

Eryngium aristulatum var. *parishii*
(San Diego button celery)

**5-Year Review:
Summary and Evaluation**



Photo by Lauren Kershek, U.S. Fish and Wildlife Service.

**U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
Carlsbad, California**

August 2023

5-YEAR REVIEW

Eryngium aristulatum var. *parishii* San Diego button-celery

GENERAL INFORMATION

Species: *Eryngium aristulatum* var. *parishii* (San Diego button celery), a plant variety

Date listed under the Endangered Species Act: August 3, 1993

Federal Register citation: 58 FR 41384 (Service 1993)

Classification: Endangered

Recovery Plan: Final, September 3, 1998. Recovery Plan for Vernal Pools of Southern California.

Recovery Priority Number: 9C

Critical Habitat Designation: No critical habitat has been designated for this species.

BACKGROUND

Under the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*), the U.S. Fish and Wildlife Service (Service), referred to as “we” in this document, maintain lists of endangered and threatened wildlife and plant species (referred to as the List) in the Code of Federal Regulations (CFR) at 50 CFR 17.11 (for wildlife) and 17.12 (for plants). Section 4(c)(2)(A) of the Act requires us to review each listed species’ status at least once every 5 years.

The recovery priority number for *Eryngium aristulatum* var. *parishii* is 9C according to the Service’s 2009 Recovery Data Call for Carlsbad Fish and Wildlife Office (CFWO), based on a 1–18 ranking system where 1 is the highest-ranked recovery priority and 18 is the lowest (Service 1983, pp. 43098–43105). This number indicates that the taxon is a variety that faces a moderate degree of threat and has a high recovery potential. The “C” indicates conflict with construction or other development projects or other forms of economic activity.

Most recent status review: Service 2010. *Eryngium aristulatum* var. *parishii* San Diego button celery 5-Year Review: Summary and Evaluation. Prepared by the CFWO, Carlsbad, California. 62 pp. + appendices.

We initiated the previous status review for San Diego button celery (*Eryngium aristulatum* var. *parishii*) on March 25, 2009 (Service 2009, pp. 12878–12883). The review was finalized on September 1, 2010 and recommended no change in status. This current review is based on the previous review.

Federal Register notice announcing this status review: On May 20, 2021 we published a *Federal Register* notice announcing initiation of the 5-year review of this species, and the opening of a 60-day period to receive information (Service 2021, pp. 27462–27464).

Species Overview and Habitat

Eryngium aristulatum var. *parishii* (San Diego button-celery) is a small, low-spreading, biennial or longer-lived perennial gray-green herb in the *Apiaceae* (carrot family). It is restricted to

southern coastal California, with few occurrences in Baja California, Mexico. The species, *E. aristulatum*, and this variety are closely associated with ephemeral vernal pool habitat on clay soils. It has a storage taproot, a spreading shape, and reaches a height of 40 centimeters (16 inches) (Constance 1993, pp. 146–147). The stems and lanceolate leaves give the plant a prickly appearance. It is a clay soil, surface and non-surface hard pan, vernal pool obligate species that relies on ephemeral wet conditions to reproduce, blooming from April to June. It is an outcrossing taxon that reproduces exclusively by seeds.

At the time of listing, *Eryngium aristulatum* var. *parishii* was considered depressed in distribution and abundance because of threats associated with loss and degradation of its vernal pool habitat. Threats included urban and agricultural development, grazing, altered hydrology, offroad vehicle use, trampling, grazing, and nonnative plants. Because of these threats *E. a.* var. *parishii* was federally listed as endangered on August 3, 1993 (Service 1993, pp. 41384–41392). The species was listed as endangered by the State of California in 1979.

Habitat

Vernal pools and vernal swales are often clustered into pool “complexes” (Beauchamp 1979, Figures 1, 2, Appendix; Bauder 1986, Appendices 1, 4; Keeler-Wolf *et al.* 1998, pp. 60–61, 63–64), and may form dense, interconnected mosaics of small pools, or a sparse scattering of larger pools. Vernal pool complexes that support from one up to many distinct vernal pools are often interconnected by a shared watershed. Both the pool basin and the surrounding watershed are essential for a functioning vernal pool system (Hanes and Stromberg 1990, p. 48).

Eryngium aristulatum var. *parishii* seems more tolerant of peripheral vernal pool habitat than most obligate vernal pool species. It is specifically adapted to surviving in vernal wet conditions due to the presence of aerenchyma tissue (air channels in the roots) that facilitates necessary gas exchange in submerged plants (Keeley 1998, pp. 121–175).

Pollination

Eryngium aristulatum var. *parishii* is insect pollinated (Zedler 1987, pp. 61–64; Gauduel and Till-Bottraud 2004, pp. 711–721) potentially by bee flies (*Bombyliids*) (Schiller *et al.* 2000, pp. 386–396) and solitary bees (*Apoidea*), as are many vernal pool species (Thorpe 2007, pp. 51–57). Conservation of the pollinators at all life stages in habitat proximal to the vernal pool may be needed to preserve the efficiency of the pollination service (Thorpe 2007, pp. 51–57). During surveys on Marine Corps Base (MCB) Camp Pendleton, 37 insects representing 12 families¹ were collected from *E. a.* var. *parishii* flowers (Kenney 2021, p. 12). Diversity of insects, and insect pollinator presence in and near vernal pools across the range of *E. a.* var. *parishii* is an important area for further research.

Taxonomy

Eryngium aristulatum var. *parishii* is one of three varieties of *E. aristulatum* (Constance 1993, p. 147). *Eryngium aristulatum* var. *parishii* is separated from *E. a.* var. *aristulatum* (common) by

¹ Deposited at the San Diego Natural History Museum. Included in the collection by Kenney (2021, p. 12); the 12 Insect families represented include *Anthicidae*, *Braconidae*, *Chloropidae*, *Cicadellidae*, *Colletidae*, *Crabronidae*, *Formicidae*, *Halictidae*, *Pompilidae*, *Sarcophagidae*, *Syrphidae*, and *Tachinidae*.

having styles in fruit that are about the same length as the calyx (outer whorl of protective structures around the flower) and is separated from *E. a. var. hooveri* (Hoover's button-celery) by having bractlets (modified leaves) without callused margins (Constance 1993, pp. 147–148).

Some populations once identified as *Eryngium aristulatum* var. *parishii* on MCB Camp Pendleton are in fact *E. pendletonense* (formerly *E. pendletonensis*) (Pendleton's eryngo; Marsden and Simpson 1999, pp. 61–64). *Eryngium aristulatum* var. *parishii* is distinguished from *E. pendletonense* by a combination of leaf and flower characteristics (Marsden and Simpson 1999, pp. 61–64; Jepson Interchange 2009, pp. 1–4). Zedler and Bliss (1993, p. 8) found that the only populations of *E. a. var. parishii* found on Base occur within the Wire Mountain vernal pool area. All occurrences of *Eryngium* found on the Base north of the Santa Margarita River were later described *E. pendletonense* (Marsden and Simpson 1999, pp. 61–64; Jepson 2012, unpag.).

ASSESSMENT

Information Acquired Since the Last Status Review

This 5-year review was conducted by the Service's Carlsbad Fish and Wildlife Office. Information for this review was solicited from the public and interested parties through a *Federal Register* notice announcing this review on May 20, 2021 (Service 2021, pp. 27462–27464). In response, we received survey information from MCB Camp Pendleton relative to *Eryngium aristulatum* var. *parishii*. We also contacted Federal partners and species experts to request data or information to consider in our review including the City of San Diego, Center for Natural Lands Management (CNLM), MCB Camp Pendleton, Marine Corps Air Station (MCAS) Miramar, Dudek, and The Nature Conservancy (TNC). Additionally, we conducted a literature search, a search of the Consortium of California Herbaria (CCH2), and a review of information in our files (Service GIS, 2022).

SUMMARY OF NEW INFORMATION SINCE 2010

Distribution and Occurrence Status

At the time of listing, *Eryngium aristulatum* var. *parishii* was found in Riverside County at the Santa Rosa Plateau, in San Diego County at Otay Mesa, Kearny Mesa, Del Mar Mesa, MCAS Miramar, and MCB Camp Pendleton, and in northern Baja California, Mexico. By 1998, *E. a. var. parishii* continued to exist in approximately 61 vernal pool complexes in the United States (Service 1998, Appendix E.). *Eryngium a. var. parishii* is variously associated with other federally listed vernal pool taxa including *Orcuttia californica* (California Orcutt grass), *Pogogyne abramsii* (San Diego mesa mint), *Pogogyne nudiuscula* (Otay mesa mint), *Navarretia fossalis* (spreading navarretia), San Diego fairy-shrimp (*Branchinecta sandiegonensis*), and Riverside fairy-shrimp (*Streptocephalus woottoni*).

