Rare Plant Status Review: *Malacothamnus jonesii* var. *niveus*
Proposed Addition to California Rare Plant Rank 4.3 G4T3 / S3

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Changes to the original record 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 jonesii (Munz) Kearney var. *niveus* (Eastw.) K. Morse is a perennial shrub in the Malvaceae (Morse 2023b, 2023c). It was originally described by Alice Eastwood as *Malvastrum fragrans*, which was already in use, so she renamed it *Malvastrum niveum* (Eastwood 1936a, 1936b). It was later transferred to *Malacothamnus* (as *M. niveus*) by Kearney (1951). Most recently it is treated as one of three varieties of *M. jonesii*: vars. *jonesii*, *gracilis*, and *niveus* (Morse 2023a, 2023b, 2023c). In the past, *Malacothamnus niveus* and *M. gracilis* (CRPR 1B.1) have been recognized at the species level or treated as synonyms of *M. jonesii*; they were synonymized with *M. jonesii* in the first and second editions of *The Jepson Manual* (Bates 1993, Slotta 2012) and in the *Flora of North America* (Bates 2015). In the latest *Jepson eFlora* treatment, Morse (2023d) treats *niveus* and *gracilis* as varieties of *Malacothamnus jonesii*.

Malacothamnus niveus was added to the first edition of the CNPS Rare Plant Inventory (RPI) (Powell 1974). In 2014 it was reviewed and deleted from the RPI as it was considered a synonym of *M. jonesii*, which was already in the inventory (Slakey et al. 2014a). The deletion was based partly on genetic and morphological work by Slotta (2004), which did not find support for maintaining *M. niveus* and *M. gracilis* as distinct from *M. jonesii* (Slakey et al. 2014a). While Slotta (2004, 2012) and Bates (1993, 2015) treated both *Malacothamnus gracilis* and *M. niveus* as synonyms of *M. jonesii*, *M. gracilis* was retained on the RPI based mostly on opinions from California botanists (e.g., D. Wilken and David Keil; Slakey et al. 2014b). Recent genetic and morphological analyses by Morse (2023a, 2023b) supported recognition of the three taxa and, given their apparently recent divergence and intergradation where their ranges meet, he chose to treat *Malacothamnus gracilis* and *M. niveus* as varieties of *M. jonesii* (Morse 2023b, 2023c).

Most specimens in the *Malacothamnus jonesii* complex can be identified to variety when inflorescences are present: “In general, *M. jonesii* var. *niveus* is distinguished from the other two varieties by having longer stellate trichome rays, especially on the calyx” (Morse 2023c). The calyces of *Malacothamnus jonesii* var. *niveus* have stellate hair branches (or rays) that average greater than or equal to 0.5 mm, while the calyces of *M. jonesii* vars. *jonesii* and *gracilis* have stellate hair branches that average less than or equal to 0.4 mm (Morse 2023d). Intermediates between *Malacothamnus jonesii* var. *niveus* and *M. jonesii* var. *jonesii* occur in west-central San Luis Obispo County (e.g., near Atascadero, *Herman AH_20190613*) and intermediates between *Malacothamnus jonesii* var. *niveus* and *M. jonesii* var. *gracilis* occur near the border of San Luis Obispo and Santa Barbara counties (e.g., *Morse M155*) (Morse 2023b, Morse 2024 pers. comm.).

Alice Eastwood named the species *niveum*, which means snowy, after the plant's abundant and dense white hairs (Eastwood 1936a, 1936b; Morse 2023b). Morse's recommended common name, fragrant-snow bushmallow, combines the two specific epithets that Eastwood published for this taxon, *fragrans* and *niveum* (Morse 2023c).

Ecology

Malacothamnus jonesii var. *niveus* occurs in chaparral and cismontane woodland at elevations of 225–1,075 m (735–3,530 ft) (Morse 2023c, Calflora 2024, CCH2 2024, CNDDB 2024a, CNDDB 2024b, iNaturalist 2024, Morse 2024 pers. comm.). Like most *Malacothamnus*, this taxon likely responds to burning; records at 16 occurrences include evidence of recent fire (Morse 2023c, Calflora 2024, CCH2 2024, CNDDB 2024a, CNDDB 2024b, iNaturalist 2024, Morse 2024 pers. comm.). Commonly noted associates include *Adenostoma fasciculatum*, *Ceanothus* spp., *Eriogonum* spp., *Quercus* spp., and *Salvia* spp. (Calflora 2024, CCH2 2024, CNDDB 2024a, CNDDB 2024b, Morse 2024 pers. comm.). Peak flowering is in May and June, with early blooms sometimes appearing in March or April and late flowers lingering into July, when plants are otherwise mostly in fruit, and with one October collection with flowers (Morse 2023b, 2023c; CCH2 2024, CNDDB 2024a, CNDDB 2024b, Calflora 2024, iNaturalist 2024, Morse 2024 pers. comm.).

