

5-YEAR REVIEW
San Mateo Thornmint (*Acanthomintha obovata* ssp. *duttonii*)

GENERAL INFORMATION:

Species: San Mateo Thornmint (*Acanthomintha obovata* ssp. *duttonii*)

Date listed: September 18, 1985

Federal Register (FR) citation: 50 FR 37858

Classification: Endangered

State Listing:

The San Mateo thornmint was listed by the State of California as endangered in 1979.

BACKGROUND:

Most recent status review:

(Service) U.S. Fish and Wildlife Service. 2010. *Acanthomintha obovata* ssp. *duttonii* (San Mateo thornmint), *Cirsium fontinale* ssp. *fontinale* (fountain thistle), *Pentachaeta bellidiflora* (white-rayed pentachaeta) 5- Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento, California. 35 pp.

We did not recommend a status change in the 2010 status review.

FR Notice citation announcing this status review:

U.S. Fish and Wildlife Service. 2020. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews of 66 Species in California and Nevada. Federal Register 85:4692-4694.

We did not receive any information from the public in response to the Federal Register Notice announcing this 5-year review.

ASSESSMENT:

Information acquired since the last status review:

This 5-year review was conducted by the U.S. Fish and Wildlife Service's (Service's) Sacramento Fish and Wildlife Office. We solicited data for this review from interested parties through a Federal Register notice announcing this review on January 27, 2020. We also contacted species experts and the California Department of Fish and Wildlife to request data or information we should consider in our review. Additionally, we obtained data from the California Natural Diversity Database (maintained by the California Department of Fish and Wildlife), conducted a literature search, and reviewed information in our files. Personal communications with species experts and annual reports submitted by project partners were our primary sources of information.

Taxonomy

In our last status review, we noted that San Mateo thornmint (which was listed as a subspecies in 1984 (Service 1985, p. 37858)) had been elevated to the rank of full species by Jokerst in 1991. However, we did not provide a recommendation to formally change the name until we were able to verify the current name and rank of the taxon (Service 2010, p. 8). Since that review, species status has been recognized by Calflora (Calflora 2021, p. 1) and by the Integrated Taxonomic Information System (ITIS 2021, p. 1). Accordingly, we provide a recommendation below to formally change the species name.

Distribution and Abundance

At the time of listing, a single population was known at the Edgewood County Park and Natural Reserve (“Edgewood Park”) in San Mateo County (Service 1985, p. 37858). The population held 1,000 to 2,000 plants. In our last status review in 2010, we noted that the single Edgewood Park population was still the only one known (Service 2010, p. 2). The population occupied 0.05 acres and contained 250 mature plants in 2010, down considerably from 53,000 in 1998 (Service 2010, pp. 5–6), and the 1,000 to 2,000 plants at the time of listing (Service 1985, p. 37858). However, an experimental seeding project in the same general area produced an additional 3,777 seedlings in early 2010 (Service 2010, p. 9), resulting in a total of 3,135 plants in the population at the end of the year (Niederer and Schwind 2020, p. 12).

We also noted in our last status review that a small population in an area called the “Triangle,” west of Edgewood Park had been discovered in 1987 (2 years after listing) but had become extirpated sometime after 2001 (Service 2010, p. 5).

Since the last status review, a reseeding and habitat management project, begun in 2008, has resulted in a total of six currently extant occurrences (Niederer and Schwind 2020, p. 2). An occurrence is a group of plants separated by at least 0.25 miles from other such groups (CDFW 2020, p. 10). We consider this amount of spatial separation sufficient to prevent most genetic interchange between occurrences, and so consider each occurrence to qualify as a separate population for purposes of meeting recovery goals (Service 2019, p. 18). The six occurrences include five locations in Edgewood Park (the Original Site, Switchbacks, North Hill, Butterfly, and Harrier Hollow), and one site just north of Edgewood Park, in Pulgas Ridge (Niederer and Schwind 2020, pp. 2, 3, 6). In total, the six sites produced about 43,000 plants in 2020, and covered a total area of about 540 square (sq) meters (Niederer and Schwind 2020, p. 2).