To update *Eryngium aristulatum* var. *parishii* occurrence² status, we reviewed Element Occurrence (EO) data from the California Natural Diversity Database (CNDDDB), herbaria

² The CNDDDB is an inventory of the status and locations of rare plants and animals in California. The CNDDDB assigns "Element Occurrence" (EO) numbers to unique locations of rare taxa that are greater than 0.40 kilometers

records from the CCH2, and monitoring data from various sources, including: the City of San Diego, MCAS Miramar, San Diego Management and Monitoring Program, TNC, and Service staff observations. Based on this new information we have updated the *E. a.* var. *parishii* occurrence table and added additional occurrences that were not considered in the 2010 5-year review (Figure 1; Appendix A).

In this review, occurrences attributable to a single geographic location are grouped together by existing site name,³ vernal pool complex group or series, and corresponding CNDDDB Element Occurrence (EO) reference number(s). The CNDDDB assigns different EO numbers to occurrences that are more than a quarter mile (400 meters) apart. In Appendix A, many of our larger, more broadly described occurrences (e.g., MCAS Miramar) include more than one EO. We consider an occurrence location extant if the species was observed within the last 10 years. If the species was not observed in the last 10 years but suitable habitat is present, we consider the occurrence is presumed extant. If the species was not observed for over 10 years and the habitat is degraded or partially developed, we consider the occurrence possibly extirpated. If the species has not been observed for greater than 20 years and the habitat is no longer suitable, we consider the occurrence to be extirpated.

Suitable habitat for *Eryngium aristulatum* var. *parishii* is limited to vernal pools in San Diego and Riverside counties, California, and a few known occurrences in northwest Baja California, Mexico, from La Misión to San Quintín (Rebman *et al.* 2016, p. 35). Vernal pools are seasonal, depression-type wetlands that form when an impervious subsurface creates the perched water table. Vernal pool complexes are defined as a series of vernal pool groups that are hydrologically connected with similar soil types and species compositions. Vernal pools have been mapped and named using various methods in San Diego County, including an alphanumeric system originally described in Beauchamp (1979, pp. 3–12), expanded on by Bauder (1986, Appendices 1, 4), and with site names provided in the City of San Diego’s Vernal Pool Habitat Conservation Plan (VPHCP).

We decided to lump, split, add, and remove some records based off new survey information and changes to CNDDDB occurrence numbers since the previous *Eryngium aristulatum* var. *parishii* 5-year review 2010 occurrence table. For example, the 2010 occurrence table did not previously include the Bauder Y 5 pool complex [CNDDDB EO 106], which is extirpated, nor did it include the Camp Pendleton complex [EO 124], which is a complex of 9 vernal pools occupied by *E. a.* var. *parishii* (Kenney 2021, pp. 10–11). An occurrence at North Crosby Golf Club [EO 119] was not included, although it was discovered some time after pool restoration in 2004. Tierrasanta [EO 114] is an extant occurrence that was not previously recorded. Several extirpated occurrences in the developed areas of San Diego were not previously included. Of note, the eastern most extant occurrence for this species in San Diego County, Kessler Flat [EO 108], and northern most known occurrence at Fairview Park [EO 116] were also not previously included. Occurrences at the MCAS Miramar Z 9 complex [no EO], Sweetwater Reservoir S 1-3 complex at the San Diego National Wildlife Refuge (SDNWR) [EO 123], and Proctor Valley complex R 1 [EO 122] are additions as well as several observations in Mexico, which the previous 5-year and recovery plan did not incorporate. An herbarium specimen [San Diego Natural History Museum

(0.25 miles) apart. In this document, we use the term “occurrence” to refer to occurrences based on a general geographic location which may include more than one CNDDDB EO.

³ For occurrences where there are no pre-existing site names, we used the general location names used in the 2010 5-year review.

Catalog #SD208329] at Laguna Grande, Lagunas Invernales, Baja California, Mexico, from 2010 was collected approximately 100 miles south of the previously known extent of the species range.

The 2010 5-year occurrence table included a record from 1990 at the Skunk Hollow (i.e., Barry Jones Wetland Mitigation Bank) vernal pool. This record was included in the 1998 Recovery Plan which cites Zedler *et al.* (1990). In Zedler *et al.* (1990), the authors state that they were “unable to confirm the presence of *Eryngium aristulatum* var. *parishii* which has been reported from Skunk Hollow (Riggan 1990)”—despite the conditions being favorable and the relative conspicuousness of the plant (Zedler *et al.* 1990, p. 20)⁴. The CNLM staff have regularly surveyed the pools at Skunk Hollow since at least 2009 and have never documented *E. a.* var. *parishii* on site, despite moderate- to high- quality habitat and the presence of other rare vernal pool species (Klementowski 2022, pers. comm.). Whether this population of *E. a.* var. *parishii* has been locally extirpated, or, if the species never occurred here, remains uncertain. However, for this species to be extirpated while other more sensitive species persist would be unusual, and if proven, warrants further investigation.

The 2010 5-year occurrence table included several records from Pendleton that should have been excluded as they are recognized as *Eryngium pendletonense*, a separate species (Zedler and Bliss 1993, entire; Marsden and Simpson 1999, entire). Historically, all occurrences of button-celery found on Base north of the Santa Margarita River are *E. pendletonense*, not *E. a.* var. *parishii* (Tetra 2013, p. 12). However, in 2019, *E. a.* var. *parishii* was found occurring in two restored vernal pools at Bluff Las Flores [EO 53] north of the Santa Margarita River (Kenney 2021, p. 14). *Eryngium pendletonense* occurrences would include Bluff Las Flores to Aliso Creek [EO 53, which includes former EO 54, 76, and 77], Bluff North Las Flores Creek [EO 55 and EO 75], North end and South end of upper Stuart Mesa [EO 74], Stuart Mesa Road [EO 76], and Stuart Mesa Road North [EO 77].

The addition of Orange County to the species’ range expands on the previously understood distribution of the species, but it is possible it was intentionally or accidentally introduced sometime prior to 2011. Further investigation into the possible origin, and perhaps identification, of this population is needed. A site visit to this location in 2023 revealed all the above-ground sections of the plants to have been removed (Bailey 2023, p. 1). As of this writing, land managers are investigating this matter and implementing protection measures.

In summary, the species is extant or presumed extant at approximately 98 locations within the United States. At least 26 locations in the United States are considered extirpated or possibly extirpated. There are likely many more extirpated locations that were not recorded prior to development, because by 1978, 90 percent of vernal pool habitat in San Diego County was already lost (Beauchamp 1979, p. 1). The isolated populations newly documented in Orange County and 100 miles farther south in Baja California, Mexico, appear to be outliers, and the core distribution in Riverside and San Diego counties remains mostly unchanged. Therefore, this

⁴ In the literature cited section of the Zedler *et al.* (1990) paper, there is no Riggan (1990) citation listed, but rather Riggan (1989). Efforts to acquire this Riggan 1989 report, or a Riggan 1990 report, have been unsuccessful.

information does not substantially alter our understanding of the distribution of *Eryngium parishii* var. *aristulatum*.

Genetics

No contemporary genetic analysis has been completed for *Eryngium aristulatum* var. *parishii*. *Eryngium a.* var. *aristulatum* examined from Tijuana International Airport have been found to be tetraploid (Sheikh 1978, p. 54). Small populations suggest that loss of genetic variation, genetic drift, and potential inbreeding depression might occur over prolonged periods of time.

Zedler and Bliss (1993, p. 19) found that *Eryngium* species north of the Santa Margarita River on Camp Pendleton were not *Eryngium aristulatum* var. *parishii*. *Eryngium* on the Santa Rosa Plateau—another area north of the Santa Margarita River—are not *E. pendletonense*, based on our review of previous conversations (Principe 2023, pers. comm.). Plants on the Santa Rosa Plateau appear different and have much longer bracts than *E. a.* var. *parishii* found on the Del Mar Mesa in San Diego County (Principe 2023, pers. comm.). Further genetic and morphological research of this genus in California and Baja California is needed to clarify the relationships between *E. a.* var. *parishii* and other *Eryngium*.

