

Rare Plant Status Review: *Malacothamnus mendocinensis*

Proposed Change from California Rare Plant Rank 1A, GXQ / SX to 1B.1, G1 / S1

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Changes to the original document are in blue text

Background and Taxonomy

Malacothamnus mendocinensis (Eastw.) Kearney is a shrub in the Malvaceae known only from Mendocino County, California. It was first described (as *Malvastrum mendocinensis*) in 1939 based on two specimens collected near Ukiah (Eastwood 1939). After that first discovery, *Malacothamnus mendocinensis* was not observed for nearly 80 years, and in the first edition of the CNPS Inventory (Powell 1974), it was assigned a rank of “Possibly Extinct.” It has remained as List 1A (now CRPR 1A) since that time (CNPS 2022). In 2016, it was rediscovered on the eastern shore of Lake Mendocino, necessitating a change to CRPR 1B.1 (Morse 2022 pers. comm.).

Malacothamnus mendocinensis was included in *A California Flora and Supplement* (Munz and Keck 1973). It was placed in synonymy with *M. fasciculatus* in *The Jepson Manual, Higher Plants of California* (Bates 1993). It ~~was not recognized~~ ~~has remained a synonym of *M. fasciculatus*~~ in the more recent *Jepson eFlora* (Slotta 2012) and ~~as well as~~ the treatment in *Flora of North America* (Bates 2015). Ongoing molecular and morphological research by Keir Morse (Morse 2022 pers. comm.) indicates that *M. mendocinensis* is morphologically and phylogenetically distinct from all other species in the genus and that the newly discovered plants at Lake Mendocino match those examined by Eastwood. Two herbarium specimens from the newly discovered population have been deposited at California Botanic Garden (RSA), although they do not yet show up in the Consortium of California Herbaria online (CCH2 2022).

Distribution, Abundance, and Ecology

Nothing is known about the ecology of the original populations observed in 1938 and 1939, however the seeds of the species of *Malacothamnus* generally require fire for germination, and the species are considered fire followers (Bates 2015, Morse 2022 pers. comm.). The Lake Mendocino plants were first observed in 2016 and are located on the Lake’s eastern shore. This location extends the known range of the species 22 km to the west and indicates that there may be a large amount of potential habitat between and around the two documented locations that needs to be surveyed post-fire to try to assess where additional plants may occur (Morse 2022, pers. comm.). It also indicates that seeds of *M. mendocinensis* are likely present in the seed bank in certain areas of Mendocino County, and the species should not be presumed extinct (Morse 2022, pers. comm.).

In 2016, seven plants were observed at Lake Mendocino, a reservoir administered by the US Army Corps of Engineers. During the years before this (early to mid-2000’s), vegetation near (east of) this spot was bulldozed or cut by hand, piled, and burnt (Morse 2022 pers. comm.). Also in 2016, areas on the way to and near the plants were surveyed, and no other plants were observed, however most similar habitat was not surveyed (Morse 2022 pers. comm.). The seeds of *M. mendocinensis* may have germinated from many years alternating between being underwater and not, or possibly from unauthorized campfires next to the campground or from the burning of slash piles (Morse 2022, pers. comm.). During the 2018 winter, water was held in the

lake, and it flooded this area; most of the plants observed in 2016 died from being inundated for a long period of time. Approximately three plants survived, because they were slightly higher in elevation and in water for less time. They also appeared to be younger plants. By the time the site was visited in 2019, only one plant was extant, and that plant was still present in November 2022 (Morse 2022 pers. comm.).

The plant at the Lake Mendocino location is located about 10 ft above water line in an open area between oak woodland and *Baccharis* shrubland. Associated species include: *Baccharis pilularis*, *Verbascum thapsus*, *Croton setigerus*, *Pseudognaphalium beneolens*, *Arctostaphylos manzanita*, *Eucalyptus* sp., and *Quercus* sp. (Morse 2022 pers. comm.). This habitat may be somewhat atypical due to changes caused by the reservoir. This species likely doesn't normally occur adjacent to water (Morse 2022, pers. comm.).

Threats

Current threats to the Lake Mendocino plant include flooding from the reservoir, browsing by deer, competition from introduced weeds, and recreation (it is adjacent to the campground) (Morse 2022, pers. comm.). The only threat listed for the location near Ukiah is road construction/maintenance (CNDDDB 2022). In general, the most important threat to this species is lack of germination, most likely due to lack of fire in the areas where its seed is present. In addition, it is apparent that some of its original habitat now lies under Lake Mendocino.

