per ovary. Fruit lanceolate or ovate-lanceolate, (4–)6–10 × 1.5–2 (–2.5) mm, not inflated, latiseptate, not twisted; valves glabrous, not veined, base obtuse, apex acute to subacuminate; style 0.1–0.5 mm. Seeds brown, ovate, 0.9–1.4 × 0.6–1 mm. Fl. and fr. May–Aug.

Mountain slopes, alpine zone. Xinjiang [Kazakstan, Kyrgyzstan, Mongolia, Russia (S Siberia)].

Draba turczaninowii was first recorded for China in Fl. Xinjiang. (2(2): 119. 1995). Although the present authors have not examined the material on which that record is based, the occurrence of the species in Xinjiang is here confirmed based on *Yunatov & Chen 885, 961* (LE).

16. *Draba yunnanensis* Franchet, Bull. Soc. Bot. France 33: 402. 1886.

云南葶苈 *yun nan ting li*

Draba yunnanensis var. *gracilipes* Franchet; *D. yunnanensis* var. *latifolia* O. E. Schulz; *D. yunnanensis* var. *microcarpa* O. E. Schulz.

Herbs perennial, (5–)10–35(–60) cm tall, caespitose, canescent at least basally. Caudex simple or few to many branched, ultimate branches terminated in rosettes. Stems erect, simple, densely pubescent with a mixture of simple and sessile stellate trichomes, apically tomentose with appressed stellate ones. Basal leaves rosulate, persistent, sessile, oblong, oblong-linear, to narrowly oblanceolate, (0.5–)1–3.5(–5) cm × (1.5–)2–6(–8) mm, abaxially densely pubescent with subsessile, 5–8-rayed stellate trichomes, adaxially with a mixture of primarily simple trichomes and fewer stellate ones, rarely exclusively simple or stellate, base cuneate, margin entire, apex obtuse. Cauline leaves (4–)6–12(–18), sessile; leaf blade narrowly oblong, rarely lanceolate, (0.5–)1–3.8(–5) cm × 1.5–5(–8) mm, pubescent as basal leaves, base obtuse, not auriculate or amplexicaul, margin entire, apex obtuse. Racemes (12–)20–60(–80)-flowered, bracteate basally, elongated considerably in fruit. Fruiting pedicels (0.3–)0.5–1.5(–2) cm, divaricate, straight or slightly curved, glabrous adaxially, pubescent abaxially with stellate trichomes. Sepals oblong or ovate, 2–3(–3.5) × 1–1.5(–2) mm, ascending, abaxially sparsely pilose with primarily simple trichomes, base of lateral pair subsaccate, margin membranous. Petals yellow, obovate, 5–7(–8) × 2–3(–4) mm, apex emarginate; claw 1–2 mm. Filaments 2–3.5 mm; anthers oblong, 0.5–0.9 mm. Ovules (4–)6–10(–12) per ovary. Fruit ovate, sometimes elliptic or suborbicular, 3–7(–10) × 2–3(–4) mm, latiseptate, sometimes slightly twisted; valves glabrous, obscurely to distinctly veined; style 0.4–1.2(–2) mm. Seeds brown, ovate, 1.4–1.9 × 0.9–1.4 mm. Fl. May–Jul, fr. Jun–Sep.

• Rock crevices, limestone scree, open *Pinus-Quercus* forests, grassy scrub, limestone cliffs; 2300–5500 m. Sichuan, Xizang, Yunnan.

17. *Draba surculosa* Franchet, Bull. Soc. Bot. France 33: 401. 1886.

山菜葶苈 *shan cai ting li*

Draba amplexicaulis Franchet var. *bracteata* O. E. Schulz; *D. balangshanica* W. T. Wang; *D. mairei* H. Léveillé; *D. moupinensis* Franchet.

Herbs perennial, (7–)10–45(–82) cm tall, not canescent. Caudex branches many, surculose, terminated in rosettes. Stems erect or decumbent, simple, sparsely or

rarely densely pubescent with a mixture of simple and sessile stellate trichomes, apically tomentose with appressed stellate ones. Basal leaves rosulate, persistent, sessile, oblanceolate to obovate or oblong, 1–4 cm × 3–7 mm, abaxially sparsely pubescent with stalked, 3- or 4-rayed stellate trichomes, sometimes glabrescent except for margin and midvein, adaxially with a mixture of primarily simple trichomes and fewer stellate ones, rarely exclusively simple, base cuneate, margin dentate or entire, apex obtuse. Cauline leaves (3–)7–17(–30), sessile; leaf blade oblong, lanceolate, or ovate, 1.5–5(–8) × 0.5–1.5 cm, pubescent as basal leaves, base obtuse, often auriculate or amplexicaul, margin dentate or entire, apex obtuse or acute. Racemes (12–)20–60(–120)-flowered, bracteate basally or to near apex, elongated considerably in fruit. Fruiting pedicels (0.5–)1–2.2(–2.7) cm, divaricate, straight or curved upward, glabrous adaxially, pubescent abaxially with appressed stellate trichomes. Sepals oblong or ovate, 2–3(–3.5) × 1–1.5(–2) mm, ascending, abaxially sparsely pilose with primarily simple trichomes, base of lateral pair subsaccate, margin membranous. Petals yellow, obovate, 5–8 × (2–)2.5–4 mm, apex emarginate; claw 1–2 mm. Filaments 2–3.5 mm; anthers oblong, 0.6–0.9 mm. Ovules 8–12 per ovary. Fruit oblong, elliptic, or elliptic-linear, (0.7–)1–1.5 (–2) cm × 3–5 mm, latiseptate, sometimes slightly twisted; valves glabrous, with a distinct midvein extending full length; style 0.5–1.5 mm. Seeds brown, ovate, 1.6–2.5 × 1–1.5 mm. Fl. Jun–Aug, fr. Jul–Sep.

• Grassy slopes, pastures, rock crevices, alpine meadows, thickets, ravines, scree; 2600–4600 m. Sichuan, Xizang, Yunnan.

Draba surculosa is highly variable in the density of indumentum and the relative amounts of simple and stellate trichomes. Some forms are subglabrous except on the leaf margins, while others have an abundance of simple trichomes on both leaf surfaces. Among such forms is the type collection of *D. balangshanica*, *Expedition Wolong Panda Research 877* (isotype, PE), which is remarkably similar to that of *D. surculosa* except for the abundance of simple instead of stellate trichomes on the abaxial leaf surface.

18. *Draba amplexicaulis* Franchet, Bull. Soc. Bot. France 33: 403. 1886.

抱茎葶苈 *bao jing ting li*

Draba amplexicaulis var. *dolichocarpa* O. E. Schulz; *D. yunnanensis* Franchet var. *ramosa* O. E. Schulz.

Herbs perennial, (8–)20–60(–80) cm tall, caespitose, not canescent. Caudex simple or few to many branched, ultimate branches terminated in rosettes. Stems erect, often paniculate branched above, densely pubescent with a mixture of simple and sessile stellate trichomes, apically tomentose with appressed stellate ones. Basal leaves rosulate, sessile, narrowly obovate, oblanceolate, or oblong-linear, 0.8–7 × 0.3–2 cm, abaxially densely pubescent with subsessile, 5–8-rayed stellate trichomes, adaxially with a mixture of primarily simple trichomes and fewer stellate ones, base cuneate, margin entire or denticulate, apex obtuse. Cauline leaves (6–)10–25(–30), sessile; leaf blade ovate, narrowly oblong, or

lanceolate, (1–)2–6(–9) × (0.3–)0.5–1.5(–2) cm, pubescent as basal leaves, auriculate or amplexicaul, margin dentate or denticulate, apex often acute. Racemes 30–80(–100)-flowered, bracteate basally to almost throughout, elongated considerably in fruit. Fruiting pedicels (0.5–)0.8–2.5(–3) cm, divaricate or slightly reflexed, straight or slightly curved, glabrous adaxially, pubescent abaxially with stellate trichomes. Sepals oblong or ovate, 2–3(–3.5) × 1–1.5(–2) mm, ascending, abaxially sparsely pilose with primarily simple trichomes, base of lateral pair subsaccate, margin membranous. Petals yellow, obovate, 5–7(–8) × 2–3(–4) mm, apex emarginate; claw 1–2 mm. Filaments 2.5–4 mm; anthers oblong, 0.6–1 mm. Ovules 10–14 per ovary. Fruit elliptic, oblong, oblong-linear, or rarely ovate, (0.5–)0.7–1.4(–1.7) cm × (2–)3–4 mm, latiseptate, sometimes twisted; valves glabrous, with a distinct midvein to middle; style 0.5–2 mm. Seeds brown, ovate, 1.5–2.2 × 0.9–1.4 mm, wingless or rarely narrowly winged. Fl. Jun–Aug, fr. Jul–Sep.

• Grassy areas, rocky cliffs, stony slopes, thickets, scree, ledges; 2500–4700 m. Sichuan, Xizang, Yunnan.

Draba amplexicaulis was recorded in FRPS (as var. *dolichocarpa*) from Gansu, but the present authors have seen no material from that province.

19. *Draba polyphylla* O. E. Schulz in Engler, Pflanzenr. 89(IV. 105): 180. 1927.

多叶葶苈 *duo ye ting li*

Herbs perennial, (20–)30–65(–90) cm tall. Caudex simple or branched. Stems erect, simple, sparsely or rarely densely pubescent with a mixture of simple and sessile stellate trichomes, apically tomentose with appressed stellate ones. Basal leaves rosulate, persistent, sessile or rarely on petiole to 4 cm; leaf blade oblanceolate to spatulate, 1.5–5 cm × 5–11 mm, abaxially sparsely pubescent with stalked, 3- or 4-rayed stellate trichomes, sometimes glabrescent except for margin and midvein, adaxially with a mixture of primarily simple trichomes and fewer stellate ones, rarely exclusively simple, base cuneate, margin dentate or entire, apex obtuse. Cauline leaves 5–20 (–40), sessile; leaf blade oblong, lanceolate, or ovate, 1.2–3.5 (–5) cm × 4–11 mm, pubescent as basal leaves, base often auriculate or amplexicaul, margin dentate or subentire, apex obtuse or acute. Racemes 20–60(–140)-flowered, bracteate basally to throughout, elongated considerably in fruit. Fruiting pedicels (0.3–)0.7–2(–2.5) cm, divaricate, straight, glabrous adaxially, pubescent abaxially with appressed stellate trichomes. Sepals oblong or ovate, 2–3(–3.5) × 1–2 mm, ascending, abaxially sparsely pilose with primarily simple trichomes, base of lateral pair subsaccate, margin membranous. Petals yellow, obovate, 5–7(–8) × 2–3.5 mm, apex emarginate; claw 1–2 mm. Filaments 2.5–3.5(–4) mm; anthers oblong, 0.6–0.9 mm. Ovules (12–)16–22(–24) per ovary. Fruit oblong, elliptic, or ovate, (0.7–)1–1.5 cm × 3–5(–6) mm, latiseptate, rarely

slightly twisted; valves glabrous, with a distinct midvein extending to middle or full length; style 0.5–1.5 mm. Seeds brown, ovate, 1.5–1.9 × 1–1.3 mm. Fl. and fr. Jun–Aug.

