

2. ERODIUM L'Héritier ex Aiton, Hort. Kew. 2: 414. 1789.

牻牛儿苗属 mang niu er miao shu

Herbs, annual, biennial, or perennial. Leaves simple, petiolate; leaf blade usually pinnately divided, sometimes entire; basal leaves usually forming a rosette; cauline leaves opposite or alternate. Inflorescence terminal or axillary, cymose, bracteate. Flowers usually in pseudumbels, actinomorphic, rarely somewhat zygomorphic. Sepals 5, imbricate, apex obtuse to caudate. Petals 5, distinct. Stamens 5, alternating with 5 staminodes. Nectaries 5, alternate with petals. Ovary 5-locular, with 2 superposed ovules per locule; style distinctly 5-cleft. Fruit a schizocarp, long beaked, splitting into 5 1-seeded mericarps with a spirally twisted and trichome-covered awn.

About 75 species: N Africa, temperate Asia, Australia, Europe, North and South America; four species in China.

The European species *Erodium moschatum* (Linnaeus) L'Héritier has been reported as naturalized in Taiwan (J. C. Ou & M. T. Kao, *Taiwania* 38: 19. 1993), but no specimens from Taiwan have been seen by the authors.

- 1a. Perennials, 20–50 cm tall 4. *E. stephanianum*
1b. Annuals, less than 15 cm tall.
2a. Stems well developed; plants canescent; mericarp awn plumose 1. *E. oxyrhinchum*
2b. Stems reduced, inconspicuous to 3–5 cm tall; plants green; mericarp awn not plumose.
3a. Peduncle with 2 or 3 flowers, pubescent 2. *E. tibetanum*
3b. Peduncle with (2 or)3–10 flowers, glandular 3. *E. cicutarium*

1. *Erodium oxyrhinchum* M. Bieberstein, Fl. Taur.-Caucas. 2: 133. 1808.

尖喙牻牛儿苗 jian hui mang niu er miao

Erodium hoefftianum C. A. Meyer.

Annuals 6–40 cm tall, canescent. Stems several to numerous, ascending. Stipules 1–3 mm, subulate. Leaves opposite; leaf blade ovate to triangular-ovate, 1–3 cm, pinnately cleft, pinnately parted, or rarely with basal pair distinct, abaxially velutinous, adaxially pubescent. Pseudumbels with 3–5 hermaphrodite flowers; peduncle spreading pilose. Pedicel ± as long as to 1/2 as long as flowers. Sepals elliptic-ovate, 5–6 mm, densely pubescent, apex awned. Petals purple with a darker base, obovate, 4–5 mm. Mericarp 5–8 mm, without apical pit and ridges; awn plumose. Fl. Apr–May, fr. May–Jun. $2n = 18$.

Gullies in deserts, semiconsolidated sand dunes; 600–1200 m. N and W Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan; W Asia].

2. *Erodium tibetanum* Edgeworth in J. D. Hooker, Fl. Brit. India 1: 434. 1875.

藏牻牛儿苗 zang mang niu er miao

Annuals 3–15 cm tall. Stems decumbent. Stipules lanceolate, 2–3 mm. Leaves in a crowded basal rosette; leaf blade ovate to broadly ovate, 1–1.6 cm, pinnately cleft to pinnately parted or sometimes basal pair distinct, both surfaces pubescent. Pseudumbels with 2 or 3 hermaphrodite flowers; peduncle 0.6–1.5(–2) cm, pubescent. Pedicel slightly shorter than peduncle. Sepals narrowly elliptic, 2–3 mm, densely hirsute, apex mucronate. Petals usually white without a basal spot, obovate, 3.5–4 mm. Mericarp 5–6 mm, with apical pit, without ridges or furrows; awn not plumose. Fl. Jul–Aug, fr. Aug–Sep.

Meadows; 3200–4300 m. Gansu, W Nei Mongol, Xinjiang, Xi-

zang [Kashmir, Mongolia, Tajikistan].

3. *Erodium cicutarium* (Linnaeus) L'Héritier ex Aiton, Hort. Kew. 2: 414. 1789.

芹叶牻牛儿苗 qin ye mang niu er miao

Geranium cicutarium Linnaeus, Sp. Pl. 2: 680. 1753.

Annuals 10–15(–40) cm tall. Stems numerous, erect to decumbent. Stipules triangular-lanceolate, 2–6 mm. Leaves opposite or alternate; leaf blade triangular-lanceolate to oblong-lanceolate, 5–18 cm, pinnately divided to pinnately cleft, 5–12-lobed with basal ones more deeply incised, both surfaces appressed pilose. Pseudumbels conspicuously longer than leaves, with (2 or)3–10 hermaphrodite flowers; peduncle with glandular and nonglandular trichomes. Pedicel 0.8–1.7 cm. Sepals ovate, 3–6 mm, glandular and hirsute, apex acute. Petals uniformly purple or 2 with a basal black spot, obovate, 5–12 mm. Mericarp 3–7 mm, with apical pit, with or without ridges or furrows; awn not plumose. Fl. Jun–Jul, fr. Jul–Oct. $2n = 20$, 36, 40, 48, 54.

Meadows, flood plains, gravel areas, disturbed areas; 700–2200 m. Anhui, Fujian, Gansu, Hebei, Heilongjiang, Henan, Jiangsu, Jilin, Liao-

Fl. China 11: 29–30. 2008.

ning, Nei Mongol, Shaanxi, Shandong, Shanxi, W Sichuan, Taiwan, Xinjiang, W Xizang [Afghanistan, NW India, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; N Africa, SW Asia, Europe].

This species is naturalized as a weed in many temperate areas.

4. *Erodium stephanianum* Willdenow, Sp. Pl. 3: 625. 1800.

牻牛儿苗 mang niu er miao

Erodium stephanianum var. *atranthum* Nakai ex Kitagawa.

Perennials 20–50(–120) cm tall. Stems numerous, ascending to decumbent. Stipules triangular-lanceolate, 3–8 mm. Leaves opposite; leaf blade 4–7 cm, ovate to triangular-ovate,

pinnately parted with basal pair of lobes distinct, both surfaces sparsely appressed pilose. Pseudoumbels conspicuously longer than leaves, with 2–5 hermaphrodite flowers; peduncle both spreading pilose and retrorsely pubescent. Pedicel 1/4–1/3 as long as peduncle. Sepals oblong-ovate, 6–9 mm, hirsute, apex awned. Petals purple, without a basal spot, obovate, 5–7 mm. Mericarp 8–11 mm, with apical pit, without ridges or furrows; awn not plumose. Fl. Jul–Aug, fr. Aug–Sep.

Meadows, steppes, flood plains, farmlands; 400–4000 m. Anhui, Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizang [Afghanistan, Kashmir, Korea, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia].

Fl. China 11: 29–30. 2008.