

24. MERTENSIA Roth, Catal. Bot. 1: 34. 1797.

滨紫草属 bin zi cao shu

Herbs perennial, glabrous or pubescent, with thin rhizomes. Basal leaves usually withering early, ovate; stem leaves alternate. Cymes terminal, several flowered, becoming racemelike, ebracteate. Flowers pedicellate. Calyx 5-cleft or 5-parted, shorter than corolla tube; lobes lanceolate to ovate, not changing much in fruit. Corolla funnelform, usually sky blue or blue; throat with transverse folds or scalelike appendages; lobes spreading, ovate to oblong or semiobicular, apex obtuse. Stamens inserted between appendages or slightly below; filaments short, filiform or ligulate; anthers oblong to ovate, longer than filaments, exserted. Ovary 4-parted. Style filiform, exserted from corolla. Gynobase conical. Nutlets tetrahedral, glabrous; adaxially sharp, sometimes nearly winged on keel; abaxially convex, wrinkled, tuberculate, rarely narrowly winged along margin; attachment scar at base adaxially.

About 15 species: Asia, E and NW Europe, North America; six species in China.

- 1a. Calyx parted to middle, lobes triangular; limb of corolla almost not developed, lobes straight; basal leaves not developed 1. *M. tarbagataica*
- 1b. Calyx parted to base; limb of corolla well developed, lobes reclining; basal leaves developed.
 - 2a. Herbs pubescent.
 - 3a. Leaves oblong, stem leaves many; corolla bright blue or white (drying yellowish); style slightly exserted; nutlets white, rugate-tuberculate 3. *M. davurica*
 - 3b. Basal leaves cordate-ovate or subreniform, stem leaves to 4; corolla sky blue; style long exserted; nutlets brown, pubescent, narrowly winged 2. *M. dshagastanica*
 - 2b. Herbs glabrous, rarely sparsely pubescent on leaf margin and pedicel.
 - 4a. Leaf margin sparsely pubescent, leaf blade 2–4 cm; corolla dark blue 4. *M. meyeriana*
 - 4b. Leaf margin glabrous, leaf blade longer; corolla sky blue.
 - 5a. Leaves fleshy, with white convex dots abaxially; corolla 1.2–1.4 cm; style to 3 mm, exserted from corolla 5. *M. sibirica*
 - 5b. Leaves thin, without white dots; corolla 1.5–1.8 cm; style included 6. *M. pallasii*

1. *Mertensia tarbagataica* B. Fedtschenko, Trudy Imp. S.-Peterburgsk. Bot. Sada 15: 402. 1915.

浅裂滨紫草 qian lie bin zi cao

Herbs perennial, 10–15 cm tall, glaucous. Rhizomes thin, creeping. Stems several, with brown scales basally, glabrous, carnose. Basal leaves crowded, oblong-spatulate, base tapering to petiole. Upper 3–5 leaves cordate-ovate, 1–3 cm, glabrous, glaucous, fleshy, base somewhat clasping, apex obtuse. Inflorescences terminal, ebracteate, small, to 10-flowered, of which 2–5 are fertile. Pedicel short, 1–3 mm, fleshy. Calyx glaucous, parted to middle; lobes triangular to lanceolate, 4–5 mm. Corolla dark blue, 1.2–1.6 cm, tubular; throat appendages arclike; limb 1/3–1/2 as long as tube, indistinct; lobes oblong, ca. 2 mm. Filaments filiform, 1.5–2 mm, attached slightly below appendages, ca. as long as anthers. Styles long exserted. Nutlets ovoid-oblong, to 5 mm, abaxially rounded, apex acute. Fl. Jul, fr. Jul-Aug.

On crumbling slopes in subalpine and alpine zones; 2500–2800 m. NW Xinjiang (Karamay Xian, Tarbagatai Shan) [Kazakhstan].

2. *Mertensia dshagastanica* Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 6: 340. 1879.

