standards to determine the practicality of the VCS for this rule. This review requires significant method validation data that meet the requirements of EPA Method 301 for accepting alternative methods or scientific, engineering, and policy equivalence to procedures in the EPA reference methods. The EPA may reconsider determinations of impracticality when additional information is available for a particular VCS. No applicable VCS was identified for EPA Method 22.

In this proposed action, the EPA is incorporating by reference the VCS ASTM D7520–16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, as an acceptable alternative to EPA Method 9 with the following caveats:

- During the certification procedure for the digital camera opacity technique (DCOT) outlined in Section 9.2 of ASTM D7520–16, the facility or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds or a sparse tree stand).
- The facility must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520–16.
- The facility must follow the recordkeeping procedures outlined in 40 CFR 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered joint photographic experts group (JPEG) files used for opacity and certification determination.
- The facility or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15-percent opacity of anyone reading and the average error must not exceed 7.5-percent opacity.
- This approval does not provide or imply a certification or validation of any vendor's hardware or software. The onus to maintain and verify the certification or training of the DCOT camera, software, and operator in accordance with ASTM D7520–16 is on the facility, DCOT operator, and DCOT vendor. This method describes procedures to determine the opacity of a plume, using digital imagery and associated hardware and software, where opacity is caused by PM emitted from a stationary point source in the outdoor ambient environment. The opacity of emissions is determined by the application of a DCOT that consists of a digital still camera, analysis software, and the output function's content to obtain and interpret digital images to determine and report plume opacity. The ASTM D7520–16 document is available from ASTM at *https://www.astm.org* or l100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, telephone number: (610) 832–9500, fax number: (610) 8329555 at *service@astm.org.*

The EPA is finalizing the use of the guidance document, Fabric Filter Bag Leak Detection Guidance, EPA–454/R–98–015, Office of Air Quality Planning and Standards (OAQPS), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, September 1997. This document provides guidance on the use of triboelectric monitors as fabric filter bag leak detectors. The document includes fabric filter and monitoring system descriptions; guidance on monitor selection, installation, setup, adjustment, and operation; and quality assurance procedures. The document is available at *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.PDF.*

Additional information for the VCS search and determinations can be found in the docket for this proposed action (Docket ID No. EPA–HQ–OAR–2022–0481).

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). The documentation for this decision is contained in section IV.F of this preamble. All relevant documents are available in the docket for this action (Docket ID No. EPA–HQ–OAR–2022–0481).

The assessment of populations in close proximity of secondary lead smelters shows some demographic groups that are higher than the national average, however, we determined that the human health impacts are not disproportionate for these groups because this action proposes changes to the standards that will increase protection for communities. The EPA determined that the standards should be revised to reflect cost-effective developments in practices, process, or controls and BSER. The proposed changes will provide additional health protection for all populations, including communities already overburdened by pollution, which are often minority, low-income, and indigenous communities. The proposed changes will have beneficial effects on air quality and public health for populations exposed to emissions from facilities in the source category. Further, this rulemaking complements other actions already taken by the EPA to reduce emissions and improve health outcomes for overburdened and underserved communities.

Michael Regan,

Administrator.

[FR Doc. 2022–25586 Filed 11–30–22; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8–ES–2022–0066; FF09E22000 FXES1113090FEDR 223]

RIN 1018–BF51

Endangered and Threatened Wildlife and Plants; Removing Island Bedstraw and Santa Cruz Island Dudleya From the List of Endangered and Threatened Plants

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; availability of draft post-delisting monitoring plans.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to remove island bedstraw (*Galium buxifolium*) and Santa Cruz Island dudleya (*Dudleya nesiotica*) from the Federal List of Endangered and Threatened Plants on the basis of recovery. Both of these native plant species occur in the Channel Islands National Park off the coast of California. This proposed rule is based on our review of the best available scientific and commercial data, which indicates that the threats to island bedstraw and Santa Cruz Island dudleya have been eliminated or reduced to the point that these species have recovered and no longer meet the definition of an endangered or threatened species under the Endangered Species Act of 1973, as amended (Act). We request information and comments from the public regarding this proposed rule and the draft post-delisting monitoring plans for island bedstraw and Santa Cruz Island dudleya.