Grassy slopes, scree, streamsides, among shrubs, forests, peaty meadows; 2900–5000 m. Xizang, Yunnan [Bhutan, Nepal, Sikkim].

20. *Draba elata* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 5: 150. 1861.

高茎葶苈 *gao jing ting li*

Herbs perennial, 20–45(–60) cm tall. Caudex simple or branched. Stems erect, simple, sparsely pubescent with a mixture of simple and sessile stellate trichomes, apically tomentose with appressed stellate ones. Basal leaves rosulate; petiole 0.6–3 cm; leaf blade narrowly oblanceolate to spatulate, (0.7–)1–3 (–4) cm × 2–4 mm, abaxially pubescent with stalked, 3- or 4-rayed stellate trichomes, adaxially with a mixture of primarily simple trichomes and fewer stellate ones, base attenuate, margin dentate or entire, apex subacute. Cauline leaves 3–6(–9), sessile; leaf blade oblong, lanceolate, or ovate, 0.8–3(–4) cm × 3–7 (–9) mm, pubescent as basal leaves, base cuneate, rarely obscurely auriculate, margin dentate or subentire, apex obtuse or acute. Racemes 10–25-flowered, ebracteate, elongated considerably in fruit. Fruiting pedicels 6–13(–17) cm, ascending, straight, pubescent all around with appressed stellate trichomes, rarely sparser adaxially. Sepals ovate, 1–2 × 0.8–1.5 mm, ascending, abaxially sparsely pilose with primarily simple trichomes, base of lateral pair not saccate, margin membranous. Petals yellow, obovate, 3–4.5 × 1.5–2 mm, apex emarginate; claw to 1 mm. Filaments 1–2 mm; anthers ovate, 0.4–0.5 mm. Ovules 16–20 per ovary. Fruit ovate to ovate-lanceolate, 7–12 × 3–4 mm, latiseptate, not twisted; valves pilose with simple and forked trichomes, with a distinct midvein extending to middle; style 0.5–1 mm. Seeds brown, ovate, 1.2–1.5 × 0.8–1 mm. Fl. and fr. Jun–Aug.

Mountain slopes, roadsides, wet grassy areas; 3400–4900 m. Xizang [Sikkim].

The records in FRPS (p. 146), Fl. Sichuan. (14: 64. 1999), and Fl. Yunnan. (6: 44. 1995) of *Draba elata* from Sichuan and Yunnan are most likely based on misidentified plants of *D. surculosa* and *D. amplexicaulis*. The present authors have seen no specimens of *D. elata* from these provinces.

21. *Draba calcicola* O. E. Schulz in Engler, Pflanzenr. 89(IV. 105): 373. 1927.

灰岩葶苈 *hui yan ting li*

Draba aprica O. E. Schulz in Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 63: 96. 1926, not Beadle (1913); *D. amplexicaulis* Franchet var. *dasycarpa* O. E. Schulz; *D. moupinensis* var. *calcicola* (O. E. Schulz) W. T. Wang; *D. moupinensis* Franchet var. *dasycarpa* O. E. Schulz.

Herbs perennial, 7–45 cm tall, caespitose, canescent at least basally. Caudex branched. Stems erect, much branched above, densely pubescent with a mixture of

simple and sessile stellate trichomes, apically tomentose with appressed stellate ones rarely with fewer simple trichomes. Basal leaves rosulate, sessile, oblong-linear to narrowly oblanceolate, 3–6 cm × 2–4 mm, abaxially densely pubescent with subsessile, 5–8-rayed stellate trichomes, adaxially with a mixture of primarily simple trichomes and fewer stellate ones, rarely exclusively simple, base attenuate, margin entire, apex obtuse. Cauline leaves 3–20, sessile; leaf blade ovate, oblong, or lanceolate, 1–5 cm × 3–7 mm, pubescent as basal leaves, base auriculate or amplexicaul, margin entire, apex obtuse. Racemes (20–)30–90-flowered, ebracteate, elongated considerably in fruit. Fruiting pedicels 3–15 mm, divaricate, straight or slightly curved, glabrous adaxially, pubescent abaxially with stellate trichomes. Sepals oblong or ovate, (2–)2.5–3.5 × 1–1.5 mm, ascending, abaxially sparsely pilose with primarily simple trichomes, base of lateral pair subsaccate, margin membranous. Petals yellow, obovate, (4.5–)5–7 × 2.5–4 mm, apex emarginate; claw 1–2 mm. Filaments 1.5–4 mm; anthers ovate, 0.4–0.6 mm. Ovules 6–12 per ovary. Fruit oblong to linear-elliptic, 4–10 × 2–4 mm, latiseptate, not twisted; valves densely pilose with simple, forked, or stellate trichomes, sometimes sparsely pilose only near fruit base; style 0.5–1.5 mm. Seeds brown, ovate, 1.2–1.5 × 0.8–1 mm. Fl. and fr. Jun–Aug.

• Cliffs, rocky slopes; 3300–3400 m. Yunnan.

22. *Draba serpens* O. E. Schulz in Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 63: 96. 1926.

中甸葶苈 *zhong dian ting li*

Herbs perennial, 4–12 cm tall, creeping, with few, slender stolons terminated in rosettes. Stems erect, simple, moderately pubescent with appressed, subsessile, forked and trifold trichomes, simple trichomes absent. Basal leaves rosulate, persistent, sessile, oblanceolate to narrowly obovate, 5–10 × 1–2.5 mm, abaxially densely hirsute with coarse, stalked, forked trichomes, adaxially with a mixture of simple and forked trichomes, base attenuate, margin entire, apex obtuse. Cauline leaves 7–15, sessile, oblong to narrowly obovate, 6–12 × 2–4 mm, glabrous or sparsely pilose, sometimes margin ciliate with simple and forked trichomes, base cuneate, not auriculate, margin entire, apex obtuse. Racemes corymbose, 8–10(–12)-flowered, bracteate throughout. Flowering pedicels 4–8 mm, divaricate, glabrous. Sepals ovate, 1.8–2.5 × 1–1.5 mm, ascending, abaxially sparsely pilose with primarily simple trichomes, margin membranous. Petals yellow, broadly obovate to suborbicular, 6–7.5 × 4–6 mm, apex emarginate; claw to 1 mm. Filaments 2–3.5 mm; anthers purplish, oblong, 0.5–0.7 mm. Ovules ca. 4 per ovary. Pistil glabrous; style conical, ca. 1 mm, nearly as long as ovary. Fruits and seeds unknown. Fl. Jun.

• Mountain slopes; 4300–4500 m. Yunnan.

Draba serpens, which is known only from the type collection, Handel-Mazzetti 6961 (holotype, B; isotypes, E, W, WU), resembles

Coelonema draboides (including *Draba stepposa*; see above) in many respects, but differs in having slender instead of dilated filament bases. Without mature fruits, however, its generic placement remains doubtful.

23. *Draba oreodoxa* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 11: 209. 1919.

山景葶苈 *shan jing ting li*

Draba dolichotricha W. T. Wang; *Draba ludingensis* W. T. Wang.

Herbs perennial, 5–24 cm tall, caespitose. Caudex few to many branched, with petiolar remains of previous years, ultimate branches terminated in rosettes. Stems erect to decumbent, simple, sparsely to densely pubescent with a mixture of simple, forked, and stellate trichomes, apically tomentose with appressed stellate ones. Basal leaves rosulate, persistent; petiole to 1 cm, base often persistent; leaf blade obovate, spatulate, to narrowly oblanceolate, 0.4–2 cm × (2–)3–7 mm, abaxially pubescent with subsessile, 4(or 5)-rayed, soft, fine stellate trichomes, adaxially with a mixture of primarily simple trichomes with fewer stellate and forked ones, sometimes trichomes restricted to leaf margins and midvein, base cuneate, margin entire or denticulate, apex obtuse or rounded. Cauline leaves 3–7, sessile; leaf blade narrowly oblong, oblanceolate, or ovate, 0.5–2 cm × (1.5–)2.5–5(–7) mm, pubescent as basal leaves, base obtuse, not auriculate, margin entire or denticulate, apex obtuse. Racemes 12–35-flowered, bracteate basally to beyond middle, elongated in fruit. Fruiting pedicels (0.4–)0.6–1.5 cm, divaricate, straight or slightly curved, glabrous adaxially, pubescent abaxially with stellate trichomes. Sepals ovate, 2–3 × 1–1.7 mm, ascending, abaxially sparsely pilose with primarily simple trichomes, base of lateral pair subsaccate, margin membranous. Petals yellow, obovate, (3.5–)4–6(–7) × 2–3(–4) mm, apex emarginate; claw to 1 mm. Filaments 1.5–3 mm; anthers ovate, 0.4–0.6 mm. Ovules (5–)8–12 per ovary. Fruit ovate, 4–7 × 3–5 mm, latiseptate, sometimes slightly twisted; valves glabrous; style ca. 0.5 mm. Seeds brown, ovate, 1.3–1.8 × 1–1.3 mm. Fl. and fr. Jun–Aug.

• Mountain summits, limestone gravel or scree, pastures, grass meadows, rocky crevices, grassy slopes; 3800–4800 m. Sichuan, Yunnan.

24. *Draba matangensis* O. E. Schulz, Acta Horti Gothob. 1: 163. 1924.

马塘葶苈 *ma tang ting li*

Herbs perennial, 10–35 cm tall, without stellate trichomes. Caudex few branched, ultimate branches terminated in rosettes. Stems erect, simple, densely pubescent with a mixture of simple and short-stalked trichomes crisped and soft on distal parts of plant. Basal leaves rosulate, persistent; petiole 0.5–5 cm; leaf blade oblong, elliptic to oblanceolate, 0.7–4 cm × 5–12 mm,

moderately pilose on both surfaces with simple and short-stalked forked trichomes, base cuneate to attenuate, margin entire or denticulate, apex acute. Cauline leaves 4–14, sessile; leaf blade narrowly oblong, elliptic, or lanceolate, 1–3 cm × 4–7 mm, pubescent as basal leaves, base cuneate, not auriculate, margin dentate or denticulate, apex acute. Racemes 15–32-flowered, bracteate basally, elongated considerably in fruit. Fruiting pedicels 0.5–2.5(–3.2) cm, divaricate to ascending, straight or slightly curved, glabrous adaxially, pubescent abaxially with soft, simple and forked trichomes. Sepals oblong, 2–3 × 1–1.7 mm, ascending, abaxially pilose with simple trichomes, base of lateral pair not saccate, margin membranous. Petals yellow, obovate, 5.5–7 × 3–4 mm, apex emarginate; claw ca. 1 mm. Filaments 2–3.5 mm; anthers oblong, 0.6–1 mm. Ovules 4–8 per ovary. Fruit ovate to suborbicular, 3–8 × 3–4 mm, latiseptate, sometimes slightly twisted; valves puberulent with simple trichomes, obscurely to distinctly veined; style 0.4–1 mm. Seeds brown, ovate, 1.3–1.6 × 0.9–1.3 mm. Fl. Jun–Jul, fr. Jul–Sep.

