

2. CHIMAPHILA Pursh, Fl. Amer. Sept. 1: 279. 1814.

喜冬草属 xi dong cao shu

Qin Haining (覃海宁); Peter F. Stevens

Chimaza R. Brown ex de Candolle; *Pipseva* Rafinesque; *Pseva* Rafinesque.

Herbs perennial, decumbent or shrubs dwarf, erect, evergreen. Leaves opposite or subverticillate, shortly petiolate, often crowded; leaf blade leathery, margin serrate. Flowers solitary, terminal, or 1 or 2 on simple or branched, bracteate peduncles, nodding, regular. Sepals 5, persistent. Petals 5, concave. Filaments pilose; anthers opening by pores. Ovary depressed-globose, 5-locular; style obconic, straight, very short. Capsules depressed-globose, long persistent, erect. $n = 13$.

Five species: Bhutan, China, Japan, Korea, Russia; Europe, North America, Central America (Mexico); three species (one endemic) in China.

- 1a. Flowers 2–7, rarely solitary; bracts broadly linear; sepals ovate-orbicular, ca. as long as wide 3. *C. umbellata*
- 1b. Flower usually solitary; bracts lanceolate or ovate-elliptic; sepals narrowly lanceolate or obovate, ca. as long as to 2 × as long as wide.
- 2a. Bracts broadly ovate-lanceolate; sepals 4–6 mm 1. *C. japonica*
- 2b. Bracts elliptic; sepals 1.5–2 mm 2. *C. monticola*

1. *Chimaphila japonica* Miquel, Ann. Mus. Bot. Lugduno-Batavi 2: 165. 1866.

喜冬草 xi dong cao

Chimaphila astyla Maximowicz; *C. fukuyamae* Masamune.

Herbs perennial, to 15 cm tall. Rhizome descending or creeping, somewhat short, slender, 0.5–1 mm in diam., sparsely branched. Aerial stems erect, 0.5–2 mm in diam. Leaves in 2–5 subverticils of 2–4(–6) each, alternating with 5–7 persistent or caducous scales. Petiole 3–10 mm, glabrous; leaf blade abaxially pale green, rather shiny, adaxially deep green, not shiny, with paler or white midvein, lanceolate to broadly lanceolate, ovate, or broadly elliptic, 1–3.5 cm × 3–15 mm, leathery, glabrous, base rounded to subacute, margin serrate, apex acute or rarely obtuse, mucronate. Flower usually solitary, usually not opening fully. Peduncle erect, 2–5.5(–7) cm, slender, 0.2–0.6 mm in diam., papillose, rarely glabrous, 1(or 2)-flowered. Bracts 1–3, on upper part of peduncle, broadly ovate-lanceolate, 4–7 × 1–3 mm, membranous, base narrowed, sometimes into short stalk, margin irregularly toothed. Sepals 5(or 6), white with black veins when dry, narrowly lanceolate, 4–6(–7) × 1.5–3 mm, membranous, margin irregularly toothed, apex acute, rarely obtuse. Petals white, obovate-orbicular, 6–8 × 3–6 mm, concave, margin irregularly toothed. Stamens: lower dilated portion of filaments obovoid, pilose at margin and abaxially; anthers 1.2–2 mm, without distinct tubes, apex truncate. Ovary glabrous; stigma rounded with 5 undulate teeth, 1.5–2.5 mm in diam. Capsules 4–7 mm in diam. Seeds fusiform to oblong. Fl. Jun–Aug, fr. Sep–Oct.

Common, mainly in dry forests; sea level to 3000 m. Anhui, Guizhou, Hubei, Jilin, Liaoning, Shaanxi, Shanxi, Sichuan, Taiwan, Xizang, Yunnan [Bhutan, Japan, Korea, Russia (Sakhalin)].

2. *Chimaphila monticola* Andres, Acta Horti Gothob. 1: 174. 1924.

川西喜冬草 chuan xi xi dong cao

Herbs suffruticose, to 15 cm tall. Rhizomes long creeping. Aerial stems 10–20 cm long. Leaves opposite and verticillate;

petiole 4–7 mm; leaf blade deep green, with paler midvein adaxially, narrowly to broadly elliptic, 1.5–4.6 cm × 6–25 mm, subleathery, base cuneate, margin few toothed, apex acute, mucronate. Flower solitary, or inflorescence 2- or 3-flowered, white, ca. 1 cm in diam.; peduncle 3–7 cm, papillose; bracts elliptic, ca. 3 mm. Sepals obovate, 1.5–2 × ca. 2 mm. Petals oblong-orbicular, 7–8 × ca. 5 mm. Stamens ca. 4 mm. Style sessile, obconoidal; stigma peltate. Capsules depressed-globose, ca. 5 mm in diam. Fl. Sep, fr. unknown.

