Rare Plant Status Review: *Xylorhiza panamintensis*
Proposed Addition to California Rare Plant Rank 1B.3, G1G2 / S1S2
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Background and Taxonomy

Xylorhiza panamintensis B.G. Baldwin & M. Berger is a perennial herb in the Asteraceae known from the Panamint Range in Inyo County, California. It was recently discovered and described; therefore, it is not included in *The Jepson Manual* (Keil 1993), *Jepson eFlora* (Keil 2012), or *Flora of North America* (Nesom 2006). The new species was first encountered by M. Berger in a vegetative state in 2023 and later revisited and collected while in flower. Its status as an undescribed taxon of *Xylorhiza* was confirmed by morphological and genetic investigation: "Samples of the new species were resolved in ITS [nuclear ribosomal internal transcribed spacer] phylogenetic analyses as constituting a well-supported lineage most closely related to *X. tortifolia* sensu lato (Baldwin et al. 2024)." Three other *Xylorhiza* taxa are known from California; two with narrow ranges from the Sonoran Desert bioregion (*X. cognata* and *X. orcuttii*, both CRPR 1B.2) and the widespread *X. tortifolia*, which is also known from the Death Valley region (Keil 2012, Baldwin et al. 2024). *Xylorhiza panamintensis* is told apart from *X. tortifolia* by its "stems that are extensively branched throughout (vs. branched only proximally), heads sessile and mostly in corymbiform arrays (vs. long-pedunculate and solitary), outermost phyllaries herbaceous throughout (vs. scarious in proximal ¼ to ¾ of length), ray laminae 6–11.5 × 1–1.75 mm (vs. 10–33 × 1.8–5.5 mm), and pappus bristles 15–25 (vs. 35–90)" (Baldwin et al. 2024). See Baldwin et al. (2024) for discussion of characters differentiating *X. panamintensis* from the allopatric *X. cognata* and *X. orcuttii*. Due to its distinctive appearance *Xylorhiza panamintensis* is unlikely to be confused with *X. tortifolia*, and to date, no previously misidentified specimens of this new species have been found in herbaria (Baldwin 2025 pers. comm). If this plant was encountered by botanists in the past, it may have been confused with *Hazardia brickellioides* which it resembles in its vegetative state (Baldwin et al. 2024).

The species was named after the Panamint Range, as elaborated by Baldwin et al. (2024):

> The species epithet refers to the Panamint Range, where all known occurrences of *X. panamintensis* are found if the Cottonwood Mountains are interpreted as a subrange of the Panamint Range (e.g., Gleason et al. 2019 [and USGS topographic maps]), with most known populations situated between Panamint Butte and Panamint Valley. The recommended common name is Panamint Desert-Aster.

Ecology

Xylorhiza panamintensis occurs in Mojavean Desert scrub on rocky carbonate substrates with the following associated taxa: *Salvia funerea* (CRPR 4.3), *Eucnide urens*, *Pleurocoronis pluriseta*, *Bahiopsis reticulata*, *Aristida purpurea*, *Tidestromia suffruticosa* var. *oblongifolia*, *Diplacus rupicola* (CRPR 4.3), *Eriogonum glandulosum* (CRPR 4.3), *E. heermannii* var. *argense*, *Homalocephala polycephala*, *Anulocaulis annulatus*, *Amphipappus fremontii*, *Nicotiana obtusifolia*, *Euphorbia parishii*, *Peucephyllum schottii*, *Ambrosia dumosa*, and *Larrea tridentata* (Baldwin et al. 2024). Records range in elevation from approximately 715 to 1300 meters (Baldwin et al. 2024, iNaturalist 2025, Berger 2025 pers. comm.). The low elevation range of 408 m reported in Baldwin et al. (2024) for the holotype is erroneous and should be

approximately 718 m (Berger 2025 pers. comm.). Baldwin et al. (2024) documented flowering from December to February with buds observed on one plant in April suggesting flowering may occur as late as May. Two iNaturalist (2025) observations by T. Embry and G. Webber (observation #s 256533250 and 179284139) include photographs of flowers in April and November, respectively. The April observation shows one head with recently wilted rays, while the November observation shows a plant with ~30 heads that are either in bud, with freshly opened flowers, or with recently wilted rays still showing some color. The latter observation suggests that adequate summer rainfall occasionally triggers fall blooming in this species.

