



Flora of North America

Bartsia (Orobanchaceae)

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X. BARTSIA Linnaeus, Sp. Pl. 2: 602. 1753; Gen. Pl. ed. 5, 262. 1754 * [For Johann Bartsch, 1709--1738, German physician]

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Herbs, perennial; obligate root hemiparasites, caudex woody. **Stems** erect, not succulent, pilose and eglandular at base, becoming hirsute and glandular at apex. **Leaves** basal and cauline, decussate, basal leaves scalelike, cauline leaves expanded, subcoriaceous or not; petiole absent; blade margins crenate to serrate. **Inflorescences** terminal, racemes of decussate flowers; bracts present. **Pedicels** present; bracteoles absent. **Flowers**: sepals 4, calyx bilaterally symmetric, tubular, lobes triangular; petals 5, corolla violet to yellow, galeate, abaxial lobes 3, adaxial lobes 2; stamens 4, adnate to corolla, didynamous, filaments minutely pubescent, staminode 0; ovary 2-locular, placentation axile; stigma subcapitate. **Capsules** symmetric, dehiscence loculicidal. **Seeds** +/- 50, white, fusiform-cylindric, wings present. $x = 12$.

Species 48 (1 in the flora): ne North America, South America, Eurasia, Africa; circumboreal.

Morphology and molecular phylogenetic analysis indicate a close relationship of *Bartsia* to *Euphrasia* Linnaeus, *Odontites* Ludwig, *Parentucellia* Viviani, and *Tozzia* Linnaeus (N. D. Young et al. 1999; A. D. Wolfe et al. 2005; J. R. Bennett and S. Mathews 2006). *Bellardia trixago* (Linnaeus) Allioni has in the past been treated as a member of *Bartsia* (U. Molau 1990). The single published phylogenetic analysis to include both *Bellardia trixago* and a species of *Bartsia* do not demonstrate a sister relationship (Bennett and Mathews). However, in that study, the relationship of *Bellardia trixago* to *Bartsia* is difficult to discern because several paralogs of the nuclear gene *PHYA* were sampled from species identified as *Bartsia*. A four-gene phylogenetic analysis of the genus (excluding *Bellardia trixago*) indicates that *Bartsia* is likely polyphyletic, occurring in three separate clades corresponding to species of South America, Europe, and Africa (S. Uribe-Convers and D. Tank, pers. comm.). Because the only species treated here, *Bartsia alpina*, is the type species, it will retain its name should any actions be proposed to deal with polyphyly in the genus.

SELECTED REFERENCES Molau, U. 1990. The genus *Bartsia* (Scrophulariaceae-Rhinanthoideae). Opera Bot. 102: 5--99. Taylor, K. and F. J. Rumsey. 2003. *Bartsia alpina* L. J. Ecol. 91: 908--921.

1. ***Bartsia alpina*** Linnaeus, Sp. Pl. 2: 602. 1753 * Velvet bells, alpine bartsia, tornarsup-narsue, djaevelens blomster, bartsie alpine F

Bartsia alpina var. *jensenii* Lange; *B. alpina* var. *pallida* Wormskjold ex Lange

Plants simple or with few branches, 10--30 cm. **Leaves** 4--10 pairs, divaricate, ovate, (5--10--25 x (6--9--17 mm, rugose, glabrescent to hirsute abaxially, glabrescent adaxially. **Inflorescences** with 2--8 pairs of flowers, bracts resembling foliage leaves, distal ones violet. **Pedicels** 2--4 mm. **Flowers** +/- divaricate, 15--20 mm; calyx green, often with violet markings, 5--9 mm, divided to less than 1/2 its length, hirsute; corolla yellow to pale pink to deep purple, scarcely curved, pilose, galea 3--5 mm, divided from abaxial lip by less than 1/4 length of corolla, abaxial lip 2--3 mm; stamens included, 1/3--1/2 length of corolla from base,

extending to abaxial lip; anthers white, equal, apex mucronate, villous, inserted; style 14--20 mm. **Capsules** ovoid, terete, 6--10 mm. **Seeds** 1.4--2 mm. $2n = 24, 28$.

Flowering Jun--Aug. Subarctic and arctic tundra, lakeshores, fens; 0--1000 m; Greenland; Man., Nfld. and Labr., N.W.T., Nunavut, Ont., Que.; Europe.

Bartsia alpina has been reported to parasitize a wide range of hosts including members of the Ericaceae, Fabaceae, and Poaceae (U. Molau 1990). Outside the flora area, the species occurs throughout northern Europe and in disjunct populations in the Alps and Pyrenees.

Bartsia alpina has been divided into varieties based primarily on variation in the color of the corolla. The most common form has violet corollas, but other populations throughout the range occasionally include individuals with pale violet to yellow flowers. U. Molau (1990) reported that these forms are likely an expression of phenotypic variation induced by infection by either a gall fly or imperfect fungus.