- Rocky mountain slopes; 3600–5100 m. Sichuan, Xizang.

The above first record from Xizang is based on *Ludlow, Sherriff & Elliot 15386* (BM, E, TI). The only other collections examined by the present authors are the type collection, *Harry Smith 4415* (holotype, UPS; isotypes, B, W), and *Li Xin 77774* (IBSC, MO).

25. *Draba remotiflora* O. E. Schulz, *Acta Horti Gothob.* 1: 165. 1924.

疏花葶苈 *shu hua ting li*

Herbs perennial, 5–15 cm tall. Caudex several branched, ultimate branches subfiliform, terminated in rosettes. Stems decumbent, simple, basally sparsely pubescent with stalked, forked trichomes, distally with crisped, appressed, sessile or short-stalked, forked or 3-branched trichomes. Basal leaves rosulate, persistent; petiolelike base 2–15 mm; leaf blade broadly obovate, 0.5–1.7 cm × 3–8 mm, abaxially sparsely pilose with a mixture of long-stalked, forked and minutely 3- or 4-rayed stellate trichomes, adaxially with predominantly long-stalked forked trichomes, base cuneate to attenuate, margin 1- or 2-toothed on each side, sometimes subtrilobed and with the terminal lobe largest, apex subacute. Cauline leaves 5–10, similar to basal leaves in shape and indumentum, uppermost bracts entire, oblong. Racemes 2–6-flowered, bracteate throughout, elongated considerably in fruit. Fruiting pedicels 0.5–1.5 cm, strongly recurved or uppermost ascending, sparsely pubescent all around with appressed, subsessile, forked and 3-branched trichomes. Sepals oblong or ovate, 3–3.5 × ca. 1.5 mm, spreading, abaxially pilose with simple trichomes, not saccate, margin membranous. Petals yellow, broadly obovate, 6–8 × 3–4 mm, spreading, apex emarginate; claw 2–3 mm. Filaments 3.5–5 mm, spreading; anthers oblong, 0.7–1 mm. Ovules 18–22 per ovary. Fruit suborbicular, ovate to

oblong, 0.7–1.3 cm × 3–6 mm, pendulous, latiseptate, not twisted; valves puberulent with simple trichomes and fewer, forked trichomes, obscurely veined; style 2–3.5 mm. Seeds brown, ovate, 1.2–1.5 × 0.9–1.1 mm. Fl. and fr. Aug.

- Rocky crevices; ca. 4600 m. Sichuan.

Draba remotiflora is known only from the type collection, *Harry Smith 3474* (holotype, UPS; isotypes, B, BM, E, K, W). It is readily distinguished from all other Chinese species by having lax, few-flowered racemes, spreading floral parts, pendulous, pilose fruits on strongly recurved, lowermost pedicels, and long styles 2–3.5 mm.

26. *Draba bhutanica* H. Hara, *J. Jap. Bot.* 49: 131. 1974.

不丹葶苈 *bu dan ting li*

Herbs perennial, 3–8 cm tall, densely caespitose, subsca-pose. Caudex many branched, ultimate branches terminated in rosettes and covered with remains of previous years. Stems erect, simple, often densely pubescent with a mixture of simple and subsessile forked trichomes. Basal leaves rosulate, persistent, sessile; leaf blade obovate-oblong to oblong, 3–12 × 1.5–5 mm, thickish, sparsely pubescent with simple and rigid, stalked, forked trichomes, subglabrous adaxially except for margins, base cuneate, margin entire or rarely 1–3-toothed, often ciliate with simple trichomes, apex obtuse to acute. Cauline leaves (bracts) 2–8, sessile, proximal ones elliptic to oblong, 3–11 × 1–4 mm, base subobtusate, margin entire, apex obtuse to subacute. Racemes 2–10-flowered, bracteate basally, soon elongated. Flowering pedicels 0.2–1.8 cm, divaricate or divaricate-ascending, straight, tomentose or pilose abaxially, glabrous adaxially. Sepals oblong to ovate, 2.5–3.5 × 1.5–2 mm, erect, abaxially sparsely pilose, base of lateral pair subsaccate, margin narrowly membranous. Petals yellow, broadly obovate, 6–8 × 3.5–5.5 mm, apex subemarginate or rounded; claw to 1 mm. Filaments 3–4 mm; anthers oblong, 0.7–1 mm. Young fruits oblong, latiseptate; valves subhirsute with simple or forked trichomes, base and apex obtuse; style 1.5–3 mm. Seeds of previous season brown, ovate, ca. 1.3 × 1 mm. Fl. Jun–Jul.

Alpine pastures, open hillsides; 3900–4400 m. Xizang [Bhutan].

The above first record from China is based on *Ludlow & Sherriff 5592* (BM, E).

27. *Draba cholaensis* W. W. Smith, *Rec. Bot. Surv. India* 4: 352. 1913.

大花葶苈 *da hua ting li*

Draba cholaensis var. *leiocarpa* H. Hara.

Herbs perennial, 5–20 cm tall. Caudex branches slender, few to many, without petiolar remains of previous years. Stems erect to ascending, simple, slender, sparsely pilose proximally with simple trichomes rarely mixed with fewer forked ones. Basal leaves subsulate; petiole rarely to 1 cm, ciliate with simple trichomes; leaf blade narrowly obovate or oblanceolate, sometimes oblong-obovate, 0.4–2 cm × 2–8 mm, often sparsely pilose with simple trichomes, abaxially often with stalked forked trichomes rarely also some stellate ones,

base cuneate to attenuate, margin entire or minutely 1- or 2-toothed on each side, ciliate with simple trichomes to 1 mm, apex obtuse to acute. Cauline leaves 2–6, sessile; leaf blade oblong to subelliptic, 4–12 × 2–4 mm, with indumentum and leaf margin and apex similar to basal leaves. Racemes 2–5(–12)-flowered, ebracteate, elongated considerably and lax, subflexuous in fruit. Fruiting pedicels 0.6–2 cm, filiform, ascending to divaricate, slightly reflexed, straight or curved, glabrous. Sepals oblong, 2.5–3 × 1.5–1.8 mm, erect, abaxially sparsely pilose with simple trichomes, base of lateral pair subsaccate, margin narrowly membranous. Petals yellow, broadly obovate, 6–8 × 3–4 mm, apex subemarginate; claw to 1 mm. Filaments 3–4.5 mm; anthers oblong, 0.7–0.8 mm. Ovules 18–22 per ovary. Fruit linear, 1.5–2.2 cm × 1.5–2.5 mm, latiseptate, not twisted; valves glabrous or pilose, base and apex subobtuse; style 1.5–2 mm. Seeds brown, oblong, 1–1.3 × 0.6–0.8 mm. Fl. and fr. Jun–Jul.

Rocky grounds; 3700–4300 m. Xizang [Sikkim].

The above first record from China is based on *Gould 2025* (K).

28. *Draba tibetica* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 5: 152. 1861.

西藏葶苈 xi zang ting li

Draba sikkimensis (J. D. Hooker & Thomson) Pohle var. *chitralensis* O. E. Schulz; *D. thomsonii* (J. D. Hooker & Thomson) Pohle; *D. thomsonii* var. *lasiocarpa* (Lipsky) Pohle; *D. thomsonii* var. *leiocarpa* (Lipsky) Pohle; *D. tibetica* var. *chitralensis* (O. E. Schulz) Jafri; *D. tibetica* var. *duthiei* O. E. Schulz; *D. tibetica* var. *thomsonii* J. D. Hooker & Thomson; *D. tibetica* var. *turkestanica* (Regel & Schmalhausen) O. E. Schulz; *D. tibetica* var. *turkestanica* subvar. *leiocarpa* O. E. Schulz; *D. tranzschelii* Litvinov; *D. turkestanica* Regel & Schmalhausen; *D. turkestanica* var. *lasiocarpa* Lipsky; *D. turkestanica* var. *leiocarpa* Lipsky.

Herbs perennial, 6–25 cm tall, densely caespitose, scapose. Caudex few to many branched, ultimate branches terminated in rosettes and covered with leaves of previous years. Stems erect, simple, densely tomentose with stellate trichomes, or glabrous throughout. Basal leaves rosulate, persistent; petiole to 1 cm; leaf blade oblanceolate to oblong, sometimes oblong-lanceolate, (0.4–)0.8–2.5(–3) cm × (1–)2–5(–7) mm, densely tomentose with short, 4–6-rayed stellate trichomes 1 or more rays of which forked or with a lateral branch on each side, base attenuate or cuneate, margin entire or rarely 1-toothed on each side, apex obtuse. Cauline leaves absent or 1, very rarely 2, sessile; leaf blade oblong, 0.5–1.5 cm × 1–2 mm, tomentose as basal leaves, margin entire, apex obtuse. Racemes 5–9(–13)-flowered, ebracteate, elongated considerably in fruit. Fruiting pedicels (0.5–) 0.7–1.8(–2.2) cm, ascending to suberect, straight, tomentose all around. Sepals ovate or oblong, 2–3 × 0.7–1.2 mm, erect, abaxially sparsely pubescent, base of lateral pair not saccate, margin narrowly membranous. Petals yellow,

sometimes drying white, obovate, 3.5–5 × 1.5–2.5 mm, apex subemarginate or rounded. Filaments 2–3.5 mm; anthers ovate, 0.3–0.4 mm. Ovules 18–24 per ovary. Fruit oblong, oblong-linear, or narrowly lanceolate, (0.7–)0.9–1.7 cm × 1.5–2.5(–3) mm, not inflated, latiseptate, twisted or not; valves puberulent with predominantly stellate and fewer forked trichomes, not veined, base obtuse, apex subacute; style 0.4–0.8 mm. Seeds brown, oblong, 1–1.5 × 0.6–0.9 mm. Fl. and fr. Jun–Aug.

Mountain slopes, shrubby areas; 2500–4600 m. Xinjiang, Xizang [Afghanistan, Kashmir, Kazakstan, Kyrgyzstan, Pakistan, Sikkim, Tajikistan].

29. *Draba alajica* Litvinov, Trudy Bot. Muz. Imp. Akad. Nauk 1: 14. 1902.

帕米尔葶苈 pa mi er ting li

Draba alajica var. *lasiocarpa* Pohle; *D. alajica* var. *leiocarpa* Pohle; *D. winterbottomii* (J. D. Hooker & Thomson) Pohle var. *stracheyi* O. E. Schulz.

