

11. MINUARTIA Linnaeus, Sp. Pl. 1: 89. 1753.

米努草属 mi nu cao shu

Lu Dequan (鲁德全); John McNeill

Herbs annual or perennial. Stems caespitose or solitary, prostrate; branches ascending or erect. Leaves linear, linear-subulate, or setaceous, 1- or 3-veined. Inflorescence cymose or flowers solitary. Sepals 5, 1- or 3-veined. Petals 5, white, rarely reddish, apex entire or emarginate. Stamens 10. Ovary 1-loculed; ovules numerous. Styles 3. Capsule narrowly ovoid or ovoid-cylindric, 3-valved. Seeds ovoid, reniform, or discoid; raphe sometimes tuberculate or fimbriate tuberculate.

About 120 species: Arctic regions to the Himalayas, also Chile (one species), Ethiopia, and Mexico; nine species in China.

- 1a. Plants annual; petals shorter than sepals 1. *M. regeliana*
- 1b. Plants perennial; petals equaling or longer than sepals.
 - 2a. Plants 10–30 cm tall.
 - 3a. Capsule ca. 2 × as long as sepals; sepal apex obtuse; seeds rugulose striate, raphe fimbriate tuberculate 2. *M. laricina*
 - 3b. Capsule equaling sepals; sepal apex long acuminate; seeds subsmooth 3. *M. kryloviana*
 - 2b. Plants 3–10(–13) cm tall.
 - 4a. Flowers solitary; sepals 5–7 mm, apex obtuse.
 - 5a. Seed raphe bluntly tuberculate 4. *M. arctica*
 - 5b. Seed raphe fimbriate tuberculate 5. *M. macrocarpa*
 - 4b. Flowers borne in sparse cymes; sepals 3–5 mm, rarely longer and then apex acute.
 - 6a. Petals subequaling sepals.
 - 7a. Petals oblong, base cuneate; sepal apex obtuse; seeds smooth or rugose 6. *M. biflora*
 - 7b. Petals ovate, base abruptly contracted into a very short claw; sepal apex acute to shortly acuminate; seeds sharply tuberculate 7. *M. verna*
 - 6b. Petals 2–3 × as long as sepals.
 - 8a. Leaves 4–5(–10) mm; sepals lanceolate; capsule narrowly ellipsoid, subequaling sepals 8. *M. litwinowii*
 - 8b. Leaves 10–20 mm; sepals ovate-lanceolate; capsule ovoid, longer than sepals 9. *M. kashmirica*

1. *Minuartia regeliana* (Trautvetter) Mattfeld, Bot. Jahrb. Syst. 57(Beibl. 126): 29. 1921.

米努草 mi nu cao

Alsine tenuifolia Crantz var. *regeliana* Trautvetter, Bull. Soc. Imp. Naturalistes Moscou 33(1–2): 156. 1860.

Herbs annual, 5–10 cm tall. Stem solitary, branched from base, slender, glabrous. Leaves linear, 2–10 × 0.3–0.5 mm, 3- or 5-veined, base often ciliate. Cyme sparsely flowered. Pedicel filiform, 3–12 mm. Sepals ovate-lanceolate, 2.5–3.5 × 0.5–1 mm, 3-veined in proximal 1/2, base rounded, margin broadly scarious, apex mucronate. Petals oblong, shorter than sepals. Stamens 3–10. Ovary broadly ovoid. Capsule suboblong-ovoid, usually exerted. Seeds brown, compressed globose, ca. 0.5 mm, finely tuberculate. Fl. Apr–May, fr. Jun–Jul.

Steppes, wastelands, saline-alkaline soils; 600–700 m. Xinjiang [Kazakhstan, Mongolia, Russia, Turkmenistan; SW Asia].

2. *Minuartia laricina* (Linnaeus) Mattfeld, Bot. Jahrb. Syst. 57(Beibl. 126): 33. 1921.

石米努草 shi mi nu cao

Spergula laricina Linnaeus, Sp. Pl. 1: 441. 1753.

Herbs perennial, 10–30 cm tall. Stems caespitose, procumbent, many branched; branches ascending, glabrous or pubescent. Leaves sessile, linear-subulate, 0.8–1.5 cm × 0.5–1.5 mm, 1-veined, margin sparsely ciliate, apex acuminate. Inflorescence cymose. Pedicel

1–2 cm, shortly hairy; bracts lanceolate. Sepals oblong-lanceolate, 4–5(–6) mm, 3-veined, margin membranous, apex obtuse. Petals white, obovate-oblong, ca. 1.5 × as long as sepals, apex entire or emarginate. Filaments gradually broadened. Capsule suboblong-conical, 7–10 mm, ca. 2 × as long as sepals, 3-valved. Seeds brownish, compressed globose, rugulose striate; raphe fimbriate tuberculate. Fl. Jul–Aug, fr. Aug–Sep.