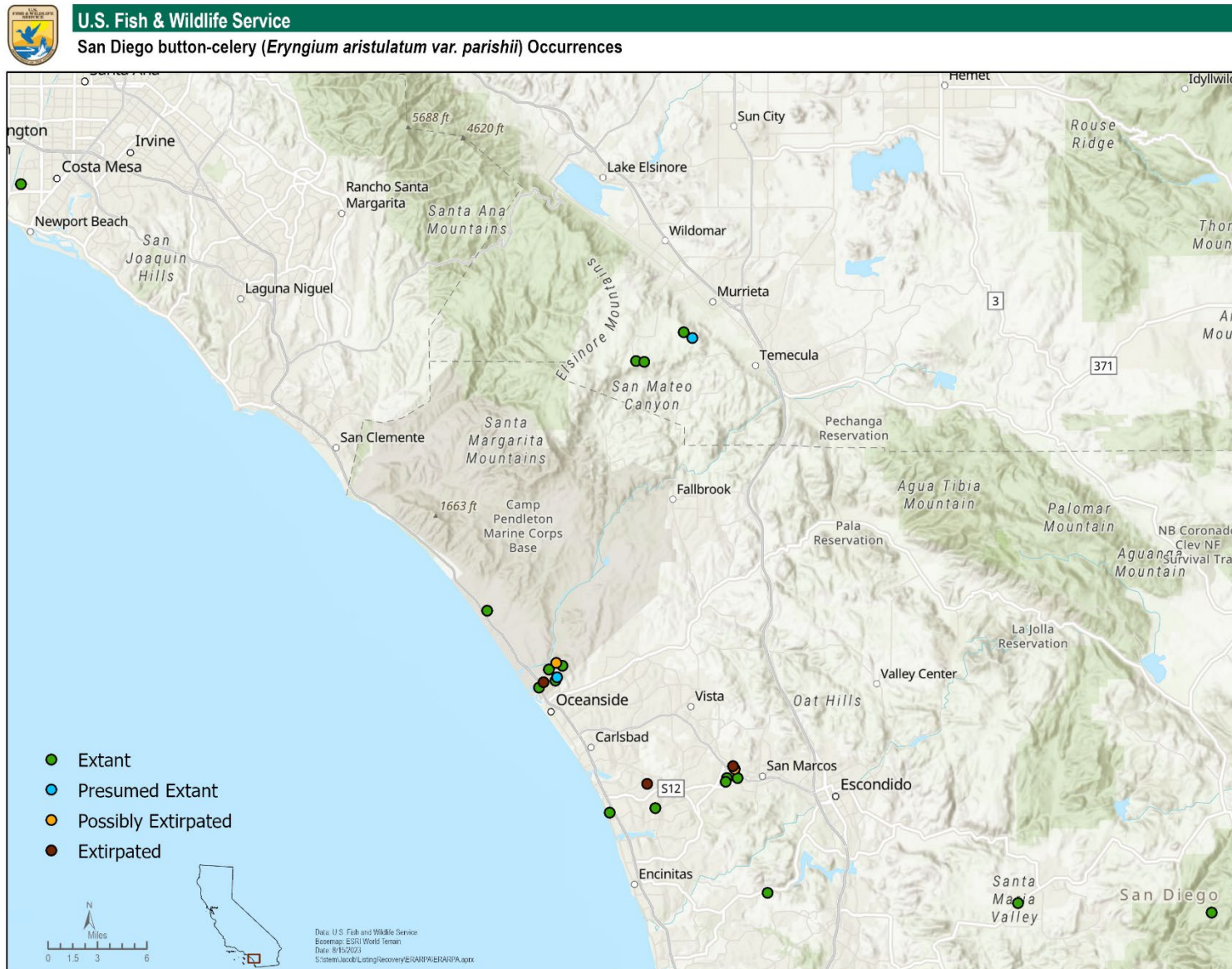


Figure 1. *Eryngium aristulatum* var. *parishii* occurrences at the northern extent of its range, from northern San Diego County to Orange County.

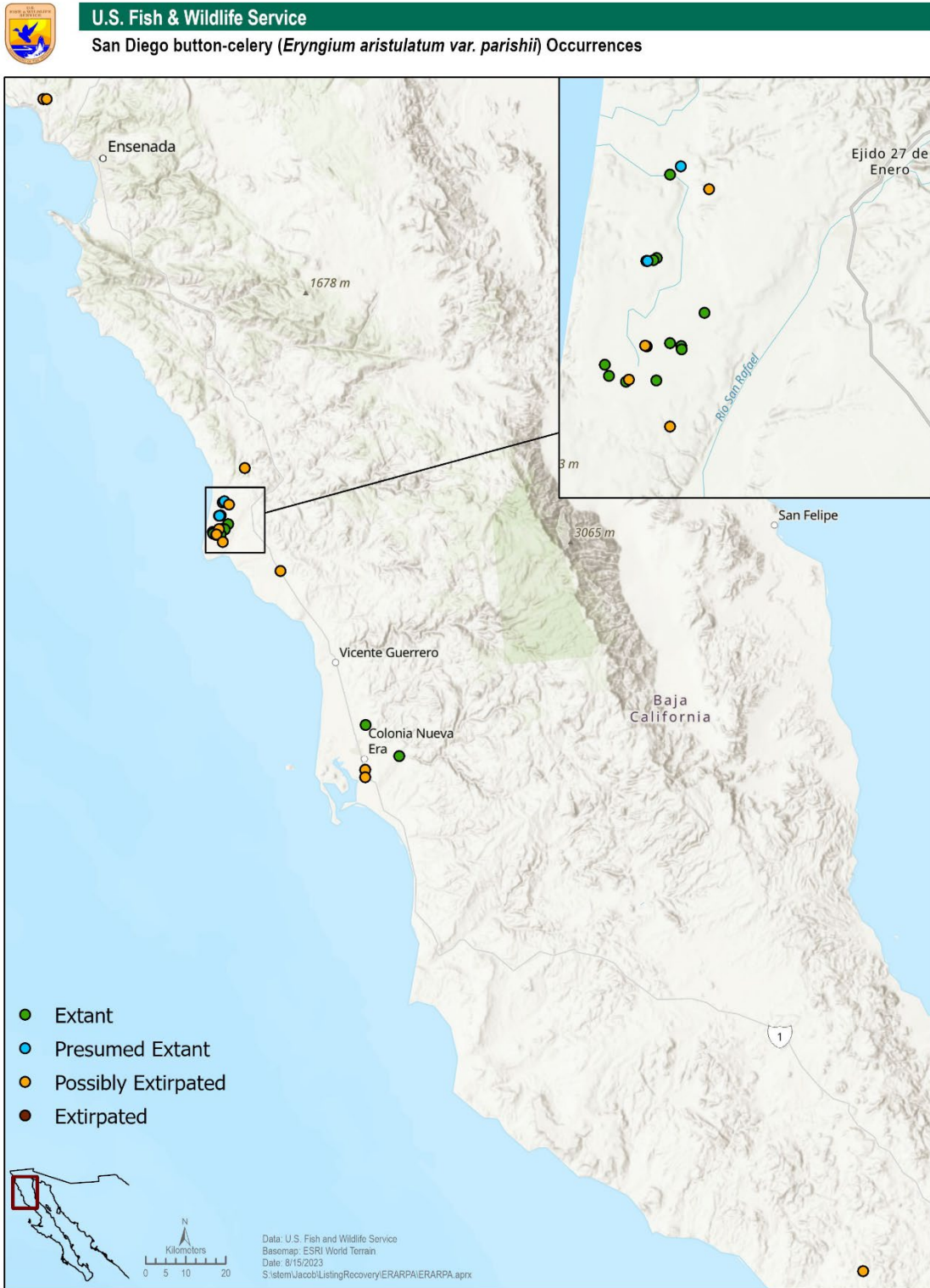


Figure 3. *Eryngium aristulatum* var. *parishii* occurrences in Baja California, Mexico.

Threats

Threats to *Eryngium aristulatum* var. *parishii* identified in the listing rule include: habitat loss and degradation due to urban and agricultural development, off-road vehicular traffic (OHVs), habitat trampling associated with humans or cattle, mowing or plowing, highway construction, drainage or watershed alterations, and military activities (Service 1993, p. 41388). In the 2010 5-year review, we discussed Factors A, D, and E threats. Factor A threats (present or threatened destruction, modification, or curtailment of habitat or range) include habitat loss associated with urban and agricultural development, highway construction, OHV use, military activities, altered hydrology, and illegal dumping. With regards to Factor D, we concluded that the Act provides the greatest regulatory protection to *E. a. var. parishii*. Habitat Conservation Plans (HCPs) and the related conservation actions arising from the Act have contributed to short and long-term conservation of *E. a. var. parishii*. Additionally, Integrated Natural Resources Management Plans (INRMPs) at MCB Camp Pendleton and MCAS Miramar have created policy mechanisms and partnerships that have restored and conserved vernal pool habitat. However, rangewide threats remain and, absent the protections of the Act, the existing regulatory mechanisms (California Endangered Species Act, Native Plant Protection Act, California Environmental Quality Act, California Porter-Cologne Act, Natural Community Conservation Planning Act, National Environmental Policy Act, and the Clean Water Act) do not provide adequate regulatory protections to provide for the long-term persistence of *E. a. var. parishii*. We also discussed Factor E threats (other natural or manmade factors affecting a species' continued existence) from competition with nonnative plants, fire suppression measures, small population size, climate change, and drought (Service 2010, p. 22).