Herbs perennial, 3–15 cm tall, densely caespitose, scapose. Caudex few to many branched, ultimate branches terminated in rosettes and covered with leaves of previous years. Stems erect, simple, sparsely tomentose proximally, glabrous or glabrescent distally, rarely sparsely with stellate trichomes. Basal leaves rosulate, persistent; petiole to 6 cm; leaf blade oblong or oblong-spatulate, rarely linear-oblong, (0.3–)0.6–1.7(–1.9) cm × 1.5–4 mm, densely tomentose with 4–6-rayed stellate trichomes 1 or more rays of which forked or with a lateral branch on each side, base attenuate or cuneate, margin entire, apex obtuse. Cauline leaves absent or rarely 1, sessile; leaf blade oblong, tomentose as basal leaves, margin entire, apex obtuse. Racemes 5–18 (–20)-flowered, ebracteate, elongated in fruit. Fruiting pedicels (0.5–)0.7–1.5 cm, ascending to subdivaricate, straight, glabrous or rarely sparsely tomentose all around. Sepals ovate or oblong, 2–3 × 1–1.5 mm, erect, abaxially sparsely tomentose with stellate trichomes, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, obovate, 4.5–6 × 2–3 mm, apex subemarginate or rounded. Filaments 2–3 mm; anthers oblong, 0.5–0.6 mm. Ovules 10–16 per ovary. Fruit linear-lanceolate to oblong-linear, (0.5–)0.7–1.3 cm × 1.5–2 mm, not inflated, latiseptate, not twisted or slightly twisted; valves puberulent with predominately simple and fewer forked trichomes, not veined, base obtuse, apex subacute; style 0.7–1.5 mm. Seeds brown, oblong, ca. 1 × 0.6 mm. Fl. and fr. Jun–Aug.

Grassy and stony slopes in alpine areas; 3400–4700 m. SW Xizang [Tajikistan].

The above first record of *Draba alajica* from China is based on the type collection of *D. winterbottomii* var. *stracheyi*, *J. E. Winterbottom s.n.* (holotype, K; isotypes, BM, GH, P). The species was previously known to be endemic to SE Tajikistan (Pamir Alay and adjacent parts), and it is likely to be found in neighboring SW Xinjiang and Kashmir.

30. *Draba oreades* Schrenk in Fischer & C. A. Meyer, Enum. Pl. Nov. 2: 56. 1842.

喜山葶苈 *xi shan ting li*

Draba algida Adams var. *brachycarpa* Bunge; *D. alpicola* Klotzsch; *D. alpina* Linnaeus var. *rigida* Franchet; *D. kizylarti* (Korshinsky) N. Busch; *D. oreades* prol. *alpicola* (Klotzsch) O. E. Schulz; *D. oreades* prol. *chinensis* O. E. Schulz; *D. oreades* var. *ciliolata* O. E. Schulz; *D. oreades* var. *commutata* (Regel) O. E. Schulz; *D. oreades* var. *dasycarpa* O. E. Schulz; *D. oreades* var. *depauperata* O. E. Schulz; *D. oreades* var. *estylota* O. E. Schulz; *D. oreades* prol. *exigua* O. E. Schulz; *D. oreades* var. *glabrescens* O. E. Schulz; *D. oreades* var. *occulata* O. E. Schulz; *D. oreades* prol. *pikai* O. E. Schulz; *D. oreades* var. *pulvinata* O. E. Schulz; *D. oreades* var. *racemosa* O. E. Schulz; *D. oreades* var. *tafelii* O. E. Schulz; *D. pilosa* Adams var. *commutata* Regel; *D. pilosa* var. *oreades* (Schrenk) Regel; *D. qinghaiensis* L. L. Lou; *D. rockii* O. E. Schulz; *D. tianschanica* Pohle; *Pseudobrara kizylarti* Korshinsky.

Herbs perennial, (0.5–)1.5–14(–20) cm tall, caespitose, scapose. Caudex simple to many branched, ultimate branches terminated in rosettes and covered with petiolar remains of previous years. Stems erect, simple, often densely pubescent with a mixture of simple and sessile forked trichomes, sometimes subhirsute with almost exclusively simple trichomes, rarely glabrous. Basal leaves rosulate, persistent; petiole absent or short, rarely to 2 cm, persistent, often ciliate with simple and/or long-stalked forked trichomes; leaf blade suborbicular, obovate, spatulate, oblanceolate, or lanceolate, (0.3–)0.5–2(–3) cm × (1–)2–6(–8) mm, sparsely or densely pubescent with simple trichomes, these often mixed abaxially with stalked forked and sessile, 3- or 4-rayed stellate ones with unbranched rays, adaxially with predominantly simple trichomes, rarely glabrous except for margins, base cuneate to attenuate, margin entire or rarely 1- or 2-toothed on each side, apex obtuse to acute. Cauline leaves absent, sometimes 1, very rarely 2, sessile, similar to basal. Racemes (2–)4–15(–25)-flowered, ebracteate, subumbellate and not elongated or rarely subracemose and slightly elongated in fruit. Fruiting pedicels 1–7(–10) mm, divaricate or divaricate-ascending, straight or rarely slightly curved, tomentose or pilose abaxially, glabrous adaxially or rarely throughout. Sepals oblong or ovate, 1.5–2.5(–3) × 0.8–1.5(–1.8) mm, erect, caducous or rarely persistent, abaxially sparsely pilose or glabrous, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, obovate to narrowly spatulate, 2.5–5(–6) × (0.9–)1.5–2.5(–3) mm, apex emarginate or rounded; claw absent, rarely 1(–2) mm. Filaments 1.5–2.5(–3) mm; anthers ovate, 0.2–0.4(–0.6) mm. Ovules (4–)6–12 per ovary. Fruit ovate

to suborbicular, rarely ovate-lanceolate, (3–)4–9(–12) × 1.5–4.5(–6) mm, latiseptate and basally inflated, not twisted; valves glabrous or rarely puberulent with simple or forked trichomes, not veined, base obtuse, apex acute to subacuminate; style (0.1–)0.3–0.8(–1) mm. Seeds black to dark brown, ovate, (0.7–)1–1.5 × 0.5–0.9(–1) mm. Fl. and fr. Jun–Aug. $2n = 40^*$.

Rock crevices, moraine, scree, alpine meadows and tundra, glacier margins, hillsides, grassy slopes, swampy meadows, muddy gravel, rocky outcrops, cliffs; 2300–5500 m. Gansu, Nei Mongol, Qinghai, Shaanxi, Sichuan, Xinjiang, Xizang, Yunnan [Bhutan, India, Kashmir, Kazakstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Sikkim, Tajikistan].

Draba oreades is probably the most variable of all Asian species in the genus. A critical examination of the type collections of all except one of the taxa synonymized above (*D. tianschanica*) clearly reveals the following facts: firstly, all of the 14 infraspecific taxa recognized by Schulz are based on quantitative differences of highly variable characters (e.g., density of indumentum, scape length, petal and fruit length, and presence vs. absence of fruit trichomes); secondly, the infraspecific taxa recognized by Schulz occur sporadically throughout most of the range of the species, and none has a distinct geographic distribution; thirdly, Schulz repeatedly recognized two or more varieties from a single collection and often from a single sheet; and fourthly, some of Schulz's varieties (see below) are based on erroneously interpreted characters. Therefore, none of Schulz's varieties merits recognition, a conclusion already reached by several workers who wrote accounts of *Draba* for countries bordering China.

In the protologue of *Draba rockii*, Schulz (Notizbl. Bot. Gart. Berlin-Dahlem 10: 555. 1929) compared his new species with *D. involucrata*, and he was correct in pointing out the differences between the two taxa. However, had the type collection of *D. rockii* been compared with material of *D. oreades*, no differences would have been found. Indeed, *D. rockii* is indistinguishable from any collection that Schulz in his monograph cited under *D. oreades* var. *oreades* or *D. oreades* prol. *chinensis*. The records in FRPS, Fl. Qinghai. (1: 442. 1997), and Fl. Xinjiang. (2(2): 117. 1995) of *D. rockii* from Qinghai and Xinjiang are likely based on misidentified plants of *D. korshinskyi*.

The allegedly slightly longer scapes and slightly larger flowers and fruits that Schulz used to distinguish *Draba oreades* var. *oreades* from prol. *chinensis* are unrealistic. In fact, there is a considerable overlap in every character, and the type collection of prol. *chinensis* can easily be accommodated under var. *oreades*.

Schulz indicated that both *Draba oreades* var. *ciliolata* and var. *dasycarpa* are distinguished from the rest of the species by having pubescent instead of glabrous fruits. However, the holotype specimen of var. *ciliolata* has four plants, of which three have pubescent fruits and one has glabrous ones, whereas the holotype of var. *dasycarpa* has four plants in flower/fruit, of which one has pilose fruits and three have glabrous ones. These facts clearly show the artificiality of Schulz's varieties.

Plants that are completely glabrous, which correspond very well with the holotype of *D. qinghaiensis*, occur sporadically in China and in bordering countries. They are indistinguishable from typical plants of *D. oreades* in other characters and, therefore, the two taxa are here considered to be conspecific.

Draba alpina Linnaeus was recorded from China in several treatments (e.g., FRPS, p. 135; Fl. Qinghai. 1: 439. 1995; Fl. Xinjiang. 2(2): 114. 1995; Fl. Xizang. 2: 348. 1985; Fl. Yunnan. 6: 39. 1995), but these records are based on misidentified plants of *D. oreades*. True *D. alpina* is distributed in arctic and subarctic Alaska, N Canada,

Europe, Mongolia, and Russia (Far East and Siberia), and the present authors have examined no Chinese material of it. *Draba alpina* is easily distinguished from *D. oreades* by having fruits typically oblong and flattened, instead of ovate and basally inflated.

31. *Draba involucrata* (W. W. Smith) W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 11: 206. 1919.

总苞葶苈 zong bao ting li

Draba alpina Linnaeus var. *involucrata* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 8: 121. 1913; *D. alpina* var. *leiophylla* Franchet; *D. involucrata* var. *lasiocarpa* W. T. Wang.

Herbs perennial, 0.5–3 cm tall, densely caespitose, scapose. Caudex many branched, ultimate branches terminated in rosettes and covered with petiolar remains of previous years. Stems erect, simple, often densely tomentose with a mixture of subsessile, forked and 3- or 4-rayed stellate trichomes, very rarely glabrescent distally. Basal leaves rosulate, persistent; petiole 1–5(–8) mm, persistent, rarely ciliate with simple trichomes; leaf blade suborbicular or obovate, 2–5 × 1–4 mm, abaxially sparsely to densely tomentose with subsessile, forked and 3- or 4-rayed stellate trichomes with unbranched rays, adaxially glabrous or sparsely tomentose, base cuneate, margin entire, apex rounded or obtuse. Cauline leaves absent. Racemes 3–8-flowered, ebracteate, elongated in fruit. Fruiting pedicels 2–7(–10) mm, divaricate straight, tomentose all around, very rarely glabrescent. Sepals oblong, 1.2–2 × 0.6–1.2 mm, erect, abaxially sparsely pilose or glabrous, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, obovate, 2.5–4(–4.5) × (1–)1.5–2.5(–3) mm, apex emarginate; claw absent, rarely to 1 mm. Filaments 1–1.6 mm; anthers ovate, ca. 0.2 mm. Ovules 8–16 per ovary. Fruit suborbicular to elliptic, 2–4.5(–6) × 2–3 mm, latiseptate, twisted or not; valves glabrous or rarely puberulent, not veined, base and apex obtuse; style 0.1–0.6(–1) mm. Seeds brown, ovate, 1–1.3 × 0.5–0.9 mm. Fl. Jun–Aug, fr. Aug–Sep.