Distribution and Abundance
Xylorhiza panamintensis is known from approximately eight occurrences on the western slope of the Panamint Range from the vicinity of highway 190 to Panamint Butte (Baldwin et al. 2024, iNaturalist 2025, Berger 2025 pers. comm.). The total known range is small with the Extent of Occurrence (EOO) approximately 11 sq km and the Area of Occupancy (AOO) estimated as 28 sq km (GeoCAT; Bachman et al. 2011). All the occurrences are recent, and they are all within Death Valley National Park. No systematic population censuses have occurred, and the total known population currently is "at least 100 plants" (Berger 2025 pers. comm.). Baldwin et al. (2024) address the potential for new occurrences and the need for additional surveys:

> Targeted searching by M. Berger in the general vicinity and lack of detection of this species during earlier floristic and vegetation surveys in the Cottonwood Mountains by Peterson (1984) indicate that *X. panamintensis* is a rare and narrow endemic of the Death Valley region [….] Surveys for additional occurrences are needed and should be prioritized for periods following significant winter and spring precipitation events, when this species is most likely to be flowering and easily identified.

Status and Threats
As a recently described taxon, *Xylorhiza panamintensis* currently has no conservation status (CNDDB 2025, CNPS 2025, NatureServe 2025). The small number of occurrences, narrow range, and substrate specificity all suggest that the species is genuinely rare and warrants protection. No specific threats are known, with Baldwin et al. (2024) citing climate change as the only known potential threat.

Summary
Based on the available information, CNPS and CNDDB propose adding *Xylorhiza panamintensis* to California Rare Plant Rank 1B.3 of the CNPS Inventory. If knowledge of the distribution, threats, or rarity status of *Xylorhiza panamintensis* changes in the future, it may be re-evaluated at that time.

Recommended Actions
CNPS: Add *Xylorhiza panamintensis* to CRPR 1B.3
CNDDB: Add *Xylorhiza panamintensis* to G1G2 / S1S2

Draft CNPS Inventory Record
Xylorhiza panamintensis B.G. Baldwin & M. Berger
Panamint desert-aster
Asteraceae

CRPR 1B.3
Counties: Inyo
States: California
Quad name (code): Panamint Butte (3611743), The Dunes (3611744)
General Habitat: Mojavean Desert scrub
Microhabitat: Rocky, carbonate
Elevation: 715–1300 meters (2345–4265 ft)
Life form: Evergreen perennial shrub
Blooms (Nov) Dec to Feb (Apr)
Notes: Discovered in 2023 by M. Berger.
Taxonomy: Distinguished from *X. tortifolia* by the following characters: extensively branched (vs. unbranched) stems, heads sessile or nearly sessile (vs. long pedunculate) and in corymbiform groups (vs. solitary), outer phyllaries herbaceous (vs. scarious in proximal ¼ to ¾), smaller ray laminae (6–11.5 × 1–1.75 mm vs. 10–33 × 1.8–5.5 mm), and fewer pappus bristles 15–25 (vs. 35–90). See original description for additional details.
Selected References:
- CNPS Status Review: Proposed addition to CRPR 1B.3, G1G2 / S1S2 (2025)
- Original Description: *Madroño* 71(4): 156-163 (2024)

Literature Cited

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Personal Communications

Baldwin, Bruce. 2025. Asteraceae expert, Jepson eFlora convening editor, coauthor of *X. panamintensis* description. Email communications about *X. panamintensis* identification, herbarium specimens, elevation of holotype. 4 April and 1 May 2025.

Berger, Matthew. 2025. Field botanist, discoverer of *X. panamintensis* and coauthor of new species description. Email communications about obscured records, elevation of holotype, and population size. 4 and 14 April 2025.

Fawcett, Susan. 2025. University and Jepson Herbaria botanist, coauthor of *X. panamintensis* description. Email communication about *X. panamintensis*. 28 March 2025.