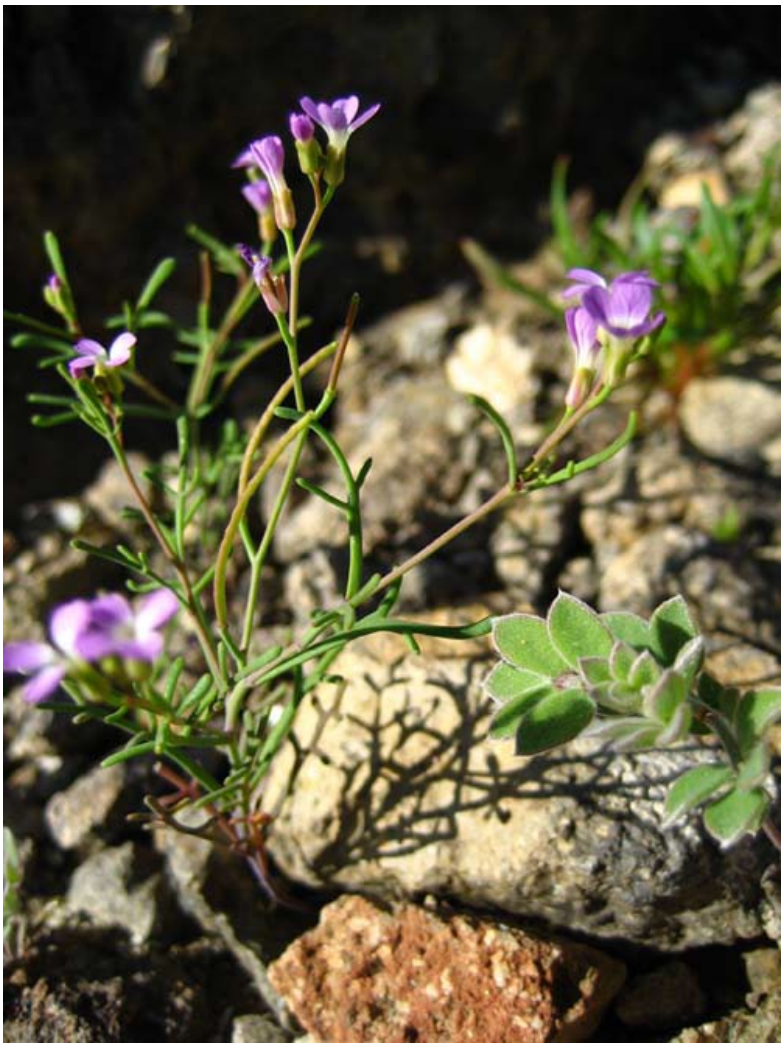
Sibara filifolia
(Santa Cruz Island rockcress)

5-Year Review:
Summary and Evaluation



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

August 2024

5-YEAR REVIEW
Sibara filifolia (Santa Cruz Island rockcress)

GENERAL INFORMATION

Species: *Sibara filifolia* (Santa Cruz Island rockcress), a plant species
Date listed under the Endangered Species Act: August 8, 1997
Federal Register citation: Service 1997
Classification: Endangered
Recovery Priority Number: 11

BACKGROUND

Under the Endangered Species Act (Act) of 1973, 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.

Most recent status review: Service 2020. *Sibara filifolia* (Santa Cruz Island rockcress) 5-Year Review: Summary and Evaluation. Prepared by the Carlsbad Fish and Wildlife Office, Carlsbad, California. 4 pp.

Federal Register Notice announcing this status review: On August 17, 2023, we published a Federal Register notice announcing initiation of the 5-year review of this species, and the opening of a 60-day comment period to receive information (Service 2023, entire).

REVIEW ANALYSIS

Species Overview and Habitat

Sibara filifolia (Santa Cruz Island rockcress) is a diminutive and slender annual forb in the Brassicaceae (mustard family). It is the only species in its genus that occurs on the Channel Islands of southern California. Historically, plants have been found on dry, rocky, sparsely vegetated ridges at various elevations on San Clemente, Santa Catalina, and Santa Cruz Islands.

ASSESSMENT

Information Acquired Since the Last Status Review

This 5-year review was conducted by the Service's Carlsbad Fish and Wildlife Office. Data for this review were solicited from the public and interested parties through a Federal Register notice announcing this review on August 17, 2023. We also received information through our participation in the *Sibara filifolia* Working Group, which includes partners from the U.S. Navy, the Catalina Island Conservancy, the Santa Barbara Botanic Garden, The Nature Conservancy, and the San Diego State University Research Foundation. Additionally, we conducted a literature search and reviewed information in our files.