• Rocky cliffs, crevices, montane ravines, scree, scrub, damp mossy rocks, streamsides; 3300–5100 m. Sichuan, E Xizang, Yunnan. The records of *Draba involucrata* from Qinghai (FRPS, p. 140; Fl. Qinghai. 1: 438. 1997) and from Xinjiang (Fl. Xinjiang. 2(2): 112. 1995) are most likely based on misidentified plants of the closely related *D. oreades*. The present authors have seen no material of *D. involucrata* from this province and autonomous region.

32. *Draba jucunda* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 11: 207. 1919.

愉悦葶苈 yu yue ting li

Herbs perennial, 2–10 cm tall, densely caespitose, scapose. Caudex many branched, ultimate branches terminated in rosettes and covered with remains of previous years. Stems erect, simple, often densely pubescent with a mixture of simple and fewer, subsessile forked trichomes, rarely subglabrous. Basal leaves rosulate, persistent, sessile; leaf blade elliptic to oblong-ob lanceolate, 3–10(–12) × 1.5–4 mm, thickish,

sparsely pubescent with simple and rigid, stalked, forked trichomes, rarely with primarily, rigid stellate trichomes abaxially, often subglabrous adaxially except for margins, base cuneate, margin entire, often ciliate with simple trichomes, apex obtuse to acute. Cauline leaves absent. Racemes 2–7(–10)-flowered, ebracteate, elongated in fruit. Fruiting pedicels (2–)5–10(–14) mm, divaricate or divaricate-ascending, straight or rarely slightly curved, tomentose or pilose abaxially, glabrous adaxially. Sepals oblong, 3–4.5 × 1.2–1.8 mm, erect, abaxially glabrous or sparsely pilose with simple trichomes, base of lateral pair subsaccate, margin narrowly membranous. Petals yellow, obovate, 5–7(–8) × 2.5–3.5 mm, apex subemarginate or rounded; claw to 2 mm. Filaments (2–)3–4.5 mm; anthers oblong, 0.6–1 mm. Ovules 8–16 per ovary. Fruit oblong to elliptic or suborbicular, 6–12 × 3–6 mm, latiseptate, slightly twisted or not; valves subhirsute with simple or forked trichomes, sometimes glabrous, not veined, base obtuse, apex subacute; style (1–)1.5–3.5 mm. Seeds brown, ovate, 1.2–1.5 × 0.7–1 mm. Fl. Jun–Aug, fr. Aug–Sep.

• Gravely or sandy areas, scree; 3400–4600 m. SE Xizang, NW Yunnan.

The above first record from Xizang is based on *Rock 23083* (BM, E, GH, K, NY, US) and *Forrest 19280* (E, P), both of which were collected from the vicinity of “Tsarung” (28°40'N, 98°15'E). However, the Forrest specimen at E is a mixed collection of *Draba jucunda* and *D. involucrata*.

33. *Draba senilis* O. E. Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 475. 1926.

衰老葶苈 shuai lao ting li

Draba composita O. E. Schulz; *D. piepunensis* O. E. Schulz.

Herbs perennial, 1–5 cm tall, caespitose, surculose, scapose. Caudex with many, slender branches terminated in rosettes and covered with petiolar remains of previous years. Stems erect, simple, often densely subhirsute with primarily simple and smaller, subsessile forked trichomes, sometimes with few stellate trichomes. Basal leaves rosulate, persistent; petiole 1–5(–8) mm, persistent and becoming stramineous, often ciliate with simple, setose or subsetose trichomes to 1.4 mm; leaf blade oblong, elliptic, or narrowly obovate, 3–10(–15) × (1–)2–4(–7) mm, densely pubescent with whitish, long-stalked, stellate and forked trichomes, adaxially villous with predominantly simple trichomes, rarely softly stellate, base cuneate, margin entire, apex obtuse to subacute. Cauline leaves absent. Racemes 3–7 (–12)-flowered, ebracteate, elongated slightly in fruit. Fruiting pedicels 3–9(–12) mm, divaricate or divaricate-ascending, straight or rarely slightly curved, pubescent all around. Sepals oblong or ovate, 2–2.5 × 1–1.5 mm, erect, abaxially sparsely pilose or glabrous, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, obovate, 4–6 × 2–3(–3.5) mm, rounded; claw to 1 mm.

Filaments 2.5–3 mm; anthers oblong, 0.5–0.6 mm. Ovules 6–10 per ovary. Fruit ovate, 4–7 × 3–5 mm, latiseptate, not twisted; valves glabrous, not veined, base obtuse, apex acute; style 0.5–0.8 mm. Seeds dark brown, ovate, 1.5–2 × 1–1.5 mm. Fl. May–Jul, fr. Jul–Sep.

• Rocky crevices, alpine meadows; 4000–4900 m. Qinghai, Sichuan, Xizang, Yunnan.

A detailed study of the type collections of *Draba senilis*, *Rock 3968* (holotype, B; isotypes, E, GH, P, PE, US, W), and *D. piepunensis*, *Handel-Mazzetti 4712* (holotype, B; isotypes, W, WU), leads to the immediate conclusion that they are flowering and fruiting material (respectively) of the same species.

The above first record from Sichuan is based on *Rock 16320* (E, F, GH, NY, P, US, W), collected from Gongga Shan. *Draba senilis* was recorded, as *D. piepunensis*, from Qinghai (Fl. Qinghai. 1: 438. 1997), and that record is here confirmed based on *Wang Weiyi 234a* (HNWP).

34. *Draba setosa* Royle, Ill. Bot. Himal. Mts. 1: 71. 1839.

刚毛葶苈 *gang mao ting li*

Draba pyriformis Pohle; *D. setosa* var. *pyriformis* (Pohle) O. E. Schulz; *D. setosa* var. *pyriformis* subvar. *glabrata* O. E. Schulz.

Herbs perennial, 5–15 cm tall, densely caespitose, scapose. Caudex often many branched, ultimate branches terminated in rosettes and covered with papery leaf remains of previous years. Stems erect, slender, simple, glabrous throughout or distally, often sparsely pubescent proximally with minute, forked or stellate trichomes. Basal leaves densely rosulate, persistent, sessile; leaf blade linear or linear-oblong, (2–)4–15 × (0.5–)0.7–1.8 (–2.5) mm, sparsely to densely pubescent with subsessile, forked or stellate trichomes, often glabrous adaxially, rarely so on both surfaces, always ciliate with setose or subsetose simple trichomes to 1 mm, base subobtusate, margin entire, apex obtuse to acute; midvein prominent abaxially almost to apex, narrower than blade on each side. Cauline leaves absent, if 1 then sessile, oblong. Racemes 3–10(–15)-flowered, ebracteate, elongated in fruit. Fruiting pedicels 2–7 mm, divaricate-ascending, straight or slightly curved, glabrous or rarely sparsely pilose all around. Sepals oblong, 1.5–2 × 0.7–1 mm, erect, glabrous or abaxially pubescent with simple and forked trichomes, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, narrowly obovate, 3–4 × 1–1.5 mm, apex emarginate. Filaments 1.5–2 mm; anthers ovate, 0.2–0.3 mm. Ovules 12–16 per ovary. Fruit elliptic-ovate, rarely oblong-lanceolate, 6–10 × (1.5–)2.5–3.5 mm, latiseptate, sometimes slightly twisted; valves glabrous or rarely puberulent, obscurely veined, base obtuse, apex acute; style 0.4–0.7 mm. Seeds brown, ovate, 1–1.4 × 0.6–0.7 mm. Fl. Jun–Jul, fr. Jul–Aug.

Mountain slopes, gravelly areas, scree; 3200–4600 m. Xizang [India, Kashmir].

Draba setosa was recorded from Xinjiang (Fl. Xinjiang. 2(2): 114. 1995), but the present authors have seen no material from that autonomous region, and the record is likely based on misidentified plants of *D. korshinskyi*.

35. *Draba cachemirica* Gandoger, Bull. Soc. Bot. France 46: 418. 1899.

克什米尔葶苈 *ke shi mi er ting li*

Draba cachemirica var. *koelzii* O. E. Schulz; *D. cachemirica* var. *stoliczkae* O. E. Schulz; *D. korshinskyi* (O. Fedtschenko) Pohle var. *setosa* Pohle.

Herbs perennial, 1.5–10 cm tall, densely caespitose, scapose. Caudex many branched, ultimate branches terminated in rosettes and covered with papery leaf remains of previous years. Stems erect, slender, simple, glabrous throughout, sometimes sparsely pubescent with minute, forked or stellate trichomes. Basal leaves densely rosulate, persistent, sessile; leaf blade linear or linear-oblong, 2–7 × 0.5–1(–1.5) mm, abaxially sparsely pubescent with subsessile, forked or stellate trichomes, often glabrous on both surfaces, always ciliate with setose simple trichomes to 1 mm, base subobtusate, margin entire, apex obtuse to acute; midvein prominent abaxially almost to apex, narrower than blade on each side. Cauline leaves absent. Racemes 3–12 (–20)-flowered, ebracteate, elongated slightly or considerably in fruit. Fruiting pedicels 1.5–8 mm, ascending, straight or slightly curved, glabrous or rarely sparsely pilose all around. Sepals oblong, 1.5–2.5 × 0.8–1.2 mm, erect, glabrous or abaxially pilose with simple and forked trichomes, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, narrowly obovate, 3–4 × 1–2 mm, apex emarginate. Filaments 1.5–2.5 mm; anthers ovate, 0.3–0.4 mm. Ovules 4–8 per ovary. Fruit ovoid to subglobose, 2.5–4.5 × 2–3.5 mm, inflated, not twisted; valves glabrous or rarely puberulent, obscurely veined, base semicordate, apex acute; style 0.2–0.4 mm. Seeds brown, ovate, 1–1.2 × 0.5–0.6 mm. Fl. Jun–Jul, fr. Jul–Aug.

Gravelly areas; 3700–5300 m. Xizang [Kashmir].

Although *Draba cachemirica* was first recorded from Xizang by Schulz, that record was overlooked in FRPS and Fl. Xizang. (vol. 2. 1985). The occurrence of the species in Xizang is here confirmed based on *Schlagintweit 2464* and *2410* (both mounted on one sheet at GH). Pohle (Repert. Spec. Nov. Regni Veg. Beih. 32: 135. 1925) recognized the latter gathering as the type collection of *D. korshinskyi* var. *setosa*, but *D. korshinskyi* can easily be distinguished from *D. cachemirica* by having leaves abaxially tomentose (vs. glabrous or rarely sparsely pubescent) with the margin non-setose and ciliate.

36. *Draba korshinskyi* (O. Fedtschenko) Pohle, Trudy Imp. S.-Peterburgsk. Bot. Sada 31: 484. 1914.

