

Willamette navarretia

(*Navarretia willamettensis*)



ENDANGERED



Flower (left), habit (center), and habitat (right) of Willamette navarretia. Photos by Gerald D. Carr (left; Courtesy of OregonFlora) and ODA staff (center and right). If downloading images from this website, please credit the photographer.

Family

Polemoniaceae

Plant description

Navarretia willamettensis is an annual plant that reaches 3-16 cm tall and wide with the primary head at the tip of the main stem and generally with 1-20 smaller heads at the tips of ascending lateral branches. The stems and branches are puberulent and green to reddish brown. The lower leaves are opposite or alternate with linear segments, glabrous to puberulent, and range in size from 10-50 mm long with up to 13 entire or branched lobes. The upper leaves are 10-22 mm long, alternate, and acerose with a puberulent rachis 4-10 mm long. The heads of *N. willamettensis* are 12-25 mm wide with 3-50 subsessile flowers. The calyx is 6.3-8.0 mm long with a membranous tube that is glabrous to gland-dotted or rarely puberulent between ribs and 2.3-3.5 mm long with 3-4 celled unbranched trichomes at the orifice and along the ribs. The 5 lobes on the calyx are glabrous and acerose with the two longest lobes 3.0-4.5 mm and often 2-3 pronged with the three shorter lobes 2.2-3.2 mm and simple. The corolla is funnelform and pink to lavender in color, 4.7-6.5 mm long and exceeding the shortest but not longest calyx lobes. The capsules are 2.3-3.0 mm long, membranous, and remain in the dried heads until they rupture with autumn rains as seed coat fibers imbibe water and expand. There are 2-6 brown ovoid-angular seeds that are 1.3-2.0 mm long, reticulate-pitted, and mucilaginous when wet.

Distinguishing characteristics

Navarretia willamettensis was historically confused with two lookalike species: *Navarretia intertexta*, whose range encompasses that of *N. willamettensis*, and *N. leucocephala* ssp. *minima*, which is reported to only occur east of the Cascade Range. *Navarretia intertexta* calyx tubes and bract bases have spreading-villous hairs, sometimes densely so, that are 0.5-1.5 mm long while *N. leucocephala* and *N. willamettensis*

have glabrous to puberulent calyx tubes and bract bases. *Navarretia intertexta* also has a corolla that is exerted beyond that calyx and stamens exerted beyond the corolla lobe tips compared to *N. willamettensis* having a corolla included within the calyx and stamens exerted, but not as far as the corolla lobe tips. *Navarretia willamettensis* has pink to lavender corollas with ovate lobes not greater than twice as long as wide and a calyx 6.3-8.0 mm long. *Navarretia leucocephala* has white corollas with linear to oblong lobes at least twice as long as wide with calyx 4-6 mm long.

When to survey

Surveys of *Willamette navarretia* should occur when the species is in flower, from mid-June to mid-July, when the standing water recedes, and the soil begins to dry out.

Habitat

Navarretia willamettensis grows in vernal pools and seasonal wetlands of the southern Willamette Valley where it often begins to flower when standing water recedes and soils dry.

Range

Navarretia willamettensis grows only in the Willamette Valley, Oregon, from Corvallis south to Eugene. There are 12 known natural occurrences with three additional sites being restored and seeded within the species' range.

Oregon counties

Benton, Lane

Federal status

Species of concern

Threats

The biggest threat to *Navarretia willamettensis* is loss of native wet prairie habitat to agriculture, development, and habitat degradation. These major disturbances have fragmented populations and severely restricted the range of the species. Invasive species have been observed at *N. willamettensis* sites but are currently not considered a major concern as most public sites are managed to reduce invasive species. Without control efforts, exotic invasive plants such as *Mentha pulegium* and perennial grasses can quickly become a major problem, outcompeting native plants or altering hydrology. The species is also threatened by small population size, which pose a greater risk of extinction from associated issues of having lower numbers of reproductive individuals, genetic diversity, seed production and viability. Climate change will also likely have a strong impact on *N. willamettensis* in Oregon as temperature and precipitation changes will alter conditions in sensitive vernal pool habitat.

Conservation planning

The City of Eugene's Native Plant Nursery has been growing *Navarretia willamettensis* seed for introduction in local restoration projects.

References

- City of Eugene Public Works Department (CEPWD). 2021, Draft report. *Navarretia willamettensis* West Eugene Wetlands Plant Materials Status Progress Report. Prepared by the Ecological Services Team, Parks and Open Space Division.
- Oregon Biodiversity Information Center (ORBIC). 2022. Element Occurrence Reports for *Navarretia willamettensis*. Unpublished cumulative data current to July 27, 2022. Institute for Natural Resources, Portland State University, Portland, OR.
- Oregon Biodiversity Information Center (ORBIC). 2016. Climate change vulnerability index assessment for Willamette navarretia (*Navarretia willamettensis*). Institute for Natural Resources, Portland State University, Portland, OR.
- OregonFlora. 2022. Herbarium database current to July 2022. Oregon State University Department of Botany & Plant Pathology. Corvallis, Oregon. oregonflora.org.
- Spencer, SC, and AE Spencer. 2003. *Navarretia willamettensis* and *Navarretia saximontana* (Polemoniaceae), new species from ephemeral wetlands of western North America. *Madroño*, 50 (3): 196-199.
- US Bureau of Land Management (BLM). 2022. *Navarretia willamettensis* monitoring data. Unpublished data current to 2022.