

1.8 Thread-leaved Brodiaea (*Brodiaea filifolia*) – Category SS

Management Units with Known Occurrences

Thread-leaved brodiaea is bulbiferous herb that typically occurs on gentle hillsides, valleys, and floodplains in mesic, southern needlegrass grassland, nonnative grassland and alkali grassland plant communities in association with clay, loamy sand, or alkaline silty-clay soils (USFWS 2009). Occurrences may be intermixed with, or near, vernal pool complexes and occasionally in openings in coastal sage scrub. Thread-leaved brodiaea is documented from the foothills of the San Gabriel Mountains in Los Angeles County, east to the western foothills of the San Bernardino Mountains (San Bernardino County), and south through southern Orange and western Riverside Counties to central coastal San Diego County, California (CDFW 2013).

Thread-leaved brodiaea is known from 20 occurrences on Conserved Lands in MU6 (Black Mountain Open Space Park, Buena Vista Creek Ecological Reserve, Carlsbad Highlands Ecological Reserve, Carlsbad Oaks North Habitat Conservation Area, Lake Calavera Municipal Mitigation Parcel, Letter Box Canyon-Fox Miller Brodiaea Preserve, Rancho La Costa Habitat Conservation Area) and MU8 (Cleveland National Forest). There are 3 very large conserved populations (>10,000 individuals) of thread-leaved brodiaea, 4 large populations (>1,000 individuals), and 13 small populations (see online map: <http://arcg.is/2iBDr6m>).

Management Rationale

This endemic species should be managed as a Species Management Focus Category SS Species due to its limited distribution in cismontane southwestern California. Populations in north coastal San Diego County are threatened by invasive plants, requiring management to ensure the species persistence in the MSPA. Threats to conserved populations of thread-leaved brodiaea include invasive nonnative annual plants, herbivory, recreational trampling, altered hydrology, loss of connectivity, and urban edge effects. Reduction in pollinator function from habitat loss and fragmentation could reduce sexual reproduction and affect genetic diversity.

Monitoring and Management Approach

The overarching goal for thread-leaved brodiaea is to maintain or enhance existing occurrences to ensure multiple conserved occurrences with self-sustaining populations to increase resilience to environmental and demographic stochasticity, maintain genetic diversity, and ensure persistence over the long term (>100 years) in chaparral vegetation communities.

For the 2017–2021 planning cycle, the management and monitoring approach for thread-leaved brodiaea is to:

- (1) Inspect conserved occurrences every 2 years starting in 2017 to document abundance, record threats, and identify needed management actions.
- (2) Implement routine management as determined during monitoring.
- (3) Continue field research to develop habitat suitability and climate change models for thread-leaved brodiaea and other edaphic endemic plants to better understand habitat requirements and to identify and prioritize geographic areas important for connectivity and restoration.
- (4) Survey historical thread-leaved brodiaea locations to determine occurrence status; delineate potentially suitable habitat for new occurrences; identify the potential for enhancement and expansion; and collect data on occurrence status, habitat, threats, and management needs.
- (5) Use occurrence status and threat data to develop a section for thread-leaved brodiaea in the MSP Rare Plant Management Plan that prioritizes management actions.
- (6) Initiate preparation of a section for thread-leaved brodiaea in the MSP Seed Collection, Banking, and Bulking Plan that directs seed collection in the MSPA to ensure representation of different occurrences in the seed bank, provide propagules to preserve genetic diversity, support habitat restoration, and rescue occurrences in case of catastrophic disturbance.
- (7) Implement the highest-priority management actions.
- (8) Initiate seed collection and banking.

For details and the most up-to-date goals, objectives, and actions, go to the MSP Portal Thread-leaved Brodiaea summary page: http://portal.sdmmp.com/view_species.php?taxaid=42806

Thread-leaved Brodiaea References

CDFW. (California Department of Fish and Wildlife). 2013. California Natural Diversity Database. <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>. Accessed September 2016.

USFWS (U.S. Fish and Wildlife Service). 2009. "Brodiaea filifolia (thread-leaved brodiaea) 5-Year Review Summary and Evaluation U. S. Fish and Wildlife Service". Carlsbad, California.