蓝花滨紫草 lan hua bin zi cao

Mertensianthe dshagastanica (Regel) Popov.

Herbs perennial, 5–15 cm tall. Rhizomes short, thick, with black scales. Stems very slender, glabrate or appressed strigose. Petiole of basal leaves 3–12 cm; leaf blade green, cordate-ovate or subreniform, 2–4 cm, abaxially glabrous, adaxially strigose, apex acute or obtuse; stem leaves 4, lower

2 subopposite, upper 2 alternate, all sessile, ovate or oblong, small, apex acute. Inflorescences widely spaced, drooping to 1 side, 2–10-flowered, ebracteate. Pedicel threadlike, 5–12 mm, sparsely appressed bristly. Calyx parted to base, 3.5–4 mm; lobes linear, strigose, apex acute. Corolla sky blue, 1.3–1.5 cm; tube ca. 2 × as long as calyx and limb; appendages oblong, tall, apex rounded; limb narrow campanulate; lobes of limb ovate, 2–3 mm, apex obtuse. Filaments ca. 1/2 as long as linear-oblong anthers. Style exserted. Nectary 4-lobed, well developed. Nutlets ovate-conical, ca. 3 mm, hirsute, abaxially narrowly winged. Fl. Jun-Jul, fr. Jul-Aug.

On rocks; 2000–2200 m. W Xinjiang (Yili River basin, Pamirs, Altay Shan) [Kazakhstan, Tajikistan].

3. *Mertensia davurica* (Sims) G. Don, Gen. Hist. 4: 318. 1837.

长筒滨紫草 chang tong bin zi cao

Pulmonaria davurica Sims, Bot. Mag. 42: t. 1743. 1814; *Lithospermum davuricum* (Sims) Lehmann; *Mertensia ochroleuca* Ikonnikov-Galitzky.

Rhizomes black-brown, tuberlike. Stems single, erect, 20–30 cm tall. Basal leaves forming a rosette, crowded, long petiolate, ovate-oblong to linear-oblong, base cuneate to rounded; stem leaves only 3 or 4 per stem, subvertical, sessile, only lowest leaves petiolate but frequently withering early, lanceolate to linear-lanceolate, 1.5–3 cm × 1.5–3.5 mm, obscurely veined, abaxially glabrous, adaxially short appressed pubescent and tuberculate, apex obtuse to acuminate. Inflorescences branched, striate, glabrous at base, sparsely pubescent at apex. Cymes 1–1.5 cm, densely short appressed pubescent, usually 2 or 3 borne at apex of stem.

Pedicel 2–5 mm. Calyx ca. 4.5 mm, 5-parted nearly to base; lobes linear to linear-triangular. Corolla blue, 1.2–2.2 cm, glabrous; tube straight, ca. 3.5 × as long as limb, 2–3.5 mm wide; throat appendages lunate, ca. 0.5 mm, smooth; limb slightly wider than tube, 5-lobed; lobes slightly spreading, nearly semiorbicular, ca. 2 mm, margin entire. Stamens inserted between appendages; filaments ca. 2 mm; anthers linear-oblong, ca. 2.5 mm. Style ca. as long as corolla; stigma discoid. Nutlets ca. 2.5 mm, wrinkled; attachment scar narrowly triangular. $2n = 24$.

Hillside meadows. N Hebei [Mongolia, Russia].

4. *Mertensia meyeriana* J. F. Macbride, Contr. Gray Herb. 48: 52. 1916.

短花滨紫草 duan hua bin zi cao

Mertensia popovii Rubtzov.

Herbs perennial. Rhizomes short, thickened. Stems thin, 30–50 cm tall. Basal leaves early deciduous, ovate, small; stem leaves many, long petiolate, light green, ovate, 2–5 cm; upper leaves sessile, oblong, extremely thin, margin hirsute. Inflorescences terminal. Pedicel filamentous, to 1 cm, very short hirsute. Calyx parted to base, 4–4.5 mm; lobes linear, short strigose, apex acute. Corolla dark blue, (1.2–)1.5–2 cm; lobes of limb ovate, 3–4 mm; appendages arclike. Style slightly exserted. Nutlets white, oblong, ca. 4 mm, rugate, apex acute. Fl. Jun-Jul, fr. Jul-Aug.

