

Added to California Rare Plant Rank 1B.3 of the CNPS Inventory on 31 December 2019**Rare Plant Status Review: *Navarretia panochensis*
Proposed Addition to California Rare Plant Rank 4.3, G3 / S3**

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Background and Taxonomy

Navarretia panochensis D.Gowen & L.A.Johnson is an annual herb in the Polemoniaceae known only from San Benito and Fresno counties, California. It is not included in *The Jepson eFlora* (Johnson 2013) and Polemoniaceae has not yet been published in the *Flora of North America*. *Navarretia panochensis* is most similar to *N. pubescens* and is differentiated in having a lavender corolla with a yellowish-white corolla throat (vs. blue-purple throughout), a pointed to apiculate corolla lobe apex (vs. rounded to blunt pointed), an included to exserted stigma (vs. exserted), bracts with linear rachis (vs. linear to elliptic rachis), and in having a cotyledon shape that is entire and linear to narrowly elliptic (vs. forked and linear lobes in *N. pubescens*) (Gowen and Johnson 2018). It is also somewhat similar to *N. mitracarpa* and can be identified by having bracts with linear rachis (vs. bracts with elliptic rachis), and in having a generally upright habit (vs. a low spreading habit in *N. mitracarpa*). A key for distinguishing *N. panochensis* from other similar *Navarretia* along with a table comparing similar characteristics is included in the original description of the plant by Gowen and Johnson (2018), and is available to download free from the journal *Phytotaxa*: <https://biotaxa.org/Phytotaxa/article/download/phytotaxa.347.1.5/32480>. The specific epithet, *panochensis*, refers to Panoche Valley and Panoche Hills in which *N. panochensis* is found (Gowen and Johnson 2018).

Ecology

Navarretia panochensis is endemic to red clay adobe soils within chenopod scrub and valley and foothill grassland, generally in gravelly areas, at an approximate elevation of 330 to 860 meters, and is known to bloom from April to August (CCH1 2019; Gowen and Johnson 2018; Calflora 2019; CalPhotos 2019; Hauser pers. comm. 2019). Other rare plants that co-occur or occur within the area of *N. panochensis* include: *Allium howellii* var. *sanbenitense* (1B.3), *Atriplex coronata* var. *vallicola* (1B.2), *Deinandra halliana* (1B.2), *Extriplex joaquinana* (1B.2), *Layia heterotricha* (1B.1), *L. munzii* (1B.2), *Lepidium jaredii* subsp. *album* (1B.2), *Madia radiata* (1B.1), and *Senecio aphanactis* (2B.2) (CNDDDB 2019).

Distribution and Abundance

Navarretia panochensis is currently known from 32 occurrences in Panoche Hills and Panoche Valley. The majority of its occurrences are in the hills surrounding Panoche Valley, and not within the valley itself. Only one of its 32 occurrences is considered historical (occurrences not seen in over 20 years are considered historical by CNDDDB). Eleven occurrences are located on Bureau of Land Management (BLM) lands, one is located in Panoche Hills Environmental Reserve as well as BLM lands, and the remaining 20 occurrences are on land of unknown ownership.

Navarretia panochensis occurs at the junction between the ranges of the two plants it is most similar to: *N. pubescens* occurs in the coast ranges of northern California to the western edge of the Sierra Nevada as well as reaching up into southern Oregon, and *N. mitracarpa* being found in southern California reaching to the western end of the Transverse Ranges. This may help explain

the interesting combination of similar characteristics between the three species (Gowen and Johnson 2018).

While limited in range, *N. panochensis* seems to respond to wet years very well, forming populations of millions of plants, with 18 million plants estimated in 2019 (Hauser pers. comm. 2019). In drier years, populations may be very small. This fact should help drive survey timing. Although known from large, likely stable populations, this species is believed to be extremely localized and restricted to the red clay adobe soils in the Panoche region (C. Hauser pers. comm. 2019; R. O'Dell pers. comm. 2019).

Status and Threats

According to R. O'Dell (pers. comm. 2019), "Threats across the range of this species are minimal and primarily due to non-native annual grass competition – mostly *Bromus madritensis*. Occasional disturbance appears to be beneficial to this species based on its strong association with road edges. Disturbances include cattle grazing, dirt roads (ranch roads), and occasional OHV trespass (R. O'Dell pers. comm. 2019).

Navarretia panochensis was initially recommended for addition to California Rare Plant Rank 1B. However, after additional surveys, *N. panochensis* is believed to have a large stable population, with most, if not all of the known habitat currently protected by Bureau of Land Management, Center for Natural Lands Management, and Panoche Valley Solar (Hauser pers. comm. 2019). Although known from only 32 occurrences, its recent description, similarity to common taxa, proposed affinity for occasional disturbance, and majority of distribution in areas that are considered protected and/or outside of pending threats, indicate a California Rare Plant Rank of 4 is warranted instead of 1B at this time.

Summary

Based on the available information, CNPS and CNDDDB recommend adding *Navarretia panochensis* to California Rare Plant Rank 4.3 of the CNPS Inventory. If knowledge on the distribution, threats, and rarity status of *N. panochensis* changes in the future, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Navarretia panochensis* to CRPR 4.3

CNDDDB: Add *Navarretia panochensis* to G3 / S3

Draft CNPS Inventory Record

Navarretia panochensis D.Gowen & L.A.Johnson

Panoche navarretia

Polemoniaceae

CRPR 4.3

Fresno, San Benito

Lillis Ranch (338B) 3612044, Joaquin Rocks (338C) 3612034, Ciervo Mtn. (339A) 3612045, Tumey Hills (361C) 3612056, Mercy Hot Springs (362A) 3612067, Cerro Colorado (362B) 3612068, Llanada (362C) 3612058, Panoche (362D) 3612057

Chenopod scrub, valley and foothill grassland / clay, often gravelly; elevation 330-860 meters. Annual herb. Blooms April to August.

Possibly threatened by non-native plants. See *Phytotaxa* 347(1):81-88 (2018) for original description.

Literature Cited

Calflora. 2018. Information on wild California plants for conservation, education, and appreciation. Website <http://www.calflora.org/> [accessed 3 September 2019].

California Natural Diversity Database (CNDDDB). 2019. RareFind 5 [Internet]. California Department of Fish and Wildlife [Government Version, 3 September 2019].

CalPhotos. 2018. CalPhotos: Plants. Regents of the University of California, Berkeley. Website <http://calphotos.berkeley.edu/flora/> [accessed 3 September 2019].

Consortium of California Herbaria. 2019. Data provided by the participants of the Consortium of California Herbaria. Regents of the University of California, Berkeley. Website <http://ucjeps.berkeley.edu/consortium/> [accessed 3 September 2019].

Gowen, D. and L. A. Johnson. 2018. *Navarretia panochensis* (Polemoniaceae), a new species from the Panoche Hills and Panoche Valley of the San Joaquin Desert, California. *Phytotaxa* 347(1):81-88. (Original description.)

Johnson, L. 2013. *Navarretia*. In: Jepson Flora Project (eds.), *Jepson eFlora*. Website <http://ucjeps.berkeley.edu/IJM.html> [accessed 3 September 2019].