PLANTAGINACEAE 458

Key revised to include *N. canadensis*, which is native in our area.

References:

Conn, B. 2014. *Nuttallanthus texanus*. New South Wales flora online. National Herbarium of NSW, Royal Botanic Garden, Sydney, Australia. [web link 8 May 2021: https://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Nuttallanthus~texanus]

- Conn, B. and L. Murray. 2015. *Nuttallanthus canadensis*. New South Wales flora online. National Herbarium of NSW, Royal Botanic Garden, Sydney, Australia. [web link 8 May 2021: https://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Nuttallanthus~canadensis]
- Crawford, P. T. 2003. Biosystematics of North American species of *Nuttallanthus* (Lamiales). Ph.D. dissertation. University of Oklahoma, Norman, OK. 133 pp.
- Crawford, P. T. and W. J. Elisens. 2006. Genetic variation and reproductive system among North American species of *Nuttallanthus* (Plantaginaceae). American Journal of Botany 93: 582–591.
- Freeman, C. C. Nuttallanthus D. A. Sutton. 2019. Pp. 40--42, in Flora of North America North of Mexico. Volume 17, Magnoliophyta: Tetrachondraceae to Orobanchaceae. Edited by Flora of North America Editorial Committee. Oxford University Press, New York. 737 pp. [web link 8 May 2021: http://beta.floranorthamerica.org/Nuttallanthus]
- Ji, S. J., J. C. Yang, S. Y. Jung, C. Chang, S. H. Park, Y. S. Kang, S. H. Oh, and Y. M. Lee. 2012. Two newly naturalized plants in Korea: *Nuttallanthus canadensis* (L.) D. A. Sutton and *Lamium purpureum* var. *hybridum* (Vill.) Vill. Korean Journal of Plant Taxonomy 42: 91–97.

Nuttallanthus D.A. Sutton Toadflax; Blue or Wild Toadflax

Fls in terminal, bracteate racemes or spikes; calyx of 5 basally connate sepals; corolla pale purple to blue, pink, purple or white, with paler palate, spurred at base, bilabiate, the upper lip 2-lobed, external in bud, lower lip 3-lobed, palate scarcely raised; stamens 4, didynamous; stigmas capitate; caps ovoid to subglobose, rupturing irreg by 4–5 slits near tip; seeds prismatic, narrower at base, 4–7 sided, gen ∞ , fewer in the smaller caps produced by cleistogamous fls; ann or bien herbs from a short taproot, with a basal rosette of prostrate, lfy sts, and a slender, erect main st 1–5 dm, glab or glandular-puberulent above, lvs of main st sessile, alt, entire, linear to narrowly elliptic, 1–3.5 cm \times 1–3 mm. (For Thomas Nuttall, 1786–1859, Am botanist, and Gr *anthos*, fl).

Our pls often confused with *Linaria purpurea* (L.) Mill. Corolla descriptions and measurements refer to outcrossing fls; cleistogamous fls are smaller (spurs and corolla scarcely longer than the sepals) and occur at beginning or end of anthesis. Our spp. are seldom coll, similar in appearance, and seldom (with us) in disturbed habitats. In parts of their N Am range they can co-occur but predominantly self-pollinate, without hybridization. **Mature seeds needed for identification.** (*Linaria*, in part).



- 1a Mature seed corners blunt (10×); seed faces moderately to densely covered with low tubercles, the surface sometimes obscured; flrs 11–22 mm, including spur 3–11 mm; outwash prairies, lowl mossy balds, sea bluffs, moist draws, sandy or thin-soiled openings, seldom (with us) on roadsides; sw BC, PT islands, w OR, s to CA, e MT, AZ; more common in c and e N Am; Mexico, S Am, Caribbean; intro in Hawaii, Japan, e Australia; Texas t. (*L. canadensis* var. t.).
- 1 **N. texanus** (Scheele) D.A. Sutton **1b** Mature seed corners sharply angled (10×); seed faces smooth or with some tubercles or wrinkles, the seed surface visible; flrs 8–14 mm, including spur 2–7 mm; lowl rocky balds, sea bluffs, sandy or thin-soiled openings, seldom (with us) on roadsides, railroads; sw BC, PT islands, w OR, s to CA; more common in c and e N Am; intro in England, w Russia, South Korea, Japan, e Australia; Canada t. (*L. canadensis* var. c.). 2 **N. canadensis** (L.) D.A. Sutton