SUMMARY OF NEW INFORMATION SINCE 2020

Updated Information and Current Species Status

Historically, *Sibara filifolia* was found in multiple occurrences on Santa Cruz and Santa Catalina islands and in one or two occurrences on San Clemente Island. The number of historical populations is unknown because of imprecise location information in historical records. Currently, *S. filifolia* is extant on two islands, Santa Catalina and San Clemente, and is presumed to be extirpated on Santa Cruz Island. Resiliency is moderate, demonstrating that the populations are healthy but are at risk of declining, especially as they are faced with threats from wildfire, invasive nonnative species, and climate change. There is also risk of losing one or both populations from catastrophic events, and the species has a limited capacity to adapt to changing conditions because of poor genetic diversity and lack of outcrossing reproduction in one of the two populations.

In 2020, conservation partners and federal agencies formed the *Sibara filifolia* Working Group to advance the conservation and recovery of *S. filifolia* across the three islands that the species has occupied. The group (comprised of personnel from the Service, U.S. Navy, Catalina Island Conservancy, Santa Barbara Botanic Garden, The Nature Conservancy, and San Diego State University Research Foundation) meets monthly to coordinate ongoing conservation activities, share ideas and lessons learned, and discuss future needs and upcoming opportunities. The working group assisted the Urban Wildlands Group to refine an existing habitat suitability model to predict the potential range of *S. filifolia* for exploratory survey purposes (Noujdina and Longcore 2022, entire). The working group also secured funding for a multi-year project focused on surveys and seed collections. While the refined habitat suitability model has not yet led to discovery of new occurrences, surveyors did document extension of known occurrences on both Santa Catalina and San Clemente islands (Schneider *et al*. 2022, p. 13). Botanists have also made numerous conservation seed bank collections over the course of the project.

The working group is also initiating a genetics study across the three islands. This information will help inform potential reintroduction of *S. filifolia* to Santa Cruz Island.

Since the most recent 5-year review, two studies involving *Sibara filifolia* pollination have been published. In a greenhouse study using San Clemente Island seeds, *S. filifolia* grew larger and produced 2–4 times more fruits than wild San Clemente Island plants and numbers of seeds per fruit correlated with the upper range (10–30 seeds per fruit) of wild plants (Sidhu *et al*. 2022, pp. 634–635). In the same study, cross-pollination led to the highest germination rate and highest seedling survival rate compared to other reproductive treatments (Sidhu *et al*. 2022, p. 634). However, most measures of fecundity and fitness were similar for all treatments with facilitated pollination, whether self- or cross-pollinated (Sidhu *et al*. 2022, pp. 632–634). The other study surveyed for pollinators during the daytime at two *S. filifolia* sites on San Clemente Islands during March and June of 2019 (Hazlehurst *et al*. 2023, p. 210). Researchers sampled 12 plots containing *S. filifolia* a total of 13 times (during 2 surveys) while *S. filifolia* was blooming (6.5 total hours of sampling) and no floral visitors were observed (Hazlehurst *et al*. 2023, p. 212).

In response to our Federal Register notice announcing initiation of the 5-year review of this species (Service 2023, entire), the Catalina Island Conservancy provided us with a summary of *Sibara filifolia* monitoring efforts on Santa Catalina Island during 2022 and 2023 (see Appendix) (Alison 2023, pers. comm.). Two annual reports have also been submitted to our office by Santa

Barbara Botanic Garden detailing the results of 2022–2023 surveys and seed collections on Santa Catalina and San Clemente islands (Schneider *et al*. 2022, entire; Schneider and Mason 2023, entire).

In 2024, a new occurrence of *Sibara filifolia* was discovered on San Clemente Island (U.S. Navy 2024, p. 1). This previously undocumented occurrence is near Eel Point, approximately 12.2 miles (19.7 kilometers) away from the known population at Pyramid Point (Figure 1). San Clemente Island botanists confirmed the existence of this occurrence and counted 105 individuals during April 2024 (U.S. Navy 2024, p. 1).

CONCLUSION

After reviewing the best available scientific information, we conclude that *Sibara filifolia* 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 2020 status review remains an accurate reflection of the species current status.

RECOMMENDATIONS FOR FUTURE ACTIONS

The recommended actions listed below are intended to reduce threats to *Sibara filifolia* and provide information to better understand the biological and physical factors limiting the population growth and distribution. We recognize that conservation of *S. filifolia* will require cooperation and coordination with partners (e.g., Federal, State, local agencies, and non-profit entities) to minimize impacts from current threats, aid future restoration, and maximize effectiveness of limited funding.