Distribution and Abundance

Malacothamnus jonesii var. *niveus* is endemic to California, where it is known from approximately 86 occurrences in Monterey, San Luis Obispo, and Santa Barbara counties (Morse 2023b, 2023c; Calflora 2024, CCH2 2024, CNDDB 2024a, CNDDB 2024b, iNaturalist 2024, Morse 2024 pers. comm.). [Data received from CNPS Vegetation and Rare Plant Staff added approximately 4 occurrences (Nelson & Buck-Diaz 2024 pers. comm.)]. It is possibly naturalizing in San Diego County (Morse 2023c). Fifty of the occurrences are recent, having been observed in the last 20 years, and 36 occurrences are historical (Morse 2023b, 2023c; Calflora 2024, CCH2 2024, CNDDB 2024a, CNDDB 2024b, iNaturalist 2024, Morse 2024 pers. comm.). Eighteen of the occurrences are on Los Padres National Forest (LPNF) land (one of which is also in the Machesna Wilderness), one occurrence is located on both LPNF and BLM land, 11 are at least partially on BLM land, six are in the CDFW Carrizo Plains Ecological Reserve, one is in The Nature Conservancy's Las Piletas Ranch, and 49 are on either private lands or lands of unknown and presumably private ownership. Information on population size is indicated for 29 occurrences: numerical data ranges from one to ten plants (9 occurrences), 11 to 50 (11), 51 to 100 (5), 101 to 250 (2), and 251 to 500 (2). Qualitative reports from an additional nine locations include common (1), locally abundant (1), scattered (2) occasional (3), infrequent (1) and a "small rather dense colony" (1) (Morse 2023b, 2023c; Calflora 2024, CCH2 2024, CNDDB 2024a, CNDDB 2024b, iNaturalist 2024, Morse 2024 pers. comm.). Population sizes at the remaining 48 sites are unknown. Morse (2023c) reported the extent of occurrence and area of occupancy (summed area of occupied 2x2 km grid squares) as 2,444 km^2 and 184 km^2, respectively. Surveys for *Malacothamnus jonesii* var. *niveus* should ideally be conducted from one to five years following 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.

Forty-six collection or observation records were excluded from this analysis. Five records of *Malacothamnus jonesii* var. *niveus* have localities too vague to accurately georeference or have obscured locations (CCH2 2024, iNaturalist 2024). Ten iNaturalist (2024) observations are from an introduced population in Balboa Park, San Diego Co. Six collections or observations are intermediates between *Malacothamnus jonesii* vars. *jonesii* and *niveus* (2) or vars. *gracilis* and *niveus* (4) (CCH2 2024, Morse 2024 pers. comm.). Twenty-four collections or observations are not identified to variety, most of which were collected or observed in vegetative condition (Calflora 2024, CCH2 2024, iNaturalist 2024, Morse 2024 pers. comm.). One herbarium specimen was a misidentified collection of *Malacothamnus discombobulatus* (CCH2 2024). These 46 records are included in pink highlighted rows at the end of the location spreadsheet.