科氏葶苈 *ke shi ting li*

Draba alpina Linnaeus var. *korshinskyi* O. Fedtschenko, Trudy Imp. S.-Peterburgsk. Bot. Sada 21: 266. 1903.

Herbs perennial, 1–8(–12) cm tall, densely caespitose, scapose. Caudex many branched, ultimate branches terminated in rosettes and covered with papery leaf remains of previous years. Stems erect, slender, simple, glabrous throughout, sometimes sparsely pubescent proximally with minute, forked or stellate trichomes. Basal leaves densely rosulate, persistent, sessile; leaf

blade linear to narrowly oblong, 2–8 × 0.5–1(–1.5) mm, abaxially tomentose with short-stalked or sessile, stellate trichomes mixed with fewer simple ones, adaxially glabrous or sparsely tomentose distally with branched and simple trichomes, sometimes ciliate with soft simple trichomes rarely to 0.5 mm, base subobtusate, margin entire, apex obtuse to acute; midvein obscure or prominent abaxially rarely to apex, much narrower than blade on each side. Cauline leaves absent. Racemes 3–18(–25)-flowered, ebracteate, elongated in fruit. Fruiting pedicels 2–6 mm, ascending, straight or slightly curved, glabrous, slender. Sepals oblong, 1.5–2 × 0.8–1.1 mm, erect, glabrous or abaxially tomentose with branched trichomes, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, narrowly obovate, 2.5–4 × 1–1.5 mm, apex submarginate. Filaments 1.5–2.5 mm; anthers ovate, 0.2–0.4 mm. Ovules 8–12 per ovary. Fruit ovoid to subglobose, 2–4 × 2–3 mm, inflated, not twisted; valves glabrous, obscurely veined, base semicordate, apex acute; style 0.2–0.4 mm. Seeds brown, ovate, 1–1.2 × 0.6–0.7 mm. Fl. Jun–Jul, fr. Jul–Aug.

Stony grounds; 3900–5100 m. Xinjiang, Xizang [Afghanistan, Kashmir, Pakistan, Tajikistan].

The first record of *Draba korsinskyi* from Xizang was made by Hedge (Fl. Iran. 57: 181. 1968) and later confirmed by Tolmachev and Junussov (Fl. Tajik. 5: 194. 1978). The above first record from Xinjiang is based on *Qinghai-Xizang Team 870482* (HNWP, KUN) and *Xinjiang Team 1368* (WUK).

37. *Draba linearifolia* L. L. Lou & T. Y. Cheo, Fl. Xizang. 2: 346. 1985.

线叶葶苈 *xian ye ting li*

Herbs perennial, to 10 cm tall, densely caespitose, scapose. Caudex many branched, ultimate branches terminated in columnar rosettes and covered with spiny leaf midveins of previous years. Stems erect, slender, simple, pubescent with sessile, forked and stellate trichomes. Basal leaves densely rosulate, persistent, sessile; leaf blade linear, 5–10 × 0.5–0.8 mm, abaxially subhirsute with sessile, forked and 3–5-rayed stellate trichomes, adaxially densely hispid with simple trichomes, ciliate with setose simple trichomes to 1.5 mm, base attenuate, margin entire, apex acute; midvein very prominent abaxially to apex, usually as broad as or broader than blade on each side, 0.2–0.3 mm wide near base. Cauline leaves 1–3, sessile, oblong-linear, with indumentum similar to that basal leaves, margin entire, apex acute. Racemes 8–12-flowered, ebracteate, elongated in fruit. Fruiting pedicels 4–5 mm, divaricate-ascending, straight, pubescent all around with forked and stellate trichomes. Sepals oblong, ca. 1.5 × 0.9 mm, erect, abaxially pubescent, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, drying white, narrowly obovate, 3–4.5 × 1–1.5 mm, apex obtuse. Filaments ca. 1.5 mm; anthers ovate, ca. 0.2 mm. Fruit linear-lanceolate, 7–10 × 1–1.3 mm, not twisted; valves glabrous, obscurely veined, base and

apex subacute; style 0.5–1 mm. Mature seeds not seen. Fl. and fr. Jun–Jul.

• Shady mountain slopes; 3600–4000 m. Xizang.

Draba linearifolia, which is known only from the type collection, *Qinghai-Xizang Expedition 4074* (holotype, PE), is readily distinguished from all other Chinese species by having basal leaf midveins persistent into spines.

38. *Draba olgae* Regel & Schmalhaus. in Regel, Izv. Imp. Obshch. Ljubit. Estestv. Moskovsk. Univ. 34(2): 8. 1882.

奥氏葶苈 *ao shi ting li*

Draba olgae var. *chitralensis* O. E. Schulz; *D. pakistanica* Jafri.

Herbs perennial, 3–15(–20) cm tall, loosely caespitose, scapose. Caudex few branched, ultimate branches terminated in rosettes and covered with leaf remains of previous years. Stems erect, simple, lowermost part sparsely pubescent with stellate or simple and forked trichomes, glabrous elsewhere or throughout. Basal leaves rosulate, persistent; petiole 1–4 mm, ciliate with simple trichomes; leaf blade oblong-obovate, oblanceolate, oblong, or lanceolate, (0.4–)0.7–1.5(–2.5) cm × 1.5–3(–6) mm, abaxially moderately to densely hirsute with simple, 3–5-rayed stellate trichomes 1 or 2 rays of which sometimes with a lateral branch, these sometimes mixed with fewer simple trichomes, adaxially with primarily simple trichomes sometimes mixed with smaller, fewer stellate ones, margin ciliate with setose or subsetose trichomes to 1 mm, base cuneate to rarely attenuate, margin entire or rarely 1- or 2-toothed, apex obtuse to acute. Cauline leaves absent. Racemes (6–)10–25(–35)-flowered, ebracteate, elongated considerably in fruit. Fruiting pedicels 5–12 mm, divaricate to ascending, straight, glabrous. Sepals oblong-ovate, 2–3 × 1–1.5 mm, erect, glabrous or abaxially sparsely pubescent with simple and forked trichomes, base of lateral pair not saccate, margin narrowly membranous. Petals pale yellow, turning whitish, broadly obovate, (4–)5–7 × 2–3.5 mm, apex submarginate; claw ca. 1 mm. Filaments 2–2.5; anthers ovate-cordate, 0.3–0.4 mm. Ovules 10–16 per ovary. Fruit elliptic to lanceolate-elliptic, (3–)4.5–8 × (1.5–)2–3 mm, not inflated, latiseptate, not twisted; valves puberulent with simple trichomes sometimes mixed with much fewer forked ones, not veined, base and apex acute; style 0.5–1 mm. Seeds brown, ovate, 1–1.3 × 0.7–0.9 mm. Fl. Jun–Jul, fr. Jul–Aug.

Stony slopes and meadows of alpine areas; 2900–3800 m. Xinjiang [Kyrgyzstan, Pakistan, Tajikistan].

Draba olgae was recorded from China by Tolmachev and Junussov (Fl. Tajik. 5: 196. 1978), based on *A. Regel s.n.*, 12 July 1879 (LE), collected from Gulja (now Yining), Xinjiang. The species was not included in FRPS or Fl. Xinjiang. (vol. 2(2). 1995).

39. *Draba humillima* O. E. Schulz in Engler, Pflanzenr. 89(IV. 105): 114. 1927.

小葶苈 *xiao ting li*

Herbs perennial, 1–2 cm tall, densely caespitose, scapose. Caudex many branched, ultimate branches terminated in rosettes and covered with leaf remains of previous years. Stems erect, simple, tomentose with stalked, forked and stellate trichomes. Basal leaves rosulate, persistent; petiole 2–7 mm, ciliate with simple and/or long-stalked forked trichomes; leaf blade oblong-elliptic, 3–8 × 1.5–3(–5) mm, subhirsute with stalked, 3- or 4-rayed stellate trichomes with simple, rigid rays, sometimes adaxially glabrous or sparsely pubescent distally, ciliate with simple and forked trichomes, base cuneate to attenuate, margin entire, apex obtuse. Cauline leaves absent. Racemes 2–6-flowered, ebracteate, only slightly elongated in fruit. Fruiting pedicels 2–5(–8) mm, divaricate-ascending, straight, stout, tomentose all around. Sepals oblong, 2–2.5 × 0.7–1 mm, erect, abaxially sparsely pubescent with simple trichomes, base of lateral pair not saccate, margin not membranous. Petals yellow, obovate, 3.5–4.5 × 1–1.5 mm, apex subemarginate; claw ca. 1 mm. Filaments 1.5–2 mm; anthers ovate-oblong, ca. 0.4 mm. Ovules 16–24 per ovary. Fruit oblong, 5–7 × 3–4 mm, inflated, latiseptate, not twisted; valves glabrous, not veined, base and apex obtuse; style 0.5–0.6 mm. Seeds dark brown, ovate, 0.9–1 × 0.6–0.7 mm. Fl. and fr. Jul–Sep.

Scree, shaded shelter below rocks; 4300–5600 m. Xizang [Sikkim]. *Draba humillima* was first recorded from Xizang by Schulz in his monograph (p. 114). However, that record was overlooked in FRPS and Fl. Xizang. (vol. 2. 1985). The occurrence of the species in Xizang is here confirmed based on *Strachey & Winterbottom 2* (GH).
40. *Draba sibirica* (Pallas) Thellung, Neue Denkschr. Schweiz. Naturf. Ges. 41: 318. 1907.

西伯利亚葶苈 *xi bo li ya ting li*

Lepidium sibiricum Pallas, Reise Russ. Reich. 3: 34. 1776, not Schweigger (1812); *Draba gmelinii* Adams; *D. repens* Marschall von Bieberstein.

Herbs perennial, 5–25 cm tall, scapose. Caudex with many, slender, creeping branches, sparsely covered with petiolar remains of previous years. Sterile stems subdecumbent, sparsely to densely hispid with malpighiaceae trichomes; flowering scapes sparsely pilose proximally with simple trichomes, often glabrous along distal half. Basal leaves subrosulate or not rosulate; petiole to 1 cm, persistent; leaf blade oblong-lanceolate or oblanceolate, 0.4–2.2 cm × 1–5(–10) mm, sparsely or densely hispid or strigose with appressed, malpighiaceae trichomes, these sometimes with 1 or 2, shorter lateral branches and appearing 3-fid or cross-shaped, sometimes adaxially or both surfaces glabrous except for margin, base attenuate, margin entire, always with malpighiaceae trichomes, apex acute. Cauline leaves of flowering stems absent, those of sterile shoots similar to basal ones. Racemes 7–20-flowered, ebracteate, glabrous, elongated considerably in fruit. Fruiting pedicels 0.5–1.8(–2.3) cm, divaricate, straight or curved, often filiform, glabrous. Sepals oblong or

ovate, 2–2.7 × 0.9–1.2 mm, erect, glabrous or abaxially sparsely pilose with simple trichomes, base of lateral pair subsaccate, margin not membranous. Petals yellow, narrowly obovate, 4–6 × 2–3 mm, apex emarginate. Filaments 2–2.5 mm; anthers ovate-subcordate, 0.4–0.5 mm. Ovules 24–30 per ovary. Fruit oblong to elliptic, rarely sublinear, 4–8 × 1.5–2.2 mm, latiseptate, not twisted; valves glabrous, obscurely veined, base and apex subobtusate; style 0.5–1 mm. Seeds brown, ovate, 0.9–1.2 × 0.5–0.6 mm. Fl. May–Jul, fr. Jun–Aug. *2n* = 16.