DATES: We will accept comments received or postmarked on or before

January 30, 2023. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. eastern time on the closing date. We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by January 17, 2023.

ADDRESSES: You may submit comments on this proposed rule and the draft post-delisting monitoring plans for island bedstraw and Santa Cruz Island dudleya by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal: *https://www.regulations.gov.* In the Search box, enter FWS–R8–ES–2022–0066, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the Search panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on ''Comment.''

(2) *By hard copy:* Submit by U.S. mail to: Public Comments Processing, Attn: FWS–R8–ES–2022–0066, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on *https://www.regulations.gov.* This generally means that we will post any personal information you provide us (see Information Requested, below, for more information).

Availability of supporting materials: This proposed rule and supporting documents, including the 5-year reviews, recovery plan, draft post-delisting monitoring plans, and the species status assessment (SSA) reports for island bedstraw and Santa Cruz Island dudleya, are available at *https://ecos.fws.gov,* or at *https://www.regulations.gov* under Docket No. FWS–R8–ES–2022–0066 (also see **FOR FURTHER INFORMATION CONTACT**). In addition, the supporting files for this proposed rule will be available for public inspection by appointment, during normal business hours, at: U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road #B, Ventura, CA 93003; telephone 805–644–1766.

FOR FURTHER INFORMATION CONTACT: Stephen P. Henry, Field Supervisor, U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93003; by telephone 805–644–1766. Direct all questions or requests for additional information to: island bedstraw and/or Santa Cruz Island dudleya questions, to the address above. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, if a species is determined no longer to be an endangered or threatened species, we may reclassify the species or remove it from the Federal Lists of Endangered and Threatened Wildlife and Plants due to recovery. Island bedstraw is listed as endangered, and Santa Cruz Island dudleya is listed as threatened. We are proposing to remove these species from the Federal List of Endangered and Threatened Plants (*i.e.,* delist these species) because we have determined that they are no longer in danger of extinction now or within the foreseeable future. Delisting a species can be completed only by issuing a rule.

What this document does. This rule proposes to remove island bedstraw and Santa Cruz Island dudleya from the Federal List of Endangered and Threatened Plants in title 50 of the Code of Federal Regulations (at 50 CFR 17.12(h)) based on their recovery.

The basis for our action. Under the Act, we may determine that a species is an endangered species or threatened species based on any of five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We must consider these same five factors in removing a species from the List (delisting).

Under the Act, we must review the status of all listed species at least once every five years. We must delist a species if we determine, on the basis of the best available scientific and commercial data, that the species is neither a threatened species nor an endangered species. Our regulations at 50 CFR 424.11 identify three reasons why we might determine that a listed species is neither an endangered species nor a threatened species: (1) The species is extinct; (2) the species has recovered, or (3) the original data used at the time the species was classified were in error. Here, we have determined that island bedstraw and Santa Cruz Island dudleya have recovered, therefore we are proposing to delist them.

Information Requested

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from other governmental agencies, Native American Tribes, the scientific community, industry, or any other interested parties concerning this proposed rule.

We particularly seek comments concerning:

(1) Reasons we should or should not remove island bedstraw and Santa Cruz Island dudleya from the List of Endangered and Threatened Plants. Please include any biological qualitative and/or quantitative data to support the reasons.

(2) Relevant data concerning any threats (or lack thereof) to island bedstraw and Santa Cruz Island dudleya, particularly any data on the possible effects of climate change.

(3) The extent of State protection and management that would be provided to these plants as delisted species.

(4) Current or planned activities within the geographic range of island bedstraw and Santa Cruz Island dudleya that may negatively impact or benefit the species.

(5) The draft post-delisting monitoring plans and the methods and approaches detailed in them.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any information you include.

Please note that submissions merely stating support for, or opposition to, the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or a threatened species must be made ''solely on the basis of the best scientific and commercial data available.''

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**.

If you submit information via *https://www.regulations.gov,* your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *https://www.regulations.gov.*

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *https://www.regulations.gov.*

Because we will consider all comments and information received during the comment period, our final determinations may differ from this proposal. Based on the new information we receive (and any comments on that new information), we may conclude that one or both of the species should remain listed as their current status (island bedstraw as endangered and Santa Cruz Island dudleya as threatened) or we may determine that one or both species should be reclassified.

