

**Rare Plant Status Review: *Penstemon clelandii* var. *mohavensis*
Proposed Addition to California Rare Plant Rank 1B.2, G5T2 / S2**

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13 October 2022

This status review is being expedited through an agreement between the California Native Plant Society and the Center for Plant Conservation (CPC), with contributions from the state of California, CPC, and the California Plant Rescue initiative. Aside from being advanced as part of this agreement, the process, content, and information provided herein is not altered, modified, or developed differently in any way or form compared to other status reviews developed by CNPS.

Background and Taxonomy

Penstemon clelandii A. Gray var. *mohavensis* (D. D. Keck) McMinn is a perennial herb in the Plantaginaceae known from Joshua Tree National Park and the Sheephole and Granite Mountains. It is included in *The Jepson eFlora* (Wetherwax and Holmgren 2012); Plantaginaceae has not yet been published in the *Flora of North America North of Mexico* (FNA 1993+). It was originally described as *Penstemon clelandii* subsp. *mohavensis* in 1937 by David Keck and was later changed to a variety, *P. clelandii* var. *mohavensis*, by McMinn (1939). *Penstemon clelandii* var. *mohavensis* is most similar to *P. clelandii* var. *clelandii* and can be distinguished by sharply serrate leaves (vs. entire to moderately serrate leaves), and a densely hairy staminode (vs. glabrous or sparsely hairy staminode) (Wetherwax and Holmgren 2012). The specific epithet *mohavensis* refers to being located within the Mojave Desert (Charter 2019).

Ecology

Penstemon clelandii var. *mohavensis* grows in the crevices of rock formations (often granitic) within Mojavean Desert scrub and pinyon and juniper woodland at an approximate elevation of 3040 to 5320 ft (CCH2, GBIF 2022). It has been observed in bloom from March to June (CalPhotos 2022, CCH2, GBIF 2022, iNaturalist 2022). Associated species include *Monardella robisonii* (CRPR 1B.3), *Bahiopsis parishii*, *Ericameria cuneata*, *Eriogonum wrightii*, *Diplacus* spp., *Brickellia desertorum*, *Gutierrezia microcephala*, *Nolina parryi*, *Acacia greggii*, *Prunus fasciculatum*, *Pinus monophylla*, *Quercus* spp., *Juniperus californica*, and *Yucca schidigera* (CCH2 2022, GBIF 2022).

Distribution and Abundance

Penstemon clelandii var. *mohavensis* is currently known from 39 estimated occurrences in Riverside and San Bernardino counties within or adjacent to Joshua Tree National Park as well as in the Sheep Hole and Granite Mountains (CalPhotos 2022, CCH2, GBIF 2022, iNaturalist 2022, La Doux 2022 pers. comm.). Of the 39 occurrences, only four are considered historical (not seen in over 20 years) as defined by CNPS (2022) and the CNDDDB (2022). Thirty-four occurrences are located in Joshua Tree National Park, two are on land owned by the Bureau of Land Management, one is on land that may be owned by the BLM or the California Land Conservancy, and two are on land of unknown ownership. The report of *P. clelandii* var. *mohavensis* from the Mojave National Preserve (Calflora 2022) is considered inaccurate (Andre 2022 pers. comm.). This record is highlighted in pink at the bottom of the location table. Also highlighted in pink are three records that have inaccurate coordinates or a vague location that cannot be georeferenced. Of the occurrences found in Joshua Tree National Park, most of them

have six or fewer individuals, making them highly susceptible to localized extinctions (La Doux 2022 pers. comm.).

Status and Threats

Penstemon clevelandii var. *mohavensis* is a highly restricted, narrow endemic, with the majority of occurrences limited to a single quadrangle within Joshua Tree National Park. Although national parks are protected from some types of development, the area in the park where this species is found receives the majority of recreational hiking, climbing, and camping visitors (La Doux 2022 pers. comm.). Many of the plants occur within one of the most popular and most visited regions of the park, the Wonderland of Rocks. This area mostly lacks designated trails, which leads to off-trail hiking across the granitic outcrops where this species is often found (La Doux 2022 pers. comm.). Rock-climbing poses a major threat to this taxon, due to trampling or removal of vegetation (unwanted pruning) along popular rock climbs (La Doux 2022 pers. comm.). Evidence of trampled or pruned *Penstemon clevelandii* var. *mohavensis* has been observed by park staff on many occasions within popular climbing areas, as well as in campgrounds (La Doux 2022 pers. comm.). In addition, increased nitrogen deposition and changes in vegetation within Joshua Tree National Park has made this area more fire-prone than other regions of the Mojave Desert (Andre 2022 pers. comm.). The historical location in the Granite Mountains near Victorville could be subject to numerous threats, including off-highway vehicles, renewable energy development, mining, and the impacts of neighboring urban sprawl (Andre 2022 pers. comm.). Since this taxon is restricted to rock outcrops at the upper elevations of mountain ranges of the Mojave Desert, it will also be limited in its ability to migrate, as the climate warms due to climate change (Andre 2022 pers. comm.).

Summary

Based on the available information, CNPS and CNDDDB recommend adding *Penstemon clevelandii* var. *mohavensis* to California Rare Plant Rank 1B.2 of the CNPS Inventory. If knowledge on the distribution, threats, and rarity status of *P. clevelandii* var. *mohavensis* changes in the future, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Penstemon clevelandii* var. *mohavensis* to CRPR 1B.2

CNDDDB: Add *Penstemon clevelandii* var. *mohavensis* to G5T2 / S2

Draft CNPS Inventory Record

Penstemon clevelandii A. Gray var. *mohavensis* (D. D. Keck) McMinn

Mojave beardtongue

Plantaginaceae

USDA Plants Symbol: PECLM2

Synonyms: none

CRPR 1B.2

Counties: Riverside, San Bernardino

States: CA

Quads: Dale Lake (3411526), Twentynine Palms (102A) 3411621, Indian Cove (3411612), Queen Mtn. (3411611), Joshua Tree South (3411613), Fifteenmile Valley (3411741)

General Habitat: Mojavean desert scrub, Pinyon and juniper woodland

Micro Habitat: Rocky, granitic (often)

Elevation: 925-1620 m (3040-5320 ft)

Life form: Perennial herb

Blooms: March to May.

Threats: Threatened by recreational activities (rock climbing), foot traffic, and trail maintenance. Potentially threatened by alteration of fire regimes, off-highway vehicles, renewable energy development, and mining.

Selected References:

- Original Description: *American Midland Naturalist* 18(5): 810 (1937)
- Revised Nomenclature: *Illustrated Manual of California Shrubs*, p. 511 (1939) by H. McMinn

Literature Cited

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Personal Communications

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La Doux, Tasha. 2022. Assistant Director, Granite Mountains Desert Research Center and Lead Botanist, Joshua Tree National Park. Email correspondence regarding distribution and threats to *Penstemon clelandii* var. *mohavensis*. Personal communication 1 October 2022.

Sanders, Andrew. 2022. Curator, Herbarium, UC Riverside. Email correspondence regarding identification of specimen of *Penstemon clelandii* var. *mohavensis* from the Granite Mtns. Personal communication 26 September 2022.