Currently, three thornmint populations (Switchbacks, North Hill, and Butterfly) have at least 5,000 individuals (Niederer and Schwind 2020, pp. 12–13). The Original, Pulgas Ridge, and Harrier Hollow populations have roughly 900, 4,200, and 1,600 individuals, respectively. All of the current thornmint populations except for the Original Site and Pulgas Ridge are stable or increasing (Niederer and Schwind 2020, pp. 12–13). The Pulgas Ridge site was first seeded in 2018 and has fluctuated from 2,075 to 6,856 plants prior to this year’s total of 4,200. Seeding at the Original Site began in 2009, but despite additional seedings in 2010, and 2014–2016, total numbers have fluctuated unpredictably since 2007 without ever reaching higher than 3,450 (Niederer and Schwind 2020, pp. 12, 17).

Threats

Threats mentioned at time of listing included the loss of species throughout most of its range due to urban development; construction plans for a golf course at Edgewood Park, the only known population at that time; removal of thornmint plants – possibly for cultivation purposes; the susceptibility of small populations to outbreaks of disease or predation, as well as to genetic depletion (inbreeding depression); potential damage from off-road vehicles; and potential hydrological alterations due to landslides upslope from the population (Service 1985, p. 37861–37862).

In our last status review, we noted that golf course construction was no longer a threat due to amendments to various land use documents for the park (Service 2010, pp. 11–12). No additional plant removals had occurred, and no damage was noted from off-road vehicles. However, because plant numbers had decreased and only one population remained, the plant was still threatened by reduced reproductive potential and by deleterious stochastic events such as fire, flood, or outbreaks of disease or predation (Service 2010, p. 16).

Currently, San Mateo thornmint occurs in six populations, four of which are stable or increasing, and three of which have reached at least 5,000 plants (Niederer and Schwind 2020, pp. 2, 18–19). All six populations have benefitted from habitat management and reseeding efforts, however (see below), it is not clear how the populations will fare in the absence of such efforts. Accordingly, the species remains threatened by deleterious stochastic events and by genetic issues related to small population size. However, the increase in the size and number of thornmint populations has reduced the seriousness of these threats compared with the status of the species during the time of our previous review.

Additional potential threats include competition with nonnative annual grasses, hydrological changes, infestation by parasitic dodder (*Cuscuta spp.*), and potential trampling by contractors working on power lines (Niederer and Schwind 2020, pp. 16, 22). Of these, competition with nonnative grasses appears to be the most serious. For instance, the Pulgas Ridge site, which cannot be managed using string trimmers (weed whackers) due to the presence of other protected plants, had a nonnative thatch cover of 65 percent in 2020 (Niederer and Schwind 2020, pp. 21). The Pulgas Ridge site produced 540 thornmint plants in 2020, as compared to the North Hill site, which was managed with string trimmers and which produced 4,148 thornmint plants in the same year (Niederer and Schwind 2020, pp. 14–15, 21). Pulgas Ridge and the Original Site were the only sites at which nonnative grasses were not managed in 2020 (Niederer and Schwind 2020, p. 19). Parasitic dodder is present at all but the North Hill and Pulgas Ridge sites, but its effects are unclear because it becomes most prevalent late in the season, after thornmint has already senesced (Niederer and Schwind 2020, p. 16). Changed hydrology is primarily an issue for the Original Site, where sheet flow of water appears to have been redirected by a county roadside ditch constructed uphill from the site (Niederer and Schwind 2020, p. 4). Trampling seems to have primarily been an issue in 2020, as contractors for Pacific Gas and Electric (PGE) drove off service roads and near thornmint populations in Edgewood Park on several occasions (Niederer and Schwind 2020, p. 16). This issue could be resolved by better communication between PGE and its contractors regarding the necessity of staying on approved service roads.