Public Hearing

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. Requests must be received by the date specified in **DATES**. Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule a public hearing on this proposal, if requested, and announce the date, time, and place of the hearing, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing. We may hold the public hearing in person or virtually via webinar. We will announce any public hearing on our website. The use of virtual public hearings is consistent with our regulation at 50 CFR 424.16(c)(3).

Supporting Documents

A species status assessment (SSA) team prepared SSA reports for both island bedstraw (Service 2021a, entire) and Santa Cruz Island dudleya (Service 2021b, entire). The SSA team was composed of Service biologists, in consultation with other species experts. These SSA reports represent a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting both of the species.

In accordance with our July 1, 1994, peer review policy (59 FR 34270; July 1, 1994), the Service's August 22, 2016, Director's Memo on the Peer Review Process, we solicited independent scientific reviews of the information contained in the SSA reports for island bedstraw and Santa Cruz Island dudleya. We sent the island bedstraw SSA report to three independent peer reviewers and received three responses. We sent the Santa Cruz Island dudleya SSA report to three independent peer reviewers and received one response. Results of this peer review process can be found at *https://ecos.fws.gov.* The island bedstraw SSA report was also submitted to our Federal, State, and Tribal partners for scientific review. We received one partner review from the U.S. Geological Survey (USGS; Channel Islands Field Station in Ventura, California). The Santa Cruz Island dudleya SSA report was also submitted to our Federal, State, and Tribal partners for scientific review. We received two partner reviews from The Nature Conservancy (TNC) and USGS (Channel Islands Field Station in Ventura, California). In preparing this proposed rule, we incorporated the results of these reviews, as appropriate, into the final SSA reports for both species, which are the foundation for this proposed rule.

Previous Federal Actions

Island Bedstraw

On July 31, 1997, we listed island bedstraw as an endangered species (62 FR 40954), based primarily on the threats of soil loss, habitat alteration, and herbivory from feral pig rooting and sheep grazing. At the time of listing, we found that designation of critical habitat was not prudent, and no further action regarding critical habitat has been taken (62 FR 40954, July 31, 1997; p. 40971). The Recovery Plan that includes island bedstraw was signed on September 26, 2000 (71 FR 54837–54838). The downlisting and delisting criteria for island bedstraw that are in the Recovery Plan (Service 2000, pp. 65–66) are listed below in *Recovery Goals and Objectives.*

By the time the Recovery Plan was signed in 2000, sheep had been removed from all of the northern Channel Islands. Additionally, TNC and National Park Service (NPS) also initiated an 18-month feral pig removal program that removed all pigs from Santa Cruz Island by the end of 2006 (Parkes et al. 2010, entire). No feral pigs occurred on San Miguel Island after 1900 (McEachern et al. 2016, p. 759). In 2009, we conducted a 5-year review pursuant to 16 U.S.C. 1533(c)(2)(A) in which we determined that island bedstraw still met the definition of an endangered species based on the following threats: (1) soil loss and erosion resulting from years of feral pig rooting and sheep grazing, (2) loss of habitat to nonnative, invasive plants, (3) random naturally occurring events due to its limited distribution and small population size, and (4) effects from climate change (Service 2009b, entire). We published a notice announcing the initiation of a new 5-year review of the status of island bedstraw on June 18, 2018 (83 FR 28251–28254). We developed the SSA that formed the basis for this action as part of our 5-year review process. This action constitutes the 5 year review for island bedstraw.

Santa Cruz Island Dudleya

On July 31, 1997, we listed Santa Cruz Island dudleya as a threatened species (62 FR 40954–40974), based primarily on the threats of soil loss, herbivory by feral pigs, disturbance by pig rooting, and vulnerability to collecting for botanical or horticultural use. At the time of listing, we found that designation of critical habitat was not prudent, and no further action regarding critical habitat has been taken (62 FR 40954, July 31, 1997; p. 40971). The Recovery Plan that covers island bedstraw also includes Santa Cruz Island dudleya. The delisting criteria for Santa Cruz Island dudleya that are in the Recovery Plan (Service 2000, p. 65) are listed below in *Recovery Goals and Objectives.*