Many of the threats described in 2010 remain the same in 2023. Competition from nonnative species is a threat at some level for all occurrences. Human disturbance from OHV use, trails, and recreation threatens many of the occurrences. Habitat protection and management has reduced threats in some locations. Improved and more regular management and monitoring provided by the City of San Diego through their VPHCP have reduced threats from development, OHV use, and habitat destruction. Implementation of INRMPs at MCAS Miramar and MCB Pendleton reduces impacts from military activities and OHV use. Ongoing monitoring and routine management also help to decrease impacts from nonnatives and contribute to habitat restoration.

Conservation

Since listing, efforts have been made to conserve and restore high quality habitat supporting *Eryngium aristulatum* var. *parishii*. Efforts have also been made to ameliorate threats associated with habitat loss and degradation to improve species viability. In 1998, the Service published the Recovery Plan for Vernal Pools of Southern California, outlining a recovery objective to ensure long-term conservation of *E. a. var. parishii* (Service 1998, entire). A recovery plan clarification for the Vernal Pools of Southern California was published in 2019 amending the 1998 recovery plan by providing more specific terminology for delisting (Service 2019, entire).

Vernal pool conservation of *Eryngium aristulatum* var. *parishii* is primarily implemented through the City of San Diego's VPHCP and INRMPs³ for MCAS Miramar and MCB Camp Pendleton.

San Diego Vernal Pool Habitat Conservation Plan

Implementation of the VPHCP will preserve a network of vernal pool habitat in a matrix of open space; protect the biodiversity of these unique wetlands; and define a formal strategy for their long-term conservation, management, and monitoring. The VPHCP also requires the restoration of vernal pool habitat and the re-introduction of covered species, including *Eryngium aristulatum* var. *parishii*, into restoration areas to expand/restore species populations in historically occupied complexes to maintain viability of covered species. Within the City of San Diego VPHCP, all City-owned vernal pools occupied with *E. a.* var. *parishii* are conserved and managed. This includes 20 vernal pool sites known to be occupied.

Specific goals for *Eryngium aristulatum* var. *parishii* within the VPHCP are described in the City of San Diego Vernal Pool Management and Monitoring Plan (City of San Diego 2020, entire). These goals include conservation of 756 vernal pools occupied by *E. a.* var. *parishii* within 20 sites, ongoing management of conserved pools, and restoration of specific pools and subsequent introduction of the species consistent with the recovery plan (Service 1998, entire).

MCAS Miramar Integrated Natural Resources Management Plan

The MCAS Miramar INRMP continues to guide conservation and management of special status species (including *Eryngium aristulatum* var. *parishii*), vernal pool habitat, and other resources on the installation. The INRMP has been updated since the previous 5-year review and is currently in the 2018 iteration, where major changes include updated survey data and an updated inventory of the vernal pools and seasonally ponded features on-site (USMC 2018b, entire).

The implementation of management actions under the INRMP is contingent upon the availability of funding, which varies annually. Some activities are performed on a regular basis, such as yearly removal of invasive plants in upland areas, surveys for federally listed birds and butterflies, annual educational programs on-site regarding sensitive natural resources, and more. Other management actions are carried out as the need arises or opportunistically, including fence and signage repair and informal observations of listed plant species. However, due to budgetary constraints, regular invasive plant removal within vernal pools and focused surveys of listed plant species are not currently feasible. Nonetheless, MCAS Miramar biologists have expressed their intent to establish a more formalized approach to recording their observations of listed vernal pool species in the future (Black, pers. comm.).

MCB Camp Pendleton Integrated Natural Resources Management Plan and Rare Plant Management Plan

Eryngium aristulatum var. *parishii* is included in the Camp Pendleton Integrated Natural Resources Management Plan (USMC 2018a, entire). Measures for avoidance and minimization of impacts to vernal pools and all vernal pool species, including *E. a.* var. *parishii*, are specified in Camp Pendleton's Range and Training Area Standard Operating Procedures. In addition, MCB Camp Pendleton has a Rare Plant Management Plan to improve the plant's habitat and to manage populations to be self-sustaining (USMC 2017, entire). The Rare Plant Management Plan includes management actions and a monitoring program.

Management actions for *Eryngium aristulatum* var. *parishii* include no net loss of vernal pools, Level 3 Range Restriction [no OHV travel, no bivouacking, and no digging within a 50-meter (164 feet) buffer], invasive plant eradication, maintaining fences and signage, repairing anthropogenic damage to pool hydrology, establishing six new populations and enhancing occupied pools, offsetting impacts to the species 2:1 for National Environmental Policy Act actions, and providing all monitoring and management information to the Service. The Rare Plant Management Plan proposed that the 50-meter (164 feet) buffer would be reduced, but this has not been implemented and would require consultation with the Service.

The monitoring program includes conducting census count monitoring each year for the life of the plan within each occupied vernal pool, collecting data on invasive plant species, cover, and thatch depth, monitoring threats from human activity, monitoring for hydrological impairments, and monitoring for success of newly established populations (Kenney 2021, p 22).

CONCLUSION

After reviewing the best available scientific information, we conclude that *Eryngium aristulatum* var. *parishii* remains an endangered species. The evaluation of threats affecting the species under the factors in 4(a)(1) of the Act and analysis of the status of the species in our 2010 5-year Review remains an accurate reflection of the species current status.

The new information and updated occurrence status does not substantially alter the species' status or the results of our five-factor analysis in the 2010 5-year review. Therefore, we conclude that *Eryngium aristulatum* var. *parishii* remains a federally endangered plant variety and recommend no change in listing status.

RECOMMENDATIONS FOR FUTURE ACTIONS

The actions are intended to reduce threats to *Eryngium aristulatum* var. *parishii* and provide information to better understand the biological and physical factors limiting the population growth and distribution. We recognize that conservation of *E. a.* var. *parishii* will require cooperation and coordination with partners to minimize impacts from current threats, aid future restoration, and maximize effectiveness of limited funding.

1. Work with partners to identify opportunities for conservation of *Eryngium aristulatum* var. *parishii* occurrences on private lands. Support land acquisition to meet Habitat Conservation Plan goals. Work with local, State, and Federal partners to identify and leverage funding (i.e., section 6) to acquire *E. a.* var. *parishii* habitat.
2. Adaptively manage *E. a.* var. *parishii* occurrences to maintain, enhance, or restore habitat and reduce threats.
 - a. Manage nonnative species in vernal pool habitat.
 - b. Coordinate with partners to develop a nonnative species prevention and eradication program for all vernal pool habitat where *E. a.* var. *parishii* is extant.

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

- c. Ensure the correct species pallet from a nearby source is being selected for areas during restoration projects inside and outside of the known range for *E. a. var. parishii*.
3. Monitor occurrences to assess management effectiveness.
 - a. Conserve *E. a. var. parishii* seed in an off-site seed bank.
 - b. Work with partners in Baja California, Mexico to survey additional areas for *E. a. var. parishii* and identify conservation opportunities.
4. Maintain or enhance *E. a. var. parishii* genetic diversity.
 - a. Conduct a population genetics study to characterize genetic variation and structure. Based on study results, develop best management practices to maintain genetic diversity within the species.
 - b. Further investigate the taxonomy and genetic relationships between of *E. aristulatum*, *E. vaseyi*, *E. aristulatum* var. *hooveri*, *E. pendletonense*, and other similar *Eryngium* species; especially those occurring at MCB Camp Pendleton, Costa Mesa, Santa Rosa Plateau, and Baja California, Mexico, and compare to *E. a. var. parishii*.
 - c. Investigate/monitor the potential for hybridization between *E. a. var. parishii* and *E. pendletonense* at Bluff Las Flores [EO 53].
5. Model species' response to climate change and assess options to translocate the species into projected suitable habitat.
 - a. Develop hydrological monitoring and modeling to determine characteristics and identification of pools and complexes likely to be impacted by prolonged drought, and lack of seasonal rainfall caused by climate change effects to El Niño/Southern Oscillation.