Recovery Criteria

Revised recovery criteria for downlisting and delisting are described in Service 2019 (pp. 18–19, 31–3). Downlisting criteria for San Mateo thornmint have not been met (Table 1), thus delisting criteria are not assessed here.

Table 1. Downlisting criteria for San Mateo thornmint. Table shows status for 2010 (based on Service 2010) and 2020 (based on Niederer and Schwind 2020). Downlisting criteria are not met.

Downlisting criteria	Criterion still valid?	2010 Status	2020 Status
At least five populations, protected and managed to preserve them in perpetuity; each with adjacent unoccupied habitat and a 150-meter (500-foot) buffer.	Yes	Not met	Partially met. There are now six populations; five of which are on protected lands, but they lack provisions for management in perpetuity.
Management plans, approved by the Service, are implemented for the populations and essential adjacent areas. The plans must include provisions for standardized annual monitoring of populations.	Yes	Partially met. Plan produced for Edgewood (Niederer <i>et al.</i> 2010, pp. 12–26)	Partially met. No further progress.
At least 5,000 plants in each population, each year for at least 20 years.	Yes	Not met	Partially met. Three populations currently have 5,000 or more plants. Two of those have had that many plants for 3 years, and the third for one year.
Each population exhibits a stable or increasing trend in population numbers for 20 years.	Yes	Not met	Partially met. Numbers have been stable or increasing for 5 years at 3 populations, and for 3 years at another population.
Impacts from competing nonnative species are managed so they do not threaten the populations.	Yes	Not met	Partially met. Competing nonnative grasses are managed in five of six population areas, but funding is expected to run out next year.
Seeds representing species genetic diversity are stored in at least 2 certified facilities, and reliable germination and propagation techniques are understood. Seeds are replenished every 10 years unless this is shown unnecessary.	Yes	Largely met. (Service 2010, p. 21)	Largely met. Also, wild and first-generation nursery seeds are collected and used to increase population numbers.

Conclusion:

After reviewing the best available scientific information, we conclude that San Mateo thornmint remains an endangered species. Although there has been an increase in the number of occurrences, and in the number of plants in several of those occurrences, none of the downlisting criteria for the species have been met. Therefore, the evaluation of threats affecting the species under the factors in 4(a)(1) of the Act presented in the 2010 status review (Service 2010, pp. 11–19) remains an accurate reflection of the species’ current status with an additional increased

threat from competition with non-native grasses.

RECOMMENDATIONS FOR FUTURE ACTIONS:

Here we propose several habitat conservation and ecological research recommendations that will aid in the recovery and conservation of the San Mateo thornmint. Some of these recommendations have already been discussed in our previous status review (Service 2010, p. 28):

1. Continue to support the conservation work carried out by Creekside Science to establish new populations, increase the extent of existing populations, and manage the species habitat where those populations are found.
2. Conduct surveys at known occurrences at least every five years to determine population trends, habitat changes, and potential for reintroduction of extirpated sites.
3. Continue to search for suitable locations for outplanting, using habitat preference data by Niederer *et al.* (2010, appendix 1).
4. Work with partners to establish new populations, using (as appropriate) the adaptive management plan provided by Niederer *et al.* (2010, pp. 12–26).
5. Seek additional information on identity and importance of pollinators, and incorporate habitat management practices beneficial to such pollinators, as needed. Current information is that pollinators include common native bees and that San Mateo thornmint is largely self-pollinating (Niederer *et al.* 2010, p. 20).
6. In order to reflect the most current understanding of the species taxonomy, the name should be formally changed in the Code of Federal Regulations from *Acanthomintha obovata* ssp. *duttonii* to *Acanthomintha duttonii*.
7. Determine whether hydrological changes affecting the Original Site can be mitigated by introducing topological changes to improve water flow.

Field Supervisor, Sacramento Fish and Wildlife Office

Approve _____ Date _____

LITERATURE CITED

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