Meadows of slopes, glades. NW Xinjiang (Saur Shan, Tarbagatai Shan) [Kazakhstan, W Mongolia].

5. *Mertensia sibirica* (Linnaeus) G. Don, Gen. Hist. 4: 319. 1837.

大叶滨紫草 da ye bin zi cao

Pulmonaria sibirica Linnaeus, Sp. Pl. 1: 135. 1753; *Lithospermum sibiricum* (Linnaeus) Lehmann; *Steenhammera sibirica* (Linnaeus) Turczaninow.

Rhizomes transversely spreading. Stems usually single, 30–60 cm tall, glabrous, sulcate, only inflorescences branched. Basal leaves petiole to 25 cm; leaf blade ovate to ovate-oblong, to 20 cm, fleshy, glaucous but abaxially with convex dots, base broadly cuneate or somewhat cordate, apex short acuminate; lateral veins arcuate, raised abaxially; stem leaves sessile, elliptic to linear-oblong, 3–7 × 1–1.2 cm, base attenuate, apex acute to acuminate. Cymes usually 2 or 3, terminal, becoming paniculate, 6–8 cm, glabrous, few flowered; rachis curved. Pedicel 2–7 mm, usually secund, slightly recurved. Flowers widely spaced. Calyx campanulate, ca. 5.5 mm, 5-parted nearly to base; lobes narrowly ovate to linear-ovate, apex obtuse. Corolla blue, ca. 1.4 cm; tube ca. 8 × 4.5 mm; throat appendages transverse folds, ca. 0.3 mm, smooth; limb slightly shorter than tube; lobes slightly spreading, broadly ovate, ca. 3.5 mm, margin entire or repand, apex obtuse, veins distinct. Stamens inserted below appendages; filaments strap-shaped, ca. 2.5 mm; anthers linear-oblong, ca. 3 mm, sparsely pubescent, base divergent, apex obtuse. Style filiform, ca. 1.5 cm, exserted ca. 3 mm from corolla; stigma discoid. Nutlets white, subreniform, 4–5 mm, slightly reticulate-wrinkled, glabrous. Fl. Jun-Jul, fr.

Aug-Sep. $2n = 24$.

Hillside meadows; ca. 2500 m. Shanxi [Russia].

6. *Mertensia pallasii* (Ledebour) G. Don, Gen. Hist. 4: 319. 1837.

薄叶滨紫草 bao ye bin zi cao

Lithospermum pallasii Ledebour, Fl. Altaic. 1: 176. 1829.

Herbs perennial, rhizomatous. Stems simple, slender, 20–40 cm tall, thin, glabrous, sulcate. Basal and lower stem leaves petiolate, green, cordate-rounded or cordate-ovate, 4–6 cm, thin, delicate, apex obtuse. Upper stem leaves ± sessile, apex acute. Inflorescences flat topped, small, few flowered. Pedicel threadlike, 4–5 mm, with 1 or 2 small leaves at base. Calyx parted to base, 4–5 mm; lobes linear, apex obtuse. Corolla bright blue, 1.5–1.8 cm; tube ca. 2 × as long as calyx; throat appendages arclike, low, appearing as brackets; limb campanulate, ca. 2/3 as long as tube, divided in upper 1/2; lobes ovate, to 1/2 of limb, apex obtuse. Filaments longer than anthers; anthers linear, 2–3 mm. Style ca. as long as corolla, slightly exserted or not. Nutlets white, ca. 4 mm, reticulate-rugate. Fl. May-Jun.

On shaded cliffs and rocks. NW Xinjiang (Altay Xian) [Kazakhstan, Russia].

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