REFERENCES CITED

- [Alden] Alden Environmental, Inc. 2023. Annual Monitoring Report, Year 6, 2021-2022, Rhodes Crossing Vernal Pools. *Prepared for:* Rhodes & Grus Investments. *Prepared by:* Alden Environmental, Inc., San Diego, California. March 2023 22 pp. + Appendices.
- Bailey, J. and R. Hamilton. 2023. Removal of *Eryngium aristulatum* var. *parishii*, Fairview Park, Costa Mesa, Orange County, CA. Memo. Hamilton Biological. Long Beach, California. 20 June 2023. 1 p.
- Bauder, E.T. 1986. San Diego Vernal Pools: Recent and Projected Losses; Their Condition; and Threats to Their Existence, 1979–1990. Report prepared for Endangered Plant Project, California Department of Fish and Game, Sacramento, California. 28 pp.
- Beauchamp, M.R. 1979. San Diego Vernal Pool Study, 1978. Pacific Southwest Biological Services, Inc. Final Report for: Endangered Plant Program, 145, Nongame Wildlife Investigations, California Department of Fish and Game. August 1979. 79 pp.
- Bio-Studies, Inc. 2022. Arnie’s Point Vernal Pool Restoration Area Management and Monitoring Plan. *Prepared for:* Michelle Barnes Environmental Planning Lead, Infrastructure Program, Program Management Office Directorate, United States Border Patrol. August 2022. 71 pp.
- [CNDDDB] California Natural Diversity Database. 2022. Occurrence Report for *Eryngium aristulatum* var. *parishii*. California Department of Fish and Wildlife. Downloaded 13 October 2022. 105 pp.
- City of San Diego. 2020. Revised Final City of San Diego Vernal Pool Habitat Conservation Plan. Management and Monitoring Plan. City of San Diego, Planning Department. San Diego, California. January 2020. 40 pp+ appendices.
- [CCH2] Consortium of California Herbaria. 2023. CCH2 Portal. 2023. <https://cch2.org/portal/index.php>. Accessed on 28 June 2023.
- Constance, L. 1993. Apiaceae in The Jepson Manual, Higher Plants of California, J.C. Hickman, edit., University of California Press, Berkeley, California.
- Dudek. 2020. 2020 Seventh Annual Monitoring Report for the Frys Vernal Pool Restoration. *Prepared for:* Integral Communities. *Prepared by:* Dudek, Encinitas, California. 44 pp.
- Gaudeul, M. and I. Till-Bottraud. 2004. Reproductive ecology of the endangered alpine species *Eryngium alpinum* L. (Apiaceae): Phenology, gene dispersal and reproductive success. *Annals of Botany* 93 :711–721.
- Hanes, T. and L. Stromberg. 1998. Hydrology of Vernal Pools on Non-Volcanic Soils in the Sacramento Valley. Pages 38-49 *in:* C.W. Witham, E.T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff (Editors). *Ecology, Conservation, and Management of Vernal Pools*

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

- Ecosystems – Proceedings from a 1996 Conference. California Native Plant Society, Sacramento, CA. 1998.
- [HELIX] HELIX Environmental Planning, Inc. 2022. Otay Crossings Commerce Park Mitigation Project. Year 5 Monitoring Report. *Prepared for:* Kearny PCCP Otay 311, LLC. *Prepared by:* HELIX Environmental Planning, Inc. July 2022. 26 pp. + Appendices.
- [HELIX] HELIX Environmental Planning, Inc. 2023. Pacific Development Project. Biological Resources Technical Report. *Prepared for:* City of San Marcos Development Services Department. *Project Proponent:* The Las Posas Owner LPV, LLC. *Prepared by:* HELIX Environmental Planning, Inc. January 2023. 45 pp. + Appendices.
- Jepson Interchange. 2009. Jepson manual treatment for *ERYNGIUM aristulatum* var. *parishii*. http://ucjeps.berkeley.edu/interchange/I_treat_indexes.html. Accessed Sept. 8, 2009.
- [Jepson] Preston, R.E., M.S. Park, and L. Constance. 2012. *Eryngium pendletonense*, in Jepson Flora Project (eds.) Jepson eFlora, https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=80217, accessed on July 19, 2023.
- Keeler-Wolf, T., D.R. Elam, K. Lewis, and S.A. Flint. 1998. California Vernal Pool Assessment: Preliminary Report. May 1998. State of California, The Resources Agency, Department of Fish and Game. Sacramento, CA. 161 pp.
- Keeley, J.E. 1998. CAM photosynthesis in submerged aquatic plants. *Botanical Review* 64:121–175.
- Kenney, G. 2021. Marine Corps Base Camp Pendleton comments for the USFWS 5-Year Status Reviews for *Brodiaea filifolia*, *Eryngium aristulatum parishii*, *Navarretia fossalis*, and *Orcuttia californica*. Memo. 20 July 2021. 27 pp.
- Marsden, K.L., and M.G. Simpson. 1999. *Eryngium pendletonensis* (*Apiaceae*), a New Species from Southern California. *Madrono* 46: 61-64.
- [NAVFAC] Naval Facilities Engineering Command. 2014. Integrated Natural Resources Management Plan, Naval Base San Diego, California. Naval Facilities Engineering Command. June 2014. 606 pp.
- Rebman, J.P., J. Gibson, and K. Rich. Department of Botany, San Diego Natural History Museum. 2016. Annotated Checklist of the Vascular Plants of Baja California, Mexico. *Proceedings of the San Diego Society of Natural History*. Number 45. 15 November 2016. 352 pp.
- [RECON] RECON Environmental, Inc. 2011. 2010 Year 5 Report for Peñasquitos Substation Vernal Pool Restoration Program for Impacts from the Sempra Road Regrade on MCAS Miramar. *Prepared for:* Sempra Energy. *Prepared by:* RECON Environmental, Inc., San Diego, California. 7 November, 2011. 40 pp.

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

- Riggan, P.J. 1989. Formation of the Skunk Hollow Vernal Pool, Riverside County, California. Unpublished Report to Lane Kuhn Pacific Communities. 21 November 1989. 22 pp.
- Schiller, J.R., P.H. Zedler, and C.H. Black. 2000. The effect of density-dependent insect visits, flowering phenology, and plant size on seed set of the endangered vernal pool plant *Pogogyne ambramsii* (*Lamiaceae*) in natural compared to created vernal pools. *Wetlands* 20:386–396.
- Sheikh, M.Y. 1978. A systematic study of west North American genus *Eryngium* (Umbelliferae-Apoideae). Ph.D. Diss. University of California, Berkeley.
- Straham, S. 2016. Santa Rosa Plateau Ecological Reserve Vegetation Monitoring. Prepared for Carole Bell and Zach Principe. The Nature Conservancy. September 2016. 31 pp.
- [Tetra] Tetra Tech, Inc. 2013. 2013 *Eryngium pendletonense* Inventory. Prepared for Naval Facilities Engineering Command (NAVFAC). Marine Corps Installations West – Marine Corps Base Camp Pendleton, Environmental Security Department, Land Management Section. Final Report. 104 pp.
- Thorp, R.W. 2007. Biology of specialist bees and conservation of showy vernal pool flowers. A review. *In*: R.A. Schlising and D.G. Alexander (Eds.). Vernal pool landscapes. Studies from the Herbarium, # 14. California State University, Chico.
- [Service] U.S. Fish and Wildlife Service. 1983. Endangered and threatened species listing and recovery priority guidelines. *Federal Register* 48: 43098.
- [Service] U.S. Fish and Wildlife Service. 1993. Determination of endangered status for three vernal pool plants and the Riverside fairy shrimp. *Federal Register* 58: 41384–41392.
- [Service] U.S. Fish and Wildlife Service. 1998. Recovery plan for vernal pools of southern California. U.S. Fish and Wildlife Service, Portland, Oregon.
- [Service] U.S. Fish and Wildlife Service. 2009. Endangered and threatened wildlife and plants; initiation of 5-year reviews of 58 species in California, Nevada, Arizona, and Utah; Availability of Completed 5-Year Reviews in California and Nevada. *Federal Register* 74: 12878-12883
- [Service] U.S. Fish and Wildlife Service. 2010. *Eryngium aristulatum* var. *parishii* San Diego button celery 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Carlsbad, California.
- [Service] U.S. Fish and Wildlife Service. 2019. Recovery Criteria Clarification. Recovery Plan for Vernal Pools of Southern California. U.S. Fish and Wildlife Service, Portland, Oregon. 2 pp.
- [Service] U.S. Fish and Wildlife Service. 2021. Endangered and threatened wildlife and plants; initiation of 5-year status reviews of 76 plant species in California and Nevada. *Federal Register* 86: 27462-27464

- [USMC] U.S. Marine Corps. 2017. Rare Plant Management Plan for San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*), Spreading Navarretia (*Navarretia fossalis*), Encinitas Baccharis (*Baccharis vanessae*), Nuttall's Acmispon (*Acmispon prostratus*), and Pendleton Button-Celery (*Eryngium pendletonense*). Marine Corps Base Camp Pendleton, California. September.
- [USMC] U.S. Marine Corps. 2018a. Final Joint Integrated Natural Resources Management Plan for Marine Corps Base and Marine Corps Air Station Camp Pendleton, California. Revision. Prepared for: U.S. Marine Corps Marine Corps Base Camp Pendleton, California; Environmental Security Department, Resource Management Branch and U.S. Marine Corps Air Station Camp Pendleton, California; Environmental Department Under Contract to: Department of the Navy Naval Facilities Engineering Command Southwest Division; 1220 Pacific Highway, San Diego, California 92132-5190. March 2018. 791 pp.
- [USMC] U.S. Marine Corps. 2018b. Integrated Natural Resources Management Plan, Marine Corps Air Station Miramar, California.
- Zedler, P.H. 1987. The ecology of southern California vernal pools: a community profile. Biology Report. 85(7.11), U.S. Fish and Wildlife Service.
- Zedler, P.H., and S. Bliss. With contributions by K. Marsden. 1993. Study of the Effects of Military Training on *Eryngium* Species on Camp Pendleton, California. 28 July 1993. 105 pp.
- Zedler, P.H., C. Frazier, E. Corets, and C. Black. 1990. Ecological studies and management recommendations for the Skunk Hollow vernal pool, Riverside County, California. Report prepared for Lane Kuhn Pacific Communities, Escondido, California.

