Rare Plant Status Review: *Malacothamnus discombobulatus*
Proposed Addition to California Rare Plant Rank 1B.2 G2 / S2

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Changes to the original document are in blue text

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

Malacothamnus discombobulatus K. Morse is a recently described perennial shrub in the Malvaceae known from Monterey and San Luis Obispo counties, California (Morse 2023b, 2023c). The populations included in *Malacothamnus discombobulatus* were previously identified as disjunct occurrences of *M. davidsonii* (CRPR 1B.2), which is tracked by the CNDDB (Bates 1993, Bates 2015, Morse 2023b, CNDDB 2024, CNPS 2024). As it is recently described, the name *M. discombobulatus* is not included in *The Jepson Manual* (Bates 1993) or *Flora of North America* (Bates 2015); it is included in the recently updated *Malacothamnus* treatment in the *Jepson eFlora* (Morse 2023d). *Malacothamnus discombobulatus* and *M. davidsonii* are allopatric, separated by approximately 330 km (Morse 2023b, 2023c). Although their morphology is very similar, they are genetically distinct, with each being more closely related to other *Malacothamnus* taxa than they are to each other (Morse 2023b). Given their morphological similarity, geographic range is the simplest identification criterion (Morse 2023b). Morphological differentiation is possible for most specimens, and identification details are provided by Morse (2023b). Details on differentiation of *Malacothamnus discombobulatus* from other *Malacothamnus* taxa are provided in the *Jepson eFlora* key (Morse 2023d). The species' etymology relates to its confusion with *Malacothamnus davidsonii*: "*Malacothamnus discombobulatus* is named after the confusion sown from its morphological similarity to *M. davidsonii* and to the pending future discombobulation when someone inevitably includes these two species together in a misguided restoration planting…" (Morse 2023b).

Ecology

Malacothamnus discombobulatus occurs in coastal scrub, chaparral, cismontane woodland, and riparian woodland (Morse 2023b). Sites range from approximately 150–710 m (500–2,300 ft) in elevation (Morse 2023c, Calflora 2024, CCH2 2024, CNDDB 2024, iNaturalist 2024, Morse 2024 pers. comm.). While species associates are variable with none being common to all sites (Morse 2023b), taxa noted from four or more occurrences include *Artemisia* spp., *Baccharis pilularis*, *Ceanothus* spp., *Eriodictyon tomentosum*, *Eriogonum fasciculatum*, and *Quercus* spp. (CCH2 2024, CNDDB 2024). Peak flowering is in July and August (Morse 2023b, 2023c). Early blooms may appear in June and some flowers can linger into September or October when plants are mostly in fruit (Morse 2023b, 2023c, Calflora 2024, CCH2 2024, iNaturalist 2024). *Malacothamnus discombobulatus* "…presumably mostly germinates after fire and is relatively short-lived…." (Morse 2023b), and two occurrences within fire perimeters exhibited population increases after burning (CNDDB 2024).

Distribution and Abundance

Malacothamnus discombobulatus is endemic to California, where it is known from approximately 24 occurrences in Monterey (22) and San Luis Obispo (2) counties (Morse 2023b, Calflora 2024, CCH2 2024, CNDDB 2024, iNaturalist 2024, Morse 2024 pers. comm.). Nine of the occurrences are recent, having been observed in the last 20 years, and 15 occurrences are historical (Morse 2023b, Calflora 2024, CCH2 2024, CNDDB 2024, iNaturalist 2024, Morse 2024 pers. comm.). Twelve of the occurrences are on military bases, namely, Fort Hunter Liggett (11) and Camp Roberts (1), one is on land managed by the Monterey County Water Resources Agency, and the remaining 11 occurrences are on lands of unknown ownership (CNDDB 2024). Morse (2023c) reported the extent of occurrence (EOO) and area of occupancy (AOO; summed area of occupied 2x2 km grid squares) as 952 km^2 and 100 km^2, respectively. Fourteen occurrences have population estimates of one to ten (10), 11 to 50 (2), 100 to 250 (1), and "several thousand" plants (1) (Morse 2023b, Calflora 2024, CCH2 2024, CNDDB 2024, iNaturalist 2024, Morse 2024 pers. comm.). Populations at the remaining 10 sites are unknown. Surveys for *Malacothamnus discombobulatus* should ideally be conducted from one to five years after a fire (Morse 2024 pers. comm.). Negative survey results in areas without recent fires should not be misconstrued as evidence of absence, as short-lived fire followers such as *Malacothamnus* may remain dormant in the seed bank for decades until a fire occurs, and the presence of this seed bank is as important to the species' life history as mature plants.

One herbarium record from the east side of the Salinas River was misidentified, and a duplicate has been redetermined as *Malacothamnus jonesii* var. *niveus* (CCH2 2024, Morse 2024 pers. comm.). The precise locality of a second herbarium record could not be determined. These two records are highlighted in pink at the end of the location spreadsheet.