Betula forests, coniferous forest margins; 400–1600 m. Heilongjiang, Jilin, Nei Mongol [Korea, Mongolia, Russia (Far East, E Siberia)].

3. *Minuartia kryloviana* Schischkin, Sist. Zаметki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kuybysheva 1: 1. 1930.

新疆米努草 xin jiang mi nu cao

Herbs perennial, 10–18(–20) cm tall. Stems prostrate, base woody; branches erect, glabrous. Leaves linear, 0.5–1.5 cm × 0.3–1 mm, glabrous or glandular pubescent, 3-veined, apex acuminate. Inflorescence cymose. Pedicel 1.5–3 cm, glabrous. Sepals ovate-lanceolate, 3.5–5 mm, adaxially pilose, 3-veined, apex acute. Petals white, oblong-obovate, ca. 7 × 1.5 mm, base attenuate, apex entire, emarginate, or toothed.

Stamens 10, shorter than petals; anthers yellow. Styles 3. Capsule ovoid-suboblong, equaling sepals. Seeds reniform, ca. 1 mm, smooth. Fl. May–Jun, fr. Jun–Jul.

Mountain slopes, rocks; 1200–2500(–3400) m. Xinjiang [Afghanistan, Kazakhstan, Russia (W Siberia)].

4. *Minuartia arctica* (Steven ex Seringe) Graebner in Ascherson & Graebner, Syn. Mitteleur. Fl. 5(1): 772. 1918.

北极米努草 bei ji mi nu cao

Arenaria arctica Steven ex Seringe in de Candolle, Prodr. 1: 404. 1824.

Herbs perennial, 5–9 cm tall. Stems densely caespitose, glandular pubescent. Leaves linear, 0.6–1.6 cm × ca. 1 mm, those on flowering stems smaller. Flowers solitary, rarely 2. Sepals linear-oblong, 5–7 mm, glandular pubescent. Petals ca. 2 × as long as sepals. Capsule 1.5–2 × as long as sepals. Seeds brownish, reniform-globose, 1–1.5 mm; raphe obtusely tuberculate. Fl. and fr. Jul–Aug.

Hillside rocks; 2200–2400 m. S Jilin (Changbai Shan) [Kazakhstan, Mongolia, N Russia (Far East, Siberia); North America].

5. *Minuartia macrocarpa* (Pursh) Ostenfeld var. **koreana** (Nakai) H. Hara, J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 6: 43. 1952.

长百米努草 chang bai mi nu cao

Alsine macrocarpa (Pursh) Fenzl var. *koreana* Nakai, Bot. Mag. (Tokyo) 32: 36. 1918.

Herbs perennial, 4–13 cm tall. Stems densely caespitose, prostrate; branches ascending, glandular pubescent. Leaves fascicled, linear or subulate-linear, ± flat, 0.5–1.5 cm × ca. 1 mm, abaxially pubescent, 3-veined, base connate into a sheath, margin spiny ciliate, apex subacute, sometimes falcately curved. Flower solitary; pedicel 1.5–4.5 cm, densely glandular pubescent, 2-bracteolate. Sepals linear-oblong or ovate-lanceolate, 4–5 × ca. 1 mm, abaxially glandular pubescent, 3-veined, margin membranous, apex obtuse. Petals oblong or obovate-oblong, 7–9 mm, ca. 2 × as long as sepals, apex obtuse. Stamens 10, slightly longer than sepals. Ovary ovoid; styles 3. Capsule oblong, 8–10 mm, ca. 2 × as long as sepals. Seeds dark brown, subreniform, 1.5–1.7 mm, both surfaces rugose; raphe long fimbriate tuberculate. Fl. Jun–Aug, fr. Aug–Sep. Rocky slopes; ca. 2400 m. Jilin [N Korea].

6. *Minuartia biflora* (Linnaeus) Schinz & Thellung, Bull. Herb. Boissier, sér. 2, 7: 404. 1907.

二花米努草 er hua mi nu cao

Stellaria biflora Linnaeus, Sp. Pl. 1: 422. 1753; *Alsine biflora* (Linnaeus) Wahlenberg.