Personal Communications

- Black, C. 2023. Biologist, MCAS Miramar, San Diego California. Videoconference with Dimitri Pappas, Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated June 6, 2023. Subject: MCAS Miramar INRMP Discussion. Purpose of meeting was to understand how management actions under the 2018 INRMP have been implemented and prioritized in practice.
- City of San Diego. 2022. Sara Allen, MSCP Biologist, City of San Diego, Parks and Recreation Department, Open Space Division Email correspondence to Dimitri Pappas U.S. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated 25 July 2022. Subject: RE: Meeting with USFWS conducting San Diego Mesa Mint *Pogogyne abramsii* 5-year Review/Vernal Pool Data.
- Crawford, M. 2023. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Microsoft Teams Chat Correspondence to James Molden, U.S. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated 22 June 2023.

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

- Kershek, L. 2023. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Email correspondence to James Molden, U.S. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated 29 June 2023. Subject: Anderprises Phase II site visit.
- Klementowski, K. 2022. Regional Preserve Manager – Riverside County, Center for Natural Lands Management. Email correspondence to James Molden, U.S. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated 31 October 2022. Subject: Making a connection on Button Celery at Skunk Hollow.
- McMillan, S. 2023a. Senior Habitat Restoration Ecologist/Botanist for Dudek. Email correspondence to James Molden, U.S. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated 7 July 2023. Subject: Poinsettia Station Vernal Pools.
- McMillan, S. 2023b. Senior Habitat Restoration Ecologist/Botanist for Dudek. Email correspondence to James Molden, U.S. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated 24 July 2023. Subject: Spreading navarretia Pacific Street Superior Ready Mix EO14.
- Principe, Z. 2023. Project Manager, Greater San Diego Area, The Nature Conservancy. Forwarded email Correspondence to James Molden, U.S. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated 24 July 2023. Original email correspondence to Ken Bowles and Tom Chester from Michael Simpson, Department of Biology, San Diego State University. Dated 3 June 2004. Subject: FW: *Eryngium pendletonensis* at Sta Rosa Plateau.
- Wynn, S. and D. Pappas. 2023. U.S. Fish and Wildlife Biologists, Carlsbad Fish and Wildlife Office, Carlsbad, California. Personal communications with James Molden, U.S. Fish and Wildlife Biologist, Carlsbad Fish and Wildlife Office, Carlsbad, California. Dated Spring 2023. Subject: personal observations of occurrences of *Eryngium aristulatum* var. *parishii* during site visits. San Diego County, California

APPENDIX A

Table A1. 2023 Occurrence table for San Diego button-celery (*Eryngium aristulatum* var. *parishii*).