Status and Threats

Malacothamnus davidsonii as previously delimited has a NatureServe ranking of G2/S2 and a CRPR of 1B.2, with 78 occurrences in the CNDDB (CNDDB 2024, CNPS 2024, NatureServe 2024). Twenty-five* of the 78 occurrences correspond to *Malacothamnus discombobulatus* (Morse 2023b, CNDDB 2024) (*because of new observations, EO #s 87 and 88 are treated as one occurrence in this review, resulting in 24 occurrences reported in Distribution and Abundance, rather than 25). The following threats are listed for six *Malacothamnus discombobulatus* occurrences: grazing, non-native plant impacts, road/trail construction/maintenance, foot traffic/trampling, improper burning regime, and feral pigs (CNDDB 2024). Possible hybridization with incorrectly sourced restoration plants (especially the very similar *M. davidsonii*) is a potential threat noted by Morse (2023b). Hybridization between *Malacothamnus davidsonii* (*s.l.*) and *M. fasciculatus* has been reported, but Morse (2023b, 2023c) found no clear evidence of *M. discombobulatus* hybridization in the wild. While all the occurrences are potentially threatened by fire suppression or the alteration of fire regimes, increasing fire frequency may be beneficial to some extent. Any potential benefits of increased fire frequency would require successful germination, survival to reproductive age, and production of enough seed to replenish the seed bank, all amidst potentially increasing competition from non-native plants (Morse 2024 pers. comm.).

Malacothamnus davidsonii as delimited by Morse (2023b) is endemic to Los Angeles County and has an EOO of 291 km^2 and AOO of 256 km^2 (Morse 2023c). Of the 53 CNDDB occurrences with site quality rankings, 15 (~28%) are ranked Good or Excellent and 12 (~23%)

are ranked Fair or Poor (CNDDB 2024). Twenty-five occurrences lack a site quality ranking, and one occurrence is extirpated (CNDDB 2024). Twenty-eight (~54%) of the fifty-three occurrences list at least one threat (CNDDB 2024). As a result of its small range, site quality rankings, and the number of occurrences with listed threats, *Malacothamnus davidsonii* as newly delimited will retain a CRPR of 1B.2 (see revised CNPS Inventory record below).

Summary

Based on the available information, CNPS and CNDDB propose adding *Malacothamnus discombobulatus* to California Rare Plant Rank 1B.2 of the CNPS Inventory. If knowledge on the distribution, threats, or rarity status of *Malacothamnus discombobulatus* changes in the future, it may be re-evaluated at that time.

Recommended Actions

CNPS: Add *Malacothamnus discombobulatus* to CRPR 1B.2
CNDDB: Add *Malacothamnus discombobulatus* to G2 / S2

Draft CNPS Inventory Record

Malacothamnus discombobulatus K. Morse
~~discombobulated~~ discombobulating bushmallow
Malvaceae
USDA Plants Symbol: None
Synonym(s)/Other Name(s): None
CRPR 1B.2
Counties: Monterey, San Luis Obispo
States: California
Quad name (code): Bradley (3512077), Bear Canyon (3612113), Bryson (3512171), Burnett Peak (3512172), Cosio Knob (3612112), Hames Valley (3512088), Jolon (3512182), Sycamore Flat (3612134), Thompson Canyon (3612122), Tierra Redonda Mountain (3512078), Williams Hill (3512181)
General Habitat: Coastal scrub, chapparal, cismontane woodland, riparian woodland
Microhabitat: Burned areas.
Elevation: 150–710 m (500–2300 feet)
Life form: Perennial deciduous shrub
Blooms: (June) July–August (September, October).
Threats: Grazing, non-native plant impacts, road/trail construction/maintenance, foot traffic/trampling, improper burning regime, and feral pigs.
Taxonomy: Formerly treated as a disjunct population of *M. davidsonii*, which is allopatric; the two taxa are genetically distinct.
Selected References:

- CNPS Status Review: Proposed addition to CRPR 1B.2, G2 / S2 (2024)
- Original Description: *Malacothamnus 2*: 70–72 (2023) [https://doi.org/10.6084/m9.figshare.23937051.v1]
- Taxonomic Treatment: *Malacothamnus 3* (2023) [https://doi.org/10.6084/m9.figshare.23937066.v1]
- Species Account: *Malacothamnus 3* (2023) [https://doi.org/10.6084/m9.figshare.23937066.v1]

Revised CNPS Inventory Record
Malacothamnus davidsonii (Rob.) Greene
Tujunga bushmallow
CRPR 1B.2
Counties: Los Angeles
States: California
Quad name (code): Burbank (3411823), Condor Peak (3411832), San Fernando (3411834), Sunland (3411833), Van Nuys (3411824)
Elevation: 180–1525 m (600–5000 feet)
Life form: Perennial deciduous shrub
Blooms: (April, May) June–August (September–February).
Threats: Development, Erosion/runoff, Foot traffic/trampling, Herbicides, Improper burning regime, Non-native plant impacts, ORV activity, Road/trail construction/maintenance, Vandalism/dumping/litter, Waterway bank protection/maintenance, Wood cutting or brush clearing.
Taxonomy: Formerly included populations from Monterey and San Luis Obispo counties that are now treated as *M. discombobulatus*; the two species are allopatric and genetically distinct.
Selected References:
- Taxonomic Treatment: *Malacothamnus 3* (2023) [https://doi.org/10.6084/m9.figshare.23937066.v1]
- Species Account: *Malacothamnus 3* (2023) [https://doi.org/10.6084/m9.figshare.23937066.v1]

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[CNDDB] California Department of Fish and Wildlife, Natural Diversity Database. 2024. RareFind 5 [Internet application] and CNDDB Maps and Data, Version 5.3.0. Available at: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data [Government Version, April 2024].

[CNPS] California Native Plant Society, Rare Plant Program. 2024. Inventory of Rare and Endangered Plants of California (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed April 2024].

[CCH2] Consortium of California Herbaria Portal 2. 2024. Data provided by the participants of the Consortium of California Herbaria and the California Phenology Thematic Collections

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Personal Communications

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