Herbs perennial, 3–7 cm tall. Stems caespitose, erect, slender. Leaves linear, 6–10 × 0.5–1 mm, glabrous except for a few short cilia at base, apex acute. Flowers 1–3, terminal; pedicel 2–12 mm. Sepals ovate-oblong, 2.5–3.5 mm, 3-veined, apex obtuse. Petals white, oblong, subequaling sepals. Stamens 10; anthers yellow. Capsule yellow-green, ovoid, ca. 4 × 2.5 mm, slightly longer than sepals. Seeds reniform, 0.7–0.8 mm, smooth or rugose. Fl. Jun–Aug, fr. Aug–Sep.

Mountains; ca. 3600 m. Xinjiang (Bogda Shan) [Afghanistan, Kazakhstan, N Mongolia, Pakistan, Russia (Far East, Siberia); Europe, North America].

7. *Minuartia verna* (Linnaeus) Hiern, J. Bot. 37: 320. 1899.

春米努草 chun mi nu cao

Arenaria verna Linnaeus, Syst. Nat., ed. 12, 2: 313. 1767 & Mant. Pl. 1: 72. 1767; *Alsine verna* (Linnaeus) Wahlenberg.

Herbs perennial, 3–10 cm tall. Stems caespitose, basally usually woody, distally glandular pubescent. Leaves linear or subulate, 5–12 × 0.7–1 mm, glandular pubescent, rarely glabrous, abaxially prominently 3-veined. Cyme lax, 1–7-flowered. Pedicel longer than sepals, glandular pubescent. Sepals ovate, 3–4 mm, glandular pubescent, prominently 3-veined, margin narrowly membranous, apex acute to shortly acuminate. Petals ovate, ca. 5 × 3 mm, base abruptly contracted into a very short claw. Stamens shorter than petals. Styles 3. Capsule ovoid, slightly exceeding sepals, 3-valved. Seeds brown, reniform, 0.6–0.7 mm, almost smooth to acutely tuberculate. Fl. Jul–Aug, fr. Sep–Oct.

Rocky hillsides, rock crevices; 200–3600 m. Xinjiang (Bogda Shan) [Japan, Kazakhstan, Mongolia, N Russia; Europe, North America].

8. *Minuartia litwinowii* Schischkin in Komarov, Fl. URSS 6: 885. 1936.

西北米努草 xi bei mi nu cao

Herbs perennial, 5–10 cm tall. Stems brown, woody at base, glandular pubescent. Leaves linear-subulate, 4–5(–10) × 0.5–2 mm, usually hard, 3-veined, apex obtuse or acute. Bracts ovate, glandular pubescent, 3-veined, apex acute or acuminate. Flowers 1–3, terminal; pedicel 2–10 mm, glandular pubescent or subglabrous. Sepals lanceolate, 5–6.5 mm, glandular pubescent, 3-veined, apex acute. Petals obovate-oblong, ca. 2.5 × as long as sepals, apex emarginate. Capsule narrowly ellipsoid, nearly equaling sepals. Seeds reniform, finely tuberculate. Fl. Jun–Jul, fr. Aug–Sep.

Cliffs, rocky places; ca. 2400 m. Xinjiang [Kazakhstan, Turkmenistan; SW Asia (Iran, Turkey)].

9. *Minuartia kashmirica* (Edgeworth) Mattfeld, Bot. Jahrb. Syst. 57(Beibl. 126): 32. 1921.

克什米尔米努草 ke shi mi er mi nu cao

Arenaria kashmirica Edgeworth in J. D. Hooker, Fl. Brit. India 1: 236. 1874; *Minuartia lineata* Bornmuller f. *kashmirica* (Edgeworth) R. R. Stewart.

Herbs perennial, glandular pubescent, rarely glabrous. Stems densely caespitose, many branched; branches leafy. Leaves linear-subulate, 1–2 cm, strongly spreading 3-veined, apex acute. Cymes pedunculate, subumbellate; bracts ovate-subulate, strongly veined. Pedicel usually shorter than sepals. Sepals ovate-lanceolate, shorter than petals, strongly 3-veined, apex acuminate. Petals white, ca. 8 mm, ca. 2 × as long as sepals, apex entire. Capsule ovoid, slightly longer than sepals, valves recurved.

Rock crevices; 1500–5000 m. Xizang [E Afghanistan, N India, W Nepal, N Pakistan].