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
ORANGE COUNTY	Fairview Park	116	None	2023	2011 (20) 2019 (11-50), 2023 (3)	Not included previously	Extant	City of Costa Mesa	Conserved	CNDDB (2022, entire), Bailey and Hamilton (2023, 1 p.)
RIVERSIDE COUNTY	Skunk Hollow	None	None	2023	1989?	Protected	Possibly Erroneous Record	Barry Jones Mitigation Bank	Conserved	Zedler (1990, p. 20), Klementowski (2022, pers. comm.)
RIVERSIDE COUNTY	Mesa de Burro	62	B 1, B 2, B 3	2015	2015	Presumed extant	Extant	TNC: Santa Rosa Preserve	Conserved	Straham (2016, App. 1)
RIVERSIDE COUNTY	Mesa de Burro	66	B 6, B 8	2009	2009	Presumed extant	Presumed Extant	TNC: Santa Rosa Preserve	Conserved	Straham (2016, App. 1)
RIVERSIDE COUNTY	Mesa de Colorado	7 (includes former EO 67)	C 1 and C 4	2019	2019	Presumed extant	Extant	TNC: Santa Rosa Preserve and Private	Conserved	Straham (2016, App. 1)
RIVERSIDE COUNTY	Mesa de Colorado	7 (includes former EO 8)	C 3 and W edge C 2	2019	2019	Presumed extant	Extant	TNC: Santa Rosa Preserve	Conserved	Straham (2016, App. 1)
SAN DIEGO COUNTY	Bluff N Las Flores Ck	55	Y4	1989	1989	Presumed extant	<i>E. pendletonense</i> ³	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 14)
SAN DIEGO COUNTY	North End of Red Beach Training Area	75	None	1987	1987	Presumed extant	<i>E. pendletonense</i> ³	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 14)
SAN DIEGO COUNTY	Stuart Mesa Rd N.	53	Y series	1989	1989	Presumed extant	<i>E. pendletonense</i> ³	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 14)
SAN DIEGO COUNTY	Bluff Las Flores to Aliso Ck	53 (includes former EOs 54, 76, 77)	ERAR-006	2020	2020 (2 pools)	Presumed extant	Extant ⁴	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 14)
SAN DIEGO COUNTY	Stuart Mesa Rd	53	Y series	1989	1989	Presumed extant	<i>E. pendletonense</i> ³	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 14)
SAN DIEGO COUNTY	S end Upper Stuart Mesa	107	Y 6	1989	1989	Presumed extant	<i>E. pendletonense</i> ³	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 15)
SAN DIEGO COUNTY	N end upper Stuart Mesa	74	None	1987	1987	Extant	<i>E. pendletonense</i> ³	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 14)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Wire Mtn N end, November Training area - North	78	ERAR-001	2020	1989	Extant	Possibly Extirpated	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 15)
SAN DIEGO COUNTY	Wire Mtn Tuley Canyon (November Training Area - South)	64	ERAR-002	2020	2020 (1 of 3 pools)	Extant	Extant	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 14)
SAN DIEGO COUNTY	Wire Mtn North	None	ERAR-005	2020	2020 (6 pools)	Extant	Extant	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 11)
SAN DIEGO COUNTY	N San Luis Rey River	79 (includes former EO 93)	ERAR-003	2012	1987	Extant	Presumed Extant	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 15)
SAN DIEGO COUNTY	Wire Mtn W of Tuley Canyon	79 (includes former EO 93)	ERAR-003	2020	2020 (72 of 79 vernal pools)	Extant	Extant	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 15)
SAN DIEGO COUNTY	NW of intersection Jacinto Rd. and Wire Mtn. Rd.	106	Y5	1985	1985	Not included previously	Extirpated	MCB Camp Pendleton	JINRMP (USMC 2018a)	CNDDB (2022, entire)
SAN DIEGO COUNTY	N San Luis Rey River, W of I-5	124	ERAR-004	2020	2020 (9 vernal pools)	Not included previously	Extant	MCB Camp Pendleton	JINRMP (USMC 2018a)	Kenney (2021, p. 11)
SAN DIEGO COUNTY	W Palomar College	65	L 18+	1991	1991	Impacted	Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	S Palomar College, N SR 78	65 (includes former EO 90)	None	1991	1991		Possibly Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Upham	51	L 1-6	2022	2022 (160 individuals in 4 pools)	Partially impacted	Extant	Private	Not Conserved	HELIX (2023, p. 10)
SAN DIEGO COUNTY	Bent Avenue, Fry's, Linda Vista-Bent	91	L 11-13	2020	2020		Extant	Private	Not Conserved	Dudek (2020, p. 28)
SAN DIEGO COUNTY	San Marcos, Pacific Street, Superior Ready Mix, and Universal Boot	51	L 9-10	2023	2023		Extant	Private; City of San Marcos	Not Conserved	McMillan (2023b, pers. comm.)
SAN DIEGO COUNTY	Palomar Airport	None	JJ 1	1974	1974		Extirpated	County of San Diego	Not Conserved	CCH2 (2023, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Near Cassia Rd. and El Camino Real	None	JJ 4 ++	2023	2023 (274 plants in 7 pools)	Extant	Extant	Manzanita Partners	Conserved	McMillan (2023a, pers. comm.)
SAN DIEGO COUNTY	Poinsettia Lane Train Station	92	JJ 2	2023	2023 (100k+)		Extant	Poinsettia Train Station	Conserved	McMillan (2023a, pers. comm.)
SAN DIEGO COUNTY	North Crosby Golf Club	119	None	2019	2019 (8)	Not included previously	Extant	Private	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Ramona	121	T 1-5	2013	2013 (10s)		Extant	Private	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Kessler Flat - Eagle Peak Rd.	108	None	2023	2023 (100+ individuals)	Not included previously	Extant	USFS	Conserved	Crawford (pers. comm., 2023)
SAN DIEGO COUNTY	Greystone Torrey Highlands	94	H 39	2021	2021	Extant	Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Upper end Deer Canyon	94	H 39	2019	2019	Possibly extant	Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Rancho Penasquitos Open Space - East end	None	None	2018	2018	Not included previously	Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Rhodes vernal pool site	37	H 24-26	2022	2022		Presumed Extant	Private	Conserved	Alden (2023, p. 16)
SAN DIEGO COUNTY	Penasquitos North	37	H 1-3	2019	2019		Extant	City of San Diego, USFWS	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Rhodes vernal pool site	37	H 18-23	2022	2022		Presumed Extant	CDFW, City of San Diego	Conserved	Alden (2023, p. 16)
SAN DIEGO COUNTY	Penasquitos North	37	H 13-15	2019	2019		Extant	CDFW	Conserved	City of San Diego (2023, pers. comm.)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Penasquitos North	37	H 4-10	2019	2019		Extant	CDFW, City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Rancho Penasquitos Adobe	105	None	2005	2005	Not included previously	Presumed Extant	City of San Diego	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Camino Ruiz	40	B 12-13	2003	>20 years ago	Extirpated	Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Mesa Norte	118	B 11	2023	2023		Extant	Kaiser Foundation	Conserved	Wynn and Pappas (2023, pers. comm.)
SAN DIEGO COUNTY	Lopez Ridge	103	B 7-8	2003	2003		Presumed Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Penasquitos Canyon	34	H 33	2005, 2010	2010		Presumed Extant	Private	Conserved	CNDDB (2022, entire), RECON (2011, Table 10)
SAN DIEGO COUNTY	Fieldstone	None	C 17-18	2003	unknown		Presumed Extant	Private	Conserved	City of San Diego (2023, pers. comm.), Wynn and Pappas (2023, pers. comm.)
SAN DIEGO COUNTY	Penasquitos North	34 (includes former EO 35)	H 31-32	2005	1979		Possibly Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Mira Mesa central	43	C 1, 20-23	1986	1986		Extirpated	Private	Not Conserved	CNDDB (2022, entire),
SAN DIEGO COUNTY	Mira Mesa central - Winterwood	43	C 10-16, 26	2018	2018		Extant	City of San Diego, Private	Partially Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Mira Mesa central	43	C 2-9	1986	1986		Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	N rim Carroll Canyon	50	D 1-4, D 9-25	2017	2017 (2000 plants)		Extirpated	Private	Not Conserved	CNDDB (2022, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	N rim Carroll Canyon	50	D 5-8	2019	2019 ((65) 7 of 7 pools)		Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	S rim Carroll Canyon (Arjons)	111	I 1	2023	2023		Extant	Private	Conserved	Wynn and Pappas (2023, pers. comm.)
SAN DIEGO COUNTY	S rim Carroll Canyon	44	P 1-2	1986	1986		Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	East MCAS Miramar	30	AA 1 West+	2019	2019	Extant	Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	West MCAS Miramar	45	Z 6-7	2010	2010	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	North of Rose Canyon	102	GG 3+	2001	2001	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	Miramar - Tiger Ave	None	Z 9	2010	2010	Not included previously	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	Miramar Industrial	33	I 7	2009	2009		Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	Miramar Industrial - Midway Drive-In Theatre Corp.	33	I 6 A	1986	1979	Extirpated	Extirpated	MCAS Miramar, private	DOD Level I Management Area (USMC 2018b)	Service (2010, App. 1), CNDDB (2022, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Eastgate Mall	33 (Includes former EOs 36 and 83)	I 7	2008	2008	Presumed Exant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	West Gate S of jct Miramar Rd & Way	46 (includes former EO 47)	Z 1-3	2008	2008	Presumed Exant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	W of I-15 just S Rose Canyon	23 (includes former EOs 18, 22, 24, 29, 32, & 84)	AA 9	2010	2010	Presumed Exant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	West MCAS Miramar	33	I 6 B	2023		Extirpated	Presumed Extant	Private, City easement	Conserved	CNDDB (2022, entire), Service (2010, App. 1), Wynn and Pappas (2023, pers. comm.)
SAN DIEGO COUNTY	West MCAS Miramar	33	I 6 C	2023	2023	Extant	Extant	Private, City easement	Conserved	Wynn and Pappas (2023, pers. comm.)
SAN DIEGO COUNTY	Between Runways San Clemente Canyon	23	GG 2+	2005	2005	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	West MCAS Miramar	33	X 1-4	2020	2020	Presumed Extant	Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	Between Runways San Clemente Canyon	23	GG 1	2010	2010	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Between Runways San Clemente Canyon	23	FF 1-2	2010	2010	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	W. End Runways	21	HH 1+	2011	2011	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	Kearny Villa Rd jct San Clemente Canyon MCAS Miramar	17	AA 11	2020	2020	Presumed Extant	Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	Northwest of jct I-15 and SR 163 MCAS Miramar	None	GA	2005	2005	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	Between Runways San Clemente Canyon	23	EE 1	2011	2011	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	Southwest MCAS Miramar	None	HH 4+	>10 years ago	Unknown	Presumed Extant	Possibly Extirpated	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	Between Runways San Clemente Canyon	23	EE 2	2010	2010	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	W End Runways	101	HH 2+	2003	2003	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Southwest of W end runways	23	W 3	2008	2008	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	Between runways and San Clemente Canyon	23	W 1-2	2008	2008	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	Between runways and San Clemente Canyon	23	V	2008	2008	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	W of jct I-15 and SR 163	15	RR 1	2008	1979	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	W of SR 163 between San Clemente Canyon and Clairmont Mesa Blvd.	25	U North	2007	2007	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	S of SR 52	14	AA 3	2013	2013	Presumed Extant	Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	Between I-15 and SR 163	23	F North	2013	2013 (3 pools)	Presumed Extant	Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)
SAN DIEGO COUNTY	S of SR 52	14	AA 4-7	2013	2013	Presumed Extant	Extirpated	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDDB (2022, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Between I-15 and SR 163	23	F 16-17	Unknown	Unknown	Presumed Extant	Extirpated	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	Cubic	25	U 19	1998	1998	Presumed Extant	Presumed Extant	MCAS Miramar, small part private	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	W of SR 163 between San Clemente Canyon and Clairmont Mesa Blvd.	25	U 15 (east)	2003	2003	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	CNDDB (2022, entire)
SAN DIEGO COUNTY	W of SR 163 between San Clemente Canyon and Clairmont Mesa Blvd.	25	U 15 (west)	1986	1986	Presumed Extant	Presumed Extant	MCAS Miramar	DOD Level I Management Area (USMC 2018b)	Service GIS (2022, in litt.)
SAN DIEGO COUNTY	General Dynamics	100	N 8	2019	2019		Extant	Private	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Tierrasanta	114	None	2020	2020	Not included previously	Extant	City of San Diego	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Montgomery Field	109	N 5-6 (Previous 5-year had N 1-4 which is Teledyne Ryan)	1979	1979 (Observed in a single pool)	Not Present	Possibly Extirpated	City of San Diego	Not Conserved	CNDDB (2022, entire), City of San Diego
SAN DIEGO COUNTY	Murphy Canyon	No	G 1	1986	Never	Not Present	Not present	DOD Navy	INRMP NAVFAC (2014)	Bauder (1986, p. 44)
SAN DIEGO COUNTY	Mission Valley (Murray Canyon)	20 (includes former EO 2)	O 1	1986	1986	Presumed Extant	Possibly Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	San Diego State University	None	SD38860	1936	1936	Not included previously	Extirpated	Private	Not Conserved	CCH2 (2023, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Kensington	6	SD15122	1936	1936	Not included previously	Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Cholla Heights Naval Radio Station	87	None	2001	2001		Presumed Extant	U.S. Navy Radio Station	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Chollas Park	68	None	1987	1987		Possibly Extirpated	City of San Diego	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Proctor Valley	88	R 1	2018	2018		Extant	CDFW	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Sweetwater Reservoir	123	S 1-3	2016	2016	Not included previously	Extant	SDNWR	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Proctor Valley	122	R 1	2018	2018	Not included previously	Extant	City of San Diego	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Otay Lakes	11	K 10+	2020	2020		Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Otay Lakes	11	K 5	2019	2019 (K 5 (46 (5)))		Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Otay Lakes	11	K 3-5	2019	2019 (K 5 (46 (5)))		Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	S of Lower Otay Reservoir	10	J 26	2009	2009		Presumed Extant	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	NE of Brown Field	9	J 25	1990	1990		Presumed Extant	County of San Diego	Conserved	Service GIS (2022, in litt.)
SAN DIEGO COUNTY	NE of Brown Field	9	J 23-24	2003	2003		Presumed Extant	County of San Diego	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	Lonestar	9	J 29-30	2003	2022		Extant	Private, CALTRANS	Partially Conserved	HELIX (2022, p. 2)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Northwest of Brown Field	58	J 5	2019	2019		Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	N of Brown Field	9	J 31	2003	2003		Presumed Extant	CALTRANS	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Northwest of Brown Field	56	J 4	2019	2019		Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Brown Field Station	112	Brn Fld Sta	1991	1991		Presumed Extant	U.S. Government	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	S of Johnson Canyon	12	J 22	2001	2001		Presumed Extant	Sunroad Otay Partners	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	W of Brown Field	56	J 1	1992	1992		Extirpated	Private	Not Conserved	Service (2010), Service GIS (2022, in litt.)
SAN DIEGO COUNTY	E of Dennery Canyon	56	J 2	2021	2021 (275 (29))		Extant	CALTRANS	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	W of Brown Field	56 (includes former EOs 57 and 72)	J 1	2019	2019		Extant	City of San Diego	Conserved	CNDDB (2022, entire), City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	E of Dennery Canyon	56	J 2	2018	2018		Extant	City of San Diego, Private	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	South Brown Field	None	J 35	2011	2011	Not included previously	Presumed Extant	Private	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	Recon South/ Cal Terraces (South)	113	J 14	2020	2020 (55 (7))		Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	Anderprises Phase 2	None	None	2023	2023 (28 pools)	Not included previously	Extant	CALTRANS	Conserved	Kershek (2023, pers. comm.)
SAN DIEGO COUNTY	S of SR 905 E of I-805	117	J 33	2003	2003 (2 pools)		Extant	City of San Diego	Not Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	West Otay A+B	110	J 32	2019	2019		Extant	CALTRANS	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	S of Moody Canyon, E of San Ysidro	80	None	1990 (Unable to relocate)	1981 (50-100 plants)		Extirpated	County of San Diego	Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	SE of East end Moody Canyon	59	J 13N	2020	2020		Extant	Private, City of San Diego	Partially Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	SE End Otay Mesa	99	None	2006	2006	Not included previously	Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	S of Wruck Canyon	59	J 16-17	2021	2021 (J 16-18 (4 (2)))		Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	SE of East end Moody Canyon	59	J 13S	1985	1985		Presumed Extant	Private	Not Conserved	Service GIS (2022, in litt.)
SAN DIEGO COUNTY	S of Wruck Canyon	59	J 16-18	2020	2020		Extant	City of San Diego	Conserved	City of San Diego (2023, pers. comm.)
SAN DIEGO COUNTY	SE of East end Moody Canyon	59	J 13E	1986	1986		Presumed Extant	Private	Not Conserved	Service GIS (2022, in litt.)
SAN DIEGO COUNTY	SE of Brown Field	1	J 19-21	2003	1992		Extirpated	Private	Conserved	Service GIS (2022, in litt.)
SAN DIEGO COUNTY	SE of East end Moody Canyon	59	J 13E	1986	1986		Presumed Extant	Private	Not Conserved	Service GIS (2022, in litt.)
SAN DIEGO COUNTY	S rim of Spring Canyon	59	J 12	1988	1988		Presumed Extant	Private	Not Conserved	Service GIS (2022, in litt.)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
SAN DIEGO COUNTY	W of Wruck Canyon	59	J 11E	1992	1992		Possibly Extirpated	Private	Not Conserved	Service GIS (2022, in litt.)
SAN DIEGO COUNTY	S rim Otay Mesa	69	J 11W	1990 (Unable to relocate)	1985		Possibly Extirpated	Private	Not Conserved	CNDDB (2022, entire)
SAN DIEGO COUNTY	"Arnie's Point"	61	J 15	2022	2022		Extant	U.S. Government	Conserved	Bio-Studies (2022, p. 8)
Mexico	Tijuana International Airport	None	UC1359533	1969	1969	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Residencial Vista Lago	None	SD71467	1969	1969	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Calzada del Tecnológico x Boulevard Lazaro Cardenas	None	SD100778	1978	1978	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Mesa on South rim of Cottonwood Creek, 3 miles ca. WNW of Ejido Matamoros	None	SD73106	1970	1970	Not included previously	Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Flat-topped SW spur of Cerro Jesus Maria, SE of Matamoros	None	SD90823	1975	1975	Not included previously	Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Chichihuas	None	RSA0077624 UC1523702	1985	1985	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Rancho Mesa el Tigre, 9 miles southeast of La Misión	None	SD71504	1969	1969	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Canon Salado	None	UC106371	1893	1893	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa. Along road.	None	SD00031947 RSA0172757	2010	2010	Not included previously	Presumed Extant	Unknown		CCH2 (2023, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
Mexico	Between Colonet and San Antonio del Mar	None	SD263539	2016	2016	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	2.5 km south of Johnson Ranch, north of Cabo Colonet	None	SD102722	1979	1979	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa: Vernal Pool Charca Ranchito # 3	None	SD265730	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa: Vernal Pool Charca Ranchito	None	SD263538	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa	None	SD00031945	2010	2010	Not included previously	Presumed Extant	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa	None	SD00031946	2010	2010	Not included previously	Presumed Extant	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa	None	RSA0172759	2010	2010	Not included previously	Presumed Extant	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa	None	RSA0172767	2010	2010	Not included previously	Presumed Extant	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa: Charcas Escondido	None	SD263533	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Medina Vernal Pool Complex, Colonet Mesa	None	SD265729	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Mesa el Rodeo, 5 km ENE of El Rodeo	None	SD102578	1979	1979	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Mesa el Rodeo, 5 km ENE of El Rodeo	None	SD103995	1979	1979	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Charca BerryVeg #1, Colonet Mesa	None	SD263537	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Charcas Esquina, Colonet Mesa	None	SD263540	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
Mexico	Colonet Mesa:Charca BerryVeg #2	None	SD263535	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Charcas Orillas, 5 pool complex	None	SD265732	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa	None	SD265733	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa	None	UCR-95705	1985	1985	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa	None	RSA0077623	1985	1985	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Mesa de Colonet, Charca Julio	None	SD263534	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Colonet Mesa, Charca Felix	None	SD263536	2017	2017	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	Mesa 7 km NNE of Cabo Colonet	None	SD105202	1980	1980	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	2 km NW of Ejido Ruben Jaramillo, K 144	None	SD96799	1976	1976	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Cerro de las Torres	None	SD255332	2016	2016	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	North of Arroyo San Simon and east of Papalote	None	SD255331	2016	2016	Not included previously	Extant	Unknown		CCH2 (2023, entire)
Mexico	3 miles east of San Quintin	None	UC1359524	1968	1968	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Plain 3 miles east of San Quintin	None	SD68057	1968	1968	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Just north of Ejido Papalote	None	SD100923	1978	1978	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)
Mexico	Lower California	None	UC337391	1887	1887	Not included previously	Possibly Extirpated	Unknown		CCH2 (2023, entire)

