Notice About Flora of North America Provisional Publications

Preparation of each volume of the Flora of North America is a multi-year process involving dozens of authors and editors. To facilitate access to taxonomic treatments that meet specific editorial criteria but that otherwise might not appear in printed volumes for months or possibly years, the Flora of North America Association (FNAA) electronically publishes treatments. These “Provisional Publications” have been peer-reviewed and are formatted for eventual publication in print copy by Oxford University Press. Provisional Publications are versions of treatments that minimally meet the following editorial standards:

Any 03 level manuscript that has been
1) accepted and approved by the taxon editor as an official FNA submission;
2) initially tech-edited (i.e., has been formatted and edited by the volume technical editor);
3) through regional review, with regional review comments and any additional tech-editing comments addressed by the author and corrections made to the manuscript; and
4) reviewed once by the bibliographic editor;
5) approved by the author(s) and taxon editor for posting as a Provisional Publication.

Major corrections, additions, and other modifications are allowed to 03 version manuscripts, and significant changes are published as new versions become available. Provisional Publications at the 04 level (second bibliographic pass completed, reviews by nomenclature and reviewing editors completed, genus description checked for parallelism against other genera in the family) and 05 level (all major checks completed, treatment ready for indexing and application of styles) are closer to publication form.

Readers are encouraged to submit comments and corrections for Provisional Publications to the author(s) and taxon editor, especially comments concerning the geographic distributions of taxa. Contact information can be found at http://floranorthamerica.org/review under the appropriate volume. The header portion of each Provisional Publication contains the taxon name and manuscript version, book volume number, taxon editor surname, manuscript page number, and date when then the posted version was published provisionally.

All provisional publications are copyrighted by the Flora North America Association and are to be cited as follows:
Author, Date, Title (e.g. Genus name, Flora of North America, Provisional Publication), Publishing institution, Date of publication, URL, Date actually viewed.


Questions about FNA Provisional Publications may be directed to Ms. Heidi Schmidt, Managing Editor, Flora of North America Association, at heidi.schmidt@mobot.org.
X. NOTHOCHOLVE (A. Gray) Straw, Brittonia 18: 85. 1966  *  Woodland beardtongue [Greek notho-, spurious, and generic name Chelone]  E

Allan D. Nelson


Herbs, perennial; caudex unbranched, woody. Stems arching or reclining, glabrous to puberulent. Leaves cauline, opposite, not leathery; petiole absent or present; blade margins subentire to serrate or dentate. Inflorescences axillary to terminal, cymes; bracts present. Pedicels present; bracteoles present. Flowers bisexual; sepals 5, connate proximally, divided nearly to base, calyx radially symmetric, campanulate, lobes ovate to lanceolate; petals 5, corolla pink, pinkish to bluish purple or maroon-red, often paler ventrally, bilaterally symmetric, bilabiate, spurs absent, abaxial lobes 3, adaxial lobes 2; stamens 4, adnate to corolla, didynamous, filaments puberulent distally to hirsute proximally, staminode 1, straplike; ovary 2-locular, placentation axile; stigma capitate. Capsules symmetric, dehiscence septicidal. Seeds +/- 50, tan to brown, flat, winged. \( x = 15 \).

Species 1: w North America.

Notochelone is a member of tribe Cheloneae, which in North America includes Chelone, Chionophila, Collinsia, Keckiella, Penstemon, and Tonella. These genera share a cymose inflorescence, the presence of a staminode, simple trichomes, and stems that contain pith (A. D. Wolfe et al. 2002). In phylogenetic analyses using molecular (Wolfe et al.) and morphological (A. D. Nelson 1995) data, N. nemorosa occurs in a clade with species of Chelone. Notochelone has a more branched cyme with relatively small bracteoles, a ventrally ridged corolla, circular pollen amb (grain shape from polar view) shape, reticulate pollen exine sculpting pattern, and asymmetrical seed wing, whereas Chelone has a reduced cyme with relatively large bracteoles, dorsally ridged corolla, triangular pollen amb shape, rugulate-reticulate pollen exine sculpting pattern, and a circumalate (surrounded by a wing) seed (Nelson). Both genera have hypogynous disc nectaries (Wolfe et al.). Chionophila shares a clade with sister genera Chelone and Notochelone. Chionophila has a reduced cyme without bracts, no ridges on the corolla, a circular pollen amb shape, reticulate pollen sculpting pattern, seeds with wings, and an epistaminal nectary.

1. Notochelone nemorosa (Douglas ex Lindley) Straw, Brittonia 18: 85. 1966  E  F
Chelone nemorosa Douglas ex Lindley, Bot. Reg. 14: plate 1211. 1828; Penstemon nemerosus (Douglas ex Lindley) Trautvetter
Stems clustered from woody caudex base, 22--120 cm. Leaves: petiole 0--2(--5) cm; blade ovate to lanceolate or elliptic, (18--)40--140 x (4--)15--40 mm, venation pinnate, base cuneate to rounded, margins with (0--)1--5(--7) teeth per 10 mm, apex acute to acuminate, surface glabrous to puberulent-pubescent mostly along veins. Cymes 3--38 cm; bracteoles lanceolate, 3--10 x 1--2 mm. Pedicels 3--27 mm. Flowers: calyx lobes (1--)3--13 x 1--3(--4) mm, margins entire; corolla externally glandular pubescent, internally glabrous except at base, throat dilated, tube (14--)17--23 x 8--11 mm, abaxial lip (3--)4--10 x 1--5 mm, adaxial lip keeled, shorter than abaxial lip, 2.4--5 mm; anthers divaricate, 1.3--4 x 1--2(--4) mm, densely lanate; adaxial filaments 12--20 mm; staminode as long as stamens, included, 7--15 mm, coarsely bearded for entire length, hairs tan to orange; ovary glabrous, septum complete, locules equal, subtended by nectariferous disc; style terete, 15--28 mm, glabrous. Capsules ovoid, 9--15 x 5--9 mm. Seeds with a dark center, 2--4 x 0.5--1.1 mm, including wings. 2n = 30.

Flowering Jun--Aug. Cliffs, rocky places, and trails in moist, humid, conifer and mixed evergreen forests; 0--2700(--3100) m; B.C.; Calif., Oreg., Wash.

*Nothochelone nemorosa* has often been included in *Chelone* or *Penstemon*, but studies of anatomy (R. M. Straw 1966; A. D. Nelson 1995) and molecular variation (A. D. Wolfe et al. 1997, 2002) support its separation as a monotypic genus.