1. Continue to collaborate through the *Sibara filifolia* Working Group on ongoing and future projects to study and recover *S. filifolia*.

2. Continue to collect seed to establish a robust seed bank for *Sibara filifolia* with sampling emphasis to capture genetic diversity of natural populations.

3. Conduct morphometric and genetic studies to quantify variation within and among populations.

4. Determine what types of surveys can be used to reliably quantify *Sibara filifolia* abundance and trends. Consider if surveys should focus on fruiting individuals (versus other life stages) to be able to monitor seed bank dynamics.

5. Determine whether there is suitable habitat on Santa Cruz Island to sustain one or more *Sibara filifolia* populations and conduct surveys for potential reintroduction sites.

6. Investigate how current and future climate conditions affect *Sibara filifolia* germination, maturity, and seed set.

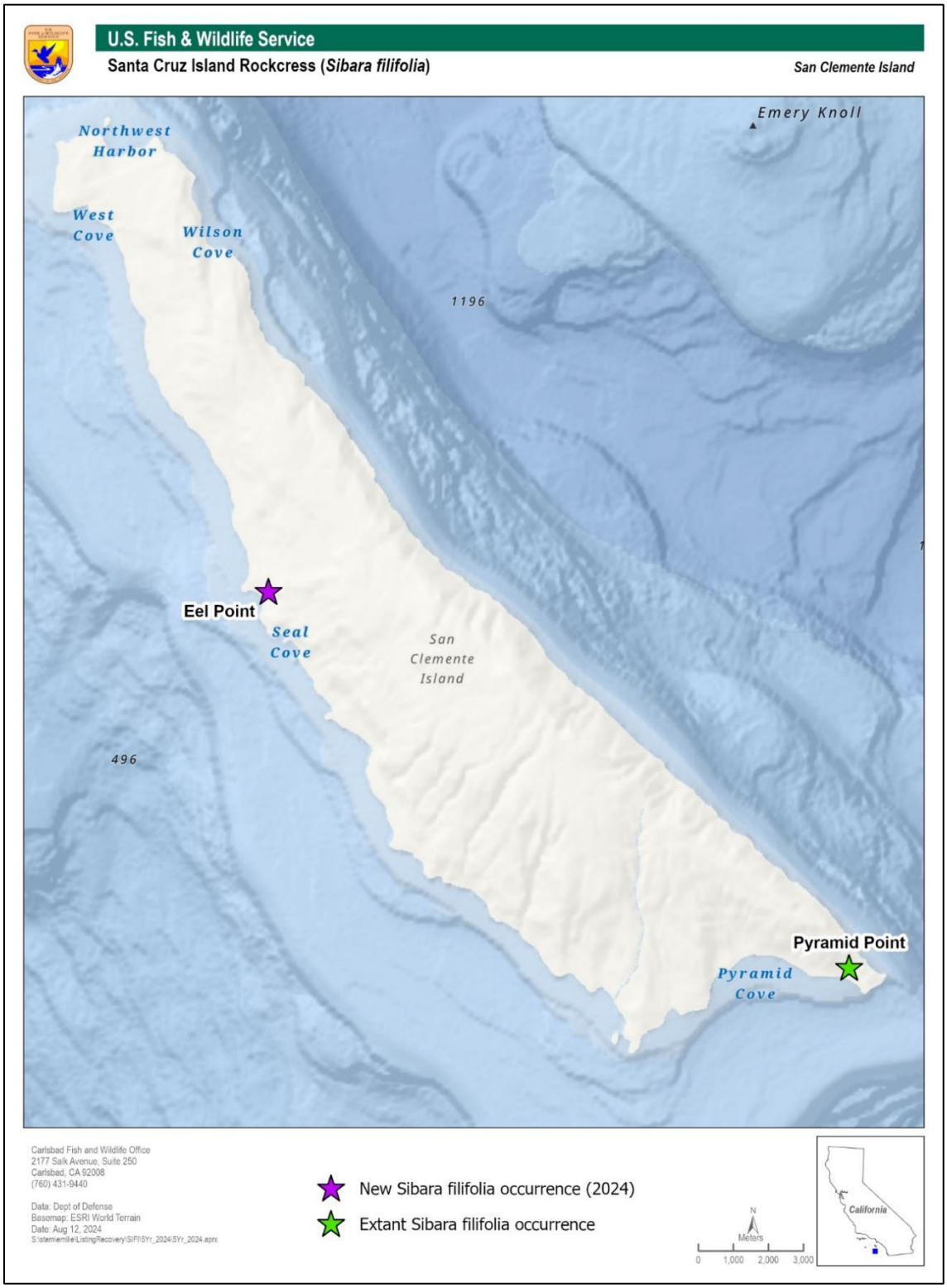

Figure 1. *Sibara filifolia* occurrences on San Clemente Island.