2023 5-year Review for *Eryngium aristulatum* var. *parishii*

Region	Occurrence Location ¹	EO	Pool Group ²	Last Survey	Last Observed	2010 Status	2023 Status	Ownership	Conservation Status	Source
Mexico	Lagunas Invernales, Laguna Grande Site	None	SD208329	2010	2010	Not included previously	Presumed Extant	Unknown		CCH2 (2023, entire)

¹ Listed in order of latitude from north to south across the currently recognized range.
² Or Herbarium Records. Herbarium records are in various herbaria across California. Records starting with SD are in the San Diego Natural History Museum, RSA are in the California Botanic Garden, UC are at the University of California, Berkeley, and UCR are at the University of California, Riverside.
³ Mistakenly included in 2010 5-year as presumed extant *Eryngium aristulatum* var. *parishii* occurrence based off CNDDDB data which should have identified it as *E. pendletonense*.
⁴ Mistakenly included in 2010 5-Year as presumed extant *Eryngium aristulatum* var. *parishii* occurrence based off data which should have identified it as *E. pendletonense*. However, in 2019, *E. a.* var. *parishii* was discovered occurring in this complex alongside *E. pendletonense*.

FIELD OFFICE APPROVAL

Lead Field Supervisor, Fish and Wildlife Service

Approved

Scott A. Sobiech
Field Supervisor