Status and Threats

Malacothamnus jonesii var. *niveus* has a NatureServe ranking of G4T3 (NatureServe 2024). It was formerly included on the Rare Plant Inventory as *M. niveus* (CRPR 4.3). One of the occurrences of var. *niveus* (record # 23) has been in the CNDDB as *Malacothamnus gracilis* EO # 6; collections from this site, which is well within the range of var. *niveus*, were redetermined by Morse (CNDDB 2024a, Morse 2024 pers. comm.). As currently circumscribed on the Inventory, *Malacothamnus jonesii* (CRPR 4.3) includes both *M. jonesii* vars. *jonesii* and *niveus* (Slakey et al. 2014a, CNPS 2024). As delimited by Morse, var. *jonesii* is rarer than var. *niveus* and the more narrowly circumscribed var. *jonesii* is being reviewed concurrently for a rank change from CRPR 4.3 to 1B. *Malacothamnus jonesii* var. *gracilis* (CRPR 1B.1) has been on the Rare Plant Inventory (as *Malacothamnus gracilis*) since 1974 and the new varietal combination published by Morse resulted in a non-substantive name change (Morse 2023b, Dean et al. 2024, CNPS 2024). Fifteen occurrences of *Malacothamnus jonesii* var. *niveus* are threatened by at least one of the following: grazing (3), non-native plant impacts (7), development (6), altered flood/tidal regime (1), and mining (1) (CNDDB 2024b). While all the occurrences are potentially threatened by fire suppression or the alteration of fire regimes, increasing fire frequency could be beneficial in some cases (Morse 2024 pers. comm.). Any potential benefits of increased fire frequency would require both successful germination amidst potentially increasing non-native competitors and survival to reproductive age to produce enough seed to replenish the seed bank (Morse 2024 pers. comm.). [Forum comment from Keir Morse: "I would also add under threats the potential for hybridization if other taxa from outside of its range are planted within its range. Malacothamnus abbottii has been planted into the range of M. jonesii var. niveus in a restoration site due to a misidentification. M. abbottii and M. jonesii var. niveus likely don't overlap much in bloom time but most other taxa have a higher likelihood of blooming at the same time and hybridizing. This potential threat would apply to all rare Malacothamnus taxa."]

Summary

Based on the available information, CNPS and CNDDB propose adding *Malacothamnus jonesii* var. *niveus* to California Rare Plant Rank 4.3 of the CNPS Inventory. If knowledge on the distribution, threats, or rarity status of *Malacothamnus jonesii* var. *niveus* changes in the future, we may re-evaluate its status at that time.

Recommended Actions
CNPS: Add *Malacothamnus jonesii* var. *niveus* to CRPR 4.3
CNDDB: Add *Malacothamnus jonesii* var. *niveus* to G4T3 / S3

Revised CNPS Inventory Record (changes to the original record are in green text)
~~*Malacothamnus niveus* (Eastw.) Kearn.~~
~~Considered But Rejected: Previously CRPR 4.3. A synonym of *M. jonesii*; a CRPR 4.3 taxon.~~
Malacothamnus jonesii (Munz) Kearney var. *niveus* (Eastw.) K. Morse
fragrant-snow bushmallow
Malvaceae
USDA Plants Symbol: None
Synonym(s)/Other Name(s): *Malacothamnus niveus*
CRPR 4.3
Counties: Monterey, San Luis Obispo, Santa Barbara
States: California
Quad name (code): Atascadero 3512046, Branch Mtn. 3512021, California Valley 3512031, Camatta Canyon 3512053, Camatta Ranch 3512043, Chimineas Ranch 3511928, Cholame 3512063, Creston 3512055, Estrella 3512065, La Panza 3512032, La Panza Ranch 3512042, Los Machos Hills 3512022, Miranda Pine Mtn. 3512011, Paso Robles 3512066, Pozo Summit 3512033, Ranchito Canyon 3512075, San Miguel 3512076, Santa Margarita 3512045, Santa Margarita Lake 3512034, Stockdale Mountain 3512085, Taylor Canyon 3511918, Wilson Corner 3512044
General Habitat: Chaparral, cismontane woodland
Microhabitat: Burned areas
Elevation: 225–1075 m (735–3530 feet)
Life form: Perennial deciduous shrub
Blooms: (March, April) May–June (July, October)
Threats: Threatened by grazing, non-native plants, development, altered flood/tidal regime, and mining. Potentially threatened by hybridization with other Malacothamnus taxa.
Taxonomy: Formerly treated as a synonym of *M. jonesii s.l.* The calyces of *M. jonesii* var. *niveus* have longer stellate trichome rays, averaging greater than or equal to 0.5 mm, versus those of *M. jonesii* vars. *jonesii* and *gracilis* which average less than or equal to 0.4 mm. Intermediates with var. *jonesii* occur in west-central SLO Co. and intermediates with var. *gracilis* occur near the border of SLO and SBA cos.
Selected References:
- CNPS Status Review: Proposed addition to CRPR 4.3, G4T3 / S3 (2024)
- Original Description: *Leaflets of Western Botany* 1(18): 213-220
- 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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