REFERENCES

Hazlehurst, J., S. Calloway, and D. Knapp. 2023. Important pollinator species for conserving rare plant species endemic to San Clemente Island, California. Journal of Pollination Ecology 35:207–227.

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[Service] U.S. Fish and Wildlife Service. 2020. Five-year review *Sibara filifolia* (Santa Cruz Island rockcress). U.S. Fish and Wildlife Service. Prepared by the Carlsbad Fish and Wildlife Office, 8 pp.

[Service] U.S. Fish and Wildlife Service. 2023. Endangered and Threatened Wildlife and Plants; Initiation of 5-year Status Reviews of 47 Species in California, Nevada, and the Klamath Basin of Oregon; August 17, 2023. Federal Register 88:56042–56044.

U.S. Navy. 2024. Request to amend Biological Opinion FWS- LA-09B0027-09F0040 due to a change in status for *Sibara filifolia*. Unpublished request submitted on May 29, 2024 by Nicole Desnoyers of the U.S. Navy to Sandy Vissman and David Zoutendyk of the Carlsbad Fish and Wildlife Office, U.S. Fish and Wildlife Service, 11 pp.

PERSONAL COMMUNICATION

Alison, K. 2023. Rare Plant Ecologist, Catalina Island Conservancy, Avalon, California. Email correspondence to Jane Hendron, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office. Dated August 21, 2023. Subject: U.S. Fish and Wildlife Service initiates 5-year reviews of 47 species in California, Nevada, and Oregon.

FIELD OFFICE APPROVAL

Lead Field Supervisor, Fish and Wildlife Service

☒ Approved

Digitally signed by KRISTINE PETERSEN
Date: 2024.08.30 11:54:34 -07'00'

for Scott A. Sobiech
Field Supervisor

Appendix

APPENDIX

The following information was received via electronic correspondence from Kevin Alison of the Catalina Island Conservancy (Alison 2023, pers. comm.) in response to the Federal Register notice announcing initiation of the 5-year review of this species (Service 2023, entire).

The Catalina Island Conservancy has monitored *Sibara filifolia* populations on Santa Catalina Island for 2 consecutive years (2022 and 2023) in partnership with the Santa Barbara Botanic Garden (SBBG) and a working group from various stakeholders. SBBG has led the monitoring effort resulting from a cooperative agreement with the Service's Carlsbad Fish and Wildlife Office and managed all data to provide a report of the species' status.

Surveying for *S. filifolia* in 2022 occurred from February to May, with two surveys occurring in March. Findings from the 2022 report regarding the *S. filifolia* populations on Catalina Island include:

1. The Urban Wildlands Group developed a habitat suitability model and was tested in the field. Although the model showed potential sites across the island, *S. filifolia* was only found in areas where the species was known to occur already (Wild Boar Gully and surrounding areas).

2. Two areas where *S. filifolia* was previously documented were not found occurred outside of the protective deer exclosures.

3. A range expansion was observed and mapped on the southeastern patch of a known population in Wild Boar Gully (WBG#5).

4. One thousand to one thousand two hundred were estimated to have initiated growth in 2022. However, mortality following late-season drought and self-thinning was suspected to have occurred.

5. *Sibara filifolia* appears to be closely associated with *Dipterostemon capitatus* and *Salvia mellifera* in its habitat.

6. Seeds were collected from all known occurrences in May 2022 and stored at SBBG's Conservation Seed Bank for seed-bulking and long-term storage.

For 2023, the monitoring and seed collection occurred from February through July, with a cancellation in April due to weather-related road closures impeding access to *S. filifolia* sites. All census and ecological data collected for 2023 are being managed by SBBG and will be provided in a report later this year. However, the following can be noted:

1. 2023 has been an exceptional rain year with above-average precipitation. Because of this, a significant increase in plants germinated at each found population.

2. The phenology of plants was delayed in 2023 with ample precipitation compared to the previous dry year. Fruiting a seed collection that occurred in May 2022 rendered the scheduled trip in June unnecessary. However, in 2023 the seeds were not ready to collect until July, with plants still in flower and fruit much later in the year.

3. Seeds and herbarium vouchers were collected and maintained by SBBG.

4. Herbivory was observed on a large portion of plants. Caterpillars were observed on plants and were collected and reared by SBBG for identification.