Summary

Based on the available information, CNPS and CNDDDB recommend changing *Malacothamnus mendocinensis* from California Rare Plant Rank 1A to California Rare Plant Rank 1B.1 in the CNPS Inventory. If knowledge on the distribution, threats, and rarity status of *M. mendocinensis* changes in the future, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Change *Malacothamnus mendocinensis* from CRPR 1A to CRPR 1B.1

CNDDDB: Change *Malacothamnus mendocinensis* from GXQ / SX to 1B.1, G1 / S1

Revised CNPS Inventory Record (changes to the original record are in green text)

Malacothamnus mendocinensis

Mendocino bush-mallow

Malvaceae

Synonym(s)/Other Name(s) in CNPS Inventory: none

CRPR ~~1A~~ 1B.1

Counties: Mendocino

States: California

Quads: Elledge Peak (3912312), Ukiah (3912322)

General Habitat: Chaparral, Cismontane woodland

Elevation: ~~425-575~~ 215-230 m (700-750 ft)

Lifeform: Perennial deciduous shrub

Blooms: ~~May~~ June to August

~~Notes: Confirmed from only two historical collections near Ukiah (last in 1939). Recent intensive field surveys unsuccessful. Reason for extinction unknown, but possibly due to lack of wildfire. Similar to *M. hallii*. A synonym of *M. fasciculatus* in *TJM* (1993) and *TJM* 2. See *Leaflets of*~~

~~Western Botany 2:188 (1939) for original description and 6(6):133–134 (1951) for revised nomenclature.~~

Notes: Rediscovered at Lake Mendocino in 2016 by J. Xerogeanes. Originally known from only two historical collections near Ukiah (last in 1939). Reason for disappearance likely due to lack of wildfire.

Threats: Highly threatened by inundation, fire suppression, and recreational activities. Possibly threatened by road maintenance, herbivory, and competition with weeds.

Taxonomy: A synonym of *M. fasciculatus* in *TJM* (1993). **Not recognized in *TJM* 2.** Current research indicates *M. mendocinensis* is separated morphologically and phylogenetically from other species in the genus.

Selected References:

- Original Description: *Leaflets of Western Botany* 2:188 (1939)

- Taxonomic Treatment: *Leaflets of Western Botany* 6:113–140 (1951)

Literature Cited

Bates, D. M. 1993. *Malacothamnus*. Pp. 751–754 in Hickman, J.C. (ed.), *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley.

Bates, D. M. 2015. *Malacothamnus*. Pp. 280–285 in *Flora of North America*, Editorial Committee (eds.), *Flora of North America North of Mexico*, Vol. 6. New York and Oxford. Website http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=119517 [November 2022].

[CCH2] Consortium of California Herbaria Portal 2. 2021. Data provided by the participants of the Consortium of California Herbaria and the California Phenology Thematic Collections Network (CAP-TCN). Regents of the University of California, Berkeley and Cal Poly, San Luis Obispo. Website <http://www.cch2.org/portal/index.php> [accessed November 2022].

[CNDDDB] California Department of Fish and Wildlife, Natural Diversity Database. 2022. RareFind 5 [Internet application] and CNDDDB Maps and Data, Version 5.2.14. Available at: <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data> [Government Version, November 2022].

Eastwood, A. 1939. New California plants. *Leaflets of Western Botany* 2: 186–188. (Original description.)

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Munz, P. A. and D. D. Keck. 1973. *A California Flora and Supplement*. University of California Press, Berkeley, California.

Powell, W. R. 1974. Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society Special Publication #1, Berkeley, California.

Slotta, T. 2012. *Malacothamnus*. In: Jepson Flora Project (eds.), *Jepson eFlora*. Website <http://ucjeps.berkeley.edu/IJM.html> [accessed November 2022].

Personal Communications

Morse, Keir. 2022. *Malacothamnus* researcher, California Botanic Garden. Email correspondence regarding rediscovery of *Malacothamnus mendocinensis* (including Rank Change Request Form and forwarded correspondence with Jim Xerogeanes, the botanist who discovered the new location). Personal communication 19 November 2022.