• Moss-rich virgin forests, mossy ground beneath *Tsuga* canopies; 2600–3000 m. Sichuan, Taiwan.

- 1a. Plant to 15 cm tall; largest leaf broadly elliptic, 2.3–4.6 × 1.3–2.5 cm; inflorescence (1- or)2- or 3-flowered 2a. subsp. *monticola*
- 1b. Plant to 10 cm tall; largest leaf narrowly elliptic, 1.5–2.5 × 0.6–1.1 cm; inflorescence 1- or 2-flowered 2b. subsp. *taiwaniana*

2a. *Chimaphila monticola* subsp. *monticola*

川西喜冬草(原亚种) chuan xi xi dong cao (yuan ya zhong)

Plant usually to 15 cm tall. Largest leaf broadly elliptic, 2.3–4.6 × 1.3–2.5 cm. Inflorescence (1- or)2- or 3-flowered. Fl. Sep.

• Moss-rich virgin forests; ca. 3000 m. Sichuan.

2b. *Chimaphila monticola* subsp. *taiwaniana* (Masamune) H. Takahashi, J. Jap. Bot. 65: 376. 1990.

台湾喜冬草 tai wan xi dong cao

Chimaphila taiwaniana Masamune, Trans. Nat. Hist. Soc. Formosa 23: 205. 1933; *C. japonica* Miquel var. *taiwaniana* (Masamune) C. F. Hsieh; *C. monticola* var. *taiwaniana* (Masamune) S. S. Ying.

Plant usually to 10 cm tall. Largest leaf narrowly elliptic, 1.5–2.5 cm × 6–11 mm. Inflorescence 1- or 2-flowered.

• Mossy ground beneath *Tsuga* canopies; 2600–3000 m. Taiwan.

3. *Chimaphila umbellata* (Linnaeus) W. Barton, Veg. Mater.

Med. U.S. 1: 17. 1817.

伞形喜冬草 san xing xi dong cao

Pyrola umbellata Linnaeus, Sp. Pl. 1: 396. 1753; *Chimaphila corymbosa* Pursh; *P. corymbosa* (Pursh) Bertoloni.

Shrubs or herbs, to 15 cm tall, clonal, often forming extensive mats. Rhizome long creeping, 1–2 mm in diam., branched. Aerial stems erect or ascending, 1–2.2 mm in diam., simple or branched, angled, glabrous. Leaves cauline, in 2–6 subverticils of 4–9 each, alternating with caducous scales; petiole 3–6 mm, glabrous; leaf blade abaxially pale green, adaxially deep green, oblanceolate, 1–5 cm × 6–8 mm, thickly leathery, shiny, adaxially glabrous and with veins impressed, base cuneate, margin serrate above middle, apex obtuse to subacute. Peduncle erect, 3–6 cm, papillose, 2–7-flowered. Bract broadly linear, 3–4 mm. Sepals 5, persistent, ovate-orbicular, 1–2 × 1–2 mm, margin irregularly toothed, ciliate. Petals white, sometimes rosy, suborbicular, 4–6 × 3–5 mm, concave, margin irregularly toothed, opening fully. Stamens: lower dilated portion of filaments broadly ellipsoid, sparsely papillose; anthers 1.5–2.3 mm, papillate at base, tubes short, pores ca. 0.4 mm wide. Ovary longitudinally papillose, 5-loculed; stigma rounded, with 5 shallow lobes, 1.5–2.5 mm in diam. Capsules 4–7 mm in diam., fibers absent or oblong, 0.6–0.7 mm. Fl. Jul, fr. Sep–Oct. $2n = 26$.

Dry coniferous or deciduous broad-leaved forests; low elevations. Jilin, Liaoning, Nei Mongol [Japan, Russia; widely distributed elsewhere in N temperate zone].

Chimaphila umbellata is an evergreen subshrub occurring principally in the coniferous forests of the temperate regions of the N hemisphere. This species has been divided into five geographically delimited infraspecific taxa, and only the typical subsp. *umbellata* is distributed in China.