Mountain slopes, sunny or shady wet places; 2000–2900 m. Gansu, Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia].

Draba sibirica is very rare in China and is known to the present authors from a few collections, including *Jiang Qingtang s.n.*, 24 Jun 1957 (PE), collected from Fuhai, Xinjiang. The species was first recorded from “Dscachor,” Gansu by Maximowicz (Fl. Tangut. 65.

1889, as *D. repens*), but apparently no recent collections have been made from that province, nor was the species recorded from there in FRPS. The present record from Gansu is based on *Przewalski s.n.*, 24 Jun 1880 (LE).

The descriptions and illustrations in FRPS (p. 166) and Fl. Xinjiang. (2(2): 112–113. 1995) of *Draba sachalinensis* Trautvetter are based on misidentified plants of *D. sibirica*, which is the only Chinese species with typically malpighiaceae leaf trichomes. True *D. sachalinensis* is highly restricted to E Russia (Sakhalin) and N Japan (Hokkaido, N Honshu); it does not occur in China.

41. *Draba gracillima* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 5: 153. 1861.

纤细葶苈 *xian xi ting li*

Draba granitica Handel-Mazzetti; *D. wardii* W. W. Smith.

Herbs perennial, 5–55 cm tall, slender. Caudex with several slender branches terminated in rosettes. Stems decumbent, simple, very slender, somewhat flexuous, basally sparsely pubescent with short-stalked, 3- or 4-rayed, stellate trichomes, rarely densely pilose with primarily simple trichomes, apically glabrous. Basal leaves rosulate, persistent; petiolelike base to 7 mm; leaf blade broadly obovate, spatulate, to oblanceolate, 0.5–2 cm × 1.5–7(–10) mm, abaxially sparsely pubescent with short-stalked, 4-rayed stellate trichomes rarely mixed with more, simple and forked ones, abaxially pilose with simple trichomes replaced with forked or stellate ones at leaf apex, rarely blade glabrous except for margin, base cuneate to attenuate, margin denticulate or subentire, often ciliate, apex subacute or obtuse. Cauline leaves 2–6, sessile, ovate, 2–7 × 1–3 mm, pubescent as basal leaves, base obtuse, not auriculate, margin entire or denticulate, apex acute. Racemes 3–10(–12)-flowered, ebracteate or lowermost flowers bracteate, lax, elongated considerably in fruit. Fruiting pedicels 0.4–4 cm, filiform, glabrous, lowermost longest and strongly recurved, uppermost straight and ascending. Sepals oblong, 1.5–2 × 0.6–1.5 mm, erect, glabrous or rarely with a few trichomes, not saccate, margin narrowly membranous. Petals pale yellow or yellowish white, narrowly obovate to

oblanceolate, 2.5–3.5 × 0.8–1.5 mm, apex obtuse or subemarginate; claw absent. Filaments 1.2–2 mm; anthers ovate, 0.2–0.4 mm. Ovules 10–20 per ovary. Fruit narrowly oblong, linear, or linear-lanceolate, (0.5–)0.7–1.3(–1.8) cm × 1–2 mm, pendulous, latiseptate, not twisted; valves glabrous, not veined; style 0.2–0.5 mm. Seeds brown, ovate, 0.9–1.1 × 0.5–0.7 mm, subcompressed, wingless. Fl. and fr. May–Aug.

Mountain slopes, grassy areas, ravines, stony slopes, scree, alpine grasslands; 3200–5000 m. Xizang, Yunnan [Bhutan, NW India, Nepal, Sikkim].

The type collection of *Draba granitica*, *Handel-Mazzetti* 9497 (holotype, WU; isotype, W), is indistinguishable from that of *D. gracillima*, *J. D. Hooker s.n.* (holotype, K; isotypes, E, K, NY, P, W), in every aspect except flower color. The former species was said to have white instead of yellowish white or pale yellow flowers, but the present authors believe that this distinction is artificial, and the two taxa are united here.

Draba wardii, which is known only from the type gathering, *Kingdon Ward 849* (holotype, E), collected from Xizang, was not listed in FRPS or Fl. Xizang. (vol. 2. 1985). It is no more than a young plant of *D. gracillima* with simple trichomes more abundant than stellate ones.

42. *Draba zangbeiensis* L. L. Lou, *Acta Phytotax. Sin.* 25: 320. 1987.

藏北葶苈 *zang bei ting li*

Herbs perennial, 1–5(–8) cm tall, caespitose. Caudex simple or few branched, ultimate branches terminated in rosettes and covered with petiolar remains of previous years. Stems erect or rarely decumbent, simple or branched, tomentose basally with stellate trichomes, glabrous along distal half. Basal leaves rosulate; petiole 1–4(–8) mm, persistent and becoming stramineous, rarely ciliate with simple trichomes; leaf blade oblanceolate to elliptic-lanceolate, 3–10(–15) × 1–3(–6) mm, abaxially densely tomentose with sessile, stellate trichomes 2 or all 4 rays of which with a lateral branch on each side, adaxillary similar or with simple trichomes also, rarely subglabrous, base attenuate, margin entire, apex acute. Cauline leaves 2–6(–8), sessile; leaf blade ovate to oblong, 3–10(–17) × 1–4(–7) mm, uppermost subglabrous or indumentum as basal leaves, base obtuse or subamplexicaul, margin subentire or minutely 1–4-toothed on each side, apex obtuse or acute. Racemes 6–16 (–20)-flowered, ebracteate, elongated slightly in fruit. Fruiting pedicels 1–3.5(–5) mm, divaricate, slightly curved upward or straight, stout, glabrous. Sepals oblong, 0.9–1.1 × 0.4–0.5 mm, erect, abaxially sparsely pubescent with simple trichomes, base of lateral pair not saccate, margin not membranous. Petals yellow drying whitish, narrowly spatulate, 1–1.5 × 0.5–0.6 mm, apex subemarginate. Filaments 0.8–1 mm; anthers ovate, ca. 0.2 mm. Ovules 24–38 per ovary. Fruit linear to oblong-linear, 4–10 × 1–1.5 mm, not inflated, slightly latiseptate, not twisted; valves glabrous, often with a distinct midvein, base and apex obtuse; style absent. Seeds brown, ovate, 0.5–0.8(–0.9) × 0.3–0.4(–0.5) mm. Fl. and fr. Jul–Aug.

• Dry mountain slopes, rocky outcrops, frost-heave areas, dry grasslands, steppe on moraine sands; 4100–5000 m. Qinghai, Xizang.

The above first record from Qinghai is based on *Ho, Bartholomew, Watson & Gilbert 1602* (BM, CAS, E, HNWP, MO).

43. *Draba melanopus* Komarov, *Trudy Imp. S.-Peterburgsk. Obshch. Estestvoisp., Vyp. 3, Otd. Bot.* 26: 102. 1896.

天山葶苈 *tian shan ting li*

Herbs biennial or short-lived perennial, (2–)4–18(–20) cm tall, scapose. Stems few to several from base, erect to subdecumbent, simple, sparsely pubescent proximally with simple or forked trichomes, glabrous along distal half. Basal leaves rosulate, subsessile; leaf blade oblong-obovate to subspatulate, 0.4–2 cm × 1.5–5 mm, abaxially densely subhirsute with long-stalked, forked or 3- or 4-rayed stellate trichomes with simple rays, sometimes with a few simple trichomes, adaxially with similar indumentum or with predominantly simple trichomes, base cuneate, margin entire, ciliate with simple trichomes to 1.3 mm, apex subobtuse. Cauline leaves absent, very rarely 1 at stem base. Racemes 4–16-flowered, ebracteate, elongated considerably in fruit; rachis sometimes slightly flexuous. Fruiting pedicels 3–9 mm, divaricate-ascending, slightly curved upward or straight, stout, glabrous or rarely sparsely pubescent. Sepals oblong, 0.9–1.5 × 0.6–0.8 mm, erect, abaxially sparsely pubescent with simple or stalked, forked trichomes, base of lateral pair not saccate, margin not membranous. Petals yellow drying whitish, narrowly spatulate, (1.8–)2.2–3 × 0.6–0.9 mm, apex subemarginate. Filaments 1–1.4 mm; anthers ovate, ca. 0.2 mm. Ovules 16–26 per ovary. Fruit linear to narrowly elliptic, (5–)6–11(–12) × 1–2 mm, not inflated, latiseptate, not twisted, straight or slightly curved; valves glabrous or rarely puberulent, often with an obscure midvein, base and apex acute; style 0.1–0.2 mm. Seeds brown, oblong-ovate, 0.9–1.1 × 0.4–0.5 mm. Fl. and fr. Jun–Aug.

Shady or moist rocky areas; 2200–3700 m. Xinjiang [Afghanistan, Kazakstan, Kyrgyzstan, Pakistan, Tajikistan].

The description and illustration of *Draba melanopus* in Fl. Xinjiang. (2(2): 129, 131. 1995) are most likely based on misidentified plants of *D. zangbeiensis*.

44. *Draba stenocarpa* J. D. Hooker & Thomson, *J. Proc. Linn. Soc., Bot.* 5: 153. 1861.

狭果葶苈 *xia guo ting li*

Draba media Litvinov; *D. media* var. *leiocarpa* Lipsky; *D. stenocarpa* var. *leiocarpa* (Lipsky) L. L. Lou; *D. stenocarpa* var. *media* (Litvinov) O. E. Schulz; *D. stenocarpa* var. *media* subvar. *leiocarpa* (Lipsky) O. E. Schulz.

Herbs annual, (5–)12–45(–50) cm tall. Stems solitary or few from base, erect, simple or few branched near base, densely hirsute basally with subsetose simple trichomes to 1.5 mm, these rarely mixed with fewer, smaller, stalked forked trichomes, glabrous along distal half. Basal leaves rosulate, subsessile; leaf blade

oblong-obovate to narrowly oblong, (0.5–) 0.8–3.5(–4.2) cm × 2–8(–12) mm, abaxially densely subhirsute with long-stalked, 3- or 4-rayed stellate trichomes with simple rays, sometimes with a few simple trichomes, adaxially with predominantly simple trichomes mixed with fewer, stalked forked ones, base cuneate, margin entire or 1–3-toothed, ciliate with simple trichomes, apex subobtusate. Cauline leaves 2–5(–7), sessile, oblong-ovate to oblong lanceolate, with indumentum similar to basal leaves, margin entire or minutely 1–3-toothed, apex obtuse to subacute. Racemes (4–)10–50(–60)-flowered, ebracteate, elongated considerably in fruit; rachis straight. Fruiting pedicels (0.1–)0.5–1.8(–2.5) cm, divaricate, slightly curved upward or straight, slender, glabrous. Sepals ovate-oblong, 1.5–2 × ca. 1 mm, erect, abaxially hirsute with simple trichomes, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, spatulate, 3–4 × 1–1.5 mm, apex submarginate. Filaments 1.5–2 mm; anthers ovate, 0.2–0.3 mm. Ovules (32–) 38–48 per ovary. Fruit linear, (0.6–)0.9–2(–2.5) cm × 1.5–2.5 mm, not inflated, latiseptate, not twisted, straight or slightly curved; valves antrorsely puberulent with simple trichomes rarely mixed with forked ones, very rarely glabrous, with obscure midvein, base and apex subobtusate; style 0.1–0.2 mm. Seeds brown, ovate, 0.7–1 × 0.4–0.5 mm. Fl. and fr. Jun–Aug.

River beaches, shady rocky areas, forest margins; 2500–5000 m. Gansu, Qinghai, Sichuan, Xinjiang, Xizang [Afghanistan, India, Kashmir, Kyrgyzstan, Kazakstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan].

Glabrous fruits are extremely rare in *Draba stenocarpa* and have not been found among the Chinese material examined by the present authors. It is likely that records of such plants in FRPS and provincial Chinese floras are based on misidentified plants of other species, notably *D. ladyginii*. However, the latter species is perennial with white flowers and (4–)6–19(–26)-leaved stems.

45. *Draba nemorosa* Linnaeus, Sp. Pl. 2: 643. 1753.

葶苈 ting li

Draba nemoralis Ehrhart; *D. nemorosa* var.

brevisilicula Zapalowicz; *D. nemorosa* var. *hebecarpa*

Lindblom; *D. nemorosa* var. *leiocarpa* Lindblom.

Herbs annual, (3–)6–45(–60) cm tall. Stems erect to ascending, simple or branched a little above base, densely pubescent with a mixture of simple (to 1.3 mm), forked, and stalked or subsessile stellate trichomes, glabrous from proximal flower to apex. Basal leaves rosulate, often persistent through flowering or fruiting; petiole obsolete; leaf blade oblong-obovate or oblanceolate, (0.4–)1–3.5(–5) × (0.2–)0.5–1.5(–2) cm, sparsely or densely pubescent with stalked, forked and stellate trichomes with simple rays, base cuneate, margin dentate or denticulate, rarely subentire, apex obtuse. Cauline leaves (2 or)3–12(–15), sessile; leaf blade broadly ovate to oblong, (0.2–)0.5–1.8(–2.7) cm × (1–)3–10(–15) mm, abaxially pubescent as basal leaves; adaxially pubescent with primarily simple trichomes

mixed with fewer forked ones, base cuneate to rounded, margin dentate or denticulate, apex obtuse or acute. Racemes (15–) 25–60(–90)-flowered, ebracteate, elongated slightly or considerably in fruit. Fruiting pedicels 0.7–2.5(–3) cm, divaricate, straight, glabrous, filiform, longer than fruits. Sepals ovate, (0.7–)0.9–1.6 × 0.5–1 mm, suberect, abaxially sparsely pubescent with simple trichomes, base of lateral pair not saccate, margin not membranous. Petals yellow, spatulate, (1.2–)1.7–2.2(–2.5) × (0.4–)0.6–1 mm, apex emarginate; claw absent. Filaments (0.9–)1–1.7(–2) mm; anthers broadly ovate to subreniform, 0.1–0.2 mm. Ovules (30–)36–60(–72) per ovary. Fruit oblong or elliptic, (3–)5–8(–10) × 1.5–2.5 mm, slightly latiseptate, not twisted; valves glabrous or puberulent with simple, antrorse trichomes 0.05–0.2 mm, base and apex obtuse, often with a distinct midvein and anastomosing lateral veins; style obsolete, rarely to 0.1 mm. Seeds reddish brown, ovate, 0.5–0.7(–0.8) × 0.3–0.4(–0.5) mm. Fl. and fr. Mar–Jun. $2n = 16$.

Grassy areas, roadsides, wet valleys, river banks, forest margins, streamsides, mountain slopes; near sea level to 4800 m. Anhui, Gansu, Guizhou, Hebei, Henan, Heilongjiang, Jiangsu, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan, Zhejiang [Afghanistan, Japan, Kashmir, Korea, Kazakstan, Kyrgyzstan, Mongolia, Russia, Tajikistan, Turkmenistan, Uzbekistan; SW Asia, Europe, North America].

46. *Draba huetii* Boissier, Diagn. Pl. Orient., ser. 2, 5: 31. 1856.

中亚葶苈 zhong ya ting li

Herbs annual, 5–20(–30) cm tall. Stems erect, simple or branched just above base, densely pubescent throughout with a mixture of simple (to 1.2 mm), forked, and subsessile stellate trichomes. Basal leaves subrosulate, often withered by fruiting; petiole obsolete; leaf blade obovate or spatulate, 4–7 × 2–4 mm, pubescent with simple and stalked, forked and stellate trichomes with simple rays, base cuneate, margin entire or denticulate, apex obtuse. Cauline leaves 3–6, sessile; leaf blade ovate to elliptic, 0.5–1.5 cm × 3–5 mm, abaxially pubescent as basal leaves, adaxially pubescent with primarily simple trichomes mixed with fewer forked ones, base cuneate, margin denticulate or subentire, apex acute. Racemes (5–)12–40(–60)-flowered, ebracteate, elongated in fruit. Fruiting pedicels (1.5–)2.5–5.5(–7) mm, divaricate, straight, pubescent all around, longer than fruits. Sepals oblong, 0.9–1.5(–2) × 0.4–0.6 mm, suberect, abaxially pubescent, base of lateral pair not saccate, margin narrowly membranous. Petals yellow, spatulate, (1.2–) 1.5–2(–2.5) × 0.4–0.6 mm, apex emarginate; claw absent. Filaments (0.7–)1–1.5 mm; anthers ovate, 0.1–0.2 mm. Ovules 12–18(–20) per ovary. Fruit oblong, 5–8(–10) × 2–3 mm, slightly latiseptate, not twisted; valves densely puberulent with antrorse, simple trichomes 0.1–0.2 mm, base and apex obtuse, obscurely veined; style obsolete, rarely to 0.1 mm. Seeds brown, ovate, 0.9–1.2 × 0.6–0.9 mm. Fl. and fr. Mar–Jun.

Slopes; 500–2300 m. Xinjiang [Kazakstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].

47. *Draba eriopoda* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 15: 260. 1842.

毛葶苈 *mao ting li*

Draba eriopoda var. *kamensis* Pohle; *D. eriopoda* var. *sinensis* Maximowicz; *D. pingwuensis* Z. M. Tan & S. C. Zhou.

Herbs annual, 4–45(–60) cm tall. Stems erect, simple or rarely branched above middle, sparsely to densely pubescent with a mixture of simple and sessile stellate and forked trichomes, sometimes glabrous distally. Basal leaves subrosulate, often withered by flowering. Cauline leaves (5–)10–24(–30), sessile; leaf blade ovate, oblong, elliptic, or lanceolate, 0.5–2.7 (–4.2) cm × 1.5–7(–15) mm, abaxially pubescent with primarily 4-forked, short-stalked stellate trichomes, adaxially strigose with simple trichomes mixed with fewer forked and smaller stellate ones, base cuneate to obtuse, margin 1–6(–10)-toothed on each side, apex acute. Racemes 10–45(–65)-flowered, ebracteate, elongated in fruit. Fruiting pedicels (0.2–)5–13(–22) mm, divaricate, straight, pubescent all around, glabrous adaxially, or glabrous. Sepals oblong or ovate, 1–1.8(–2) × 0.6–0.8 mm, erect, abaxially pilose with simple trichomes, base of lateral pair not saccate, margin membranous. Petals yellow, spatulate or narrowly obovate, 2–3(–3.5) × (0.5–)0.8–1 mm, apex emarginate; claw to 1 mm. Filaments 1–2 mm; anthers ovate, 0.1–0.2(–0.3) mm. Ovules 12–24(–28) per ovary. Fruit ovate, (3–)4–9(–10) × 2–3(–4) mm, often erect, latiseptate, not twisted; valves glabrous, obscurely veined, base obtuse, apex acute; style obsolete, rarely to 0.2 mm. Seeds brown, ovate, 0.8–1.3 × 0.5–0.9 mm. Fl. and fr. Jun–Sep. $2n = 16^*$.

Rocky slopes, grasslands, scrub, moist streamsides, limestone cliffs, forests, river valleys; 2000–4900 m. Gansu, Hubei, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Bhutan, India, Mongolia, Nepal, Russia, Sikkim].

The above first records from Hubei and Yunnan are based on *Wu & Yang 37631* (PE) and *T. T. Yü 9310* (KUN, PE), respectively.

48. *Draba ellipsoidea* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 5: 153. 1861.

橢圓果葶苈 *tuo yuan guo ting li*

Herbs annual, (0.5–)2–12(–17) cm tall. Stems erect to ascending, simple, slender, flexuous, densely pubescent with short-stalked to sessile stellate trichomes, usually glabrous distally. Basal leaves not rosulate, soon withered. Cauline leaves 3–12, obovate, elliptic-oblong, or lanceolate, (0.2–)0.5–2(–3) cm × (1.5–)3–8(–10) mm, pubescent on both surfaces with short-stalked, 4-rayed, stellate trichomes, sometimes adaxially with primarily simple trichomes mixed with fewer, forked or stellate ones, cuneate to attenuate into a petiolelike base to 5 mm, margin entire or denticulate,

apex obtuse or acute. Racemes (2–)4–10(–15)-flowered, ebracteate, lax and elongated in fruit. Fruiting pedicels (1–)3–10(–18) mm, ascending, straight, glabrous or pubescent all around with sessile, 3- or 4-rayed stellate trichomes, slender. Sepals oblong, 0.9–1.4 × 0.4–5 mm, erect, abaxially pubescent with simple trichomes sometimes mixed with fewer forked ones, base of lateral pair not saccate, margin not membranous. Petals white, narrowly spatulate, 0.6–1 × 0.1–0.2 mm, apex obtuse or subretuse; claw absent. Filaments 0.7–1 mm; anthers ovate, to 0.1 mm. Ovules 10–18(–22) per ovary. Fruit oblong, oblong-elliptic, or rarely suborbicular, (2–)4–8 × (1–)2–3(–4) mm, latiseptate, not twisted; valves puberulent with exclusively sessile stellate trichomes, or with a mixture of stellate, forked, and simple trichomes, rarely only sparsely ciliate at margin, base and apex obtuse to rounded; style obsolete. Seeds blackish, ovate, 0.7–0.9 × 0.5–0.7 mm, slightly compressed, wingless. Fl. and fr. Jun–Oct.

Scree slopes, streamsides, woods, pastures, alpine ledges, meadows, scrub; 3100–5200 m. Gansu, Qinghai, Sichuan, Xizang, Yunnan [Kashmir, Nepal, Sikkim].