TNC and NPS initiated an 18-month feral pig removal program that removed all pigs from Santa Cruz Island by the end of 2006 (Parkes et al. 2010, entire). In 2009, we conducted a 5-year review pursuant to 16 U.S.C. 1533(c)(2)(A) in which we determined that Santa Cruz Island dudleya still met the definition of a threatened species based on the following threats: (1) soil loss and degradation, (2) competition from invasive plant species, and (3) stochastic events on the species' single population with limited geographic range. We published a notice announcing the initiation of a new 5-year review of the status of Santa Cruz Island dudleya on July 26, 2019 (84 FR 36116–36118). We developed the SSA that formed the basis for this action as part of our 5-year review process. This action constitutes the 5 year review for Santa Cruz Island dudleya.

Proposed Delisting Determination

Background

Island Bedstraw

Island bedstraw occurs on Santa Cruz and San Miguel Islands of the Channel Islands in Santa Barbara County, California (figure 1). It is a long-lived, flowering woody shrub that can be more than 1 m (3 ft) tall and may sprawl laterally wider than it is tall. The basal stem diameter can exceed 13 millimeters (mm) (0.5 inch (in)) (McEachern et al. 2019a, p. 20). Stems can be glabrous, scabrous, or sparsely hairy. Its leaves are large for the genus and tend to turn red and be lost under summer drought stress conditions. Flowers are small (3–4 mm or 0.10–0.15 in diameter) and are greenish white, often with darker petal tips or centers. The fruit is a schizocarp (a dry fruit that splits into parts when ripe) comprising two single-seeded mericarps, typically referred to as nutlets. It is not known how long adult plants can live. They can likely live more than 20 years, if not longer (McEachern pers. comm. 2020).

Historically, island bedstraw has been characterized as restricted to coastal bluffs, steep rocky slopes, and sea cliffs in the coastal-bluff scrub vegetation (Junak et al. 1995, p. 254; Dempster 1993, p. 982; Soza 2012, p. 1211). However, the plant has also been found in other places, like in pine forest and at interior locations. For Santa Cruz Island, the number of known island bedstraw sites has increased with each successive survey effort, from 13 to 27 to 36 over the course of 20 years and 3 survey efforts. The number of sites on San Miguel Island has remained at six. Each site represents a separate population of island bedstraw for the purposes of this analysis. Where data are available, the estimated number of plants within sites has increased over time, sometimes dramatically. Plant totals have gone from about 100 to about 10,000 for Santa Cruz Island, and the most recent total does not include most of the terraces or cliffs on the coastal sites. The total number of known plants on San Miguel Island has increased from about 500 to about 5,000, again not including most cliff face plants. Most of the 42 total sites are either extant or presumed to be extant. Island bedstraw seems to be expanding on terraces and other non-cliff habitats; this expansion is demonstrated at several sites. Further information on the basic biology and ecology of island bedstraw is summarized in the SSA report (Service 2021a, entire).

Santa Cruz Island Dudleya

Santa Cruz Island dudleya is a succulent perennial, known from only one population (represented by five subpopulations) on the westernmost tip of Santa Cruz Island in Santa Barbara County, California (figure 1). In general, little is known specifically about the life history of Santa Cruz Island dudleya. The species is a perennial succulent that is known to reproduce only by seed. The seed is extremely small and may be transported only a short distance by wind or water where it may germinate quickly if conditions allow or remain viably dormant for years. Many *Dudleya* species recruit most successfully into a cryptogamic substrate, but it is unknown if this substrate is a requirement for Santa Cruz Island dudleya. Seedlings require open spaces for germination and are not reproductive in their first year. Plants are self-compatible but require pollinators, some of which may be native bees. Seed production is not pollinator limited, and a reproductive plant can produce more than 1,000 seeds per year. Plants can live for at least several years. Older plants that have previously flowered may have years when they do not flower. Santa Cruz Island dudleya is found mostly on the lowest marine terraces from about 20–30 m (66–98 ft) elevation. The soils are sandy and marine sediment derived or have a greater clay fraction derived from basaltic rock (Klinger et al. unpublished p. 6). The more coastal soils are considered to be more saline (Vivrette 2002, entire). Further information on the basic biology and ecology of Santa Cruz Island dudleya is summarized in the SSA report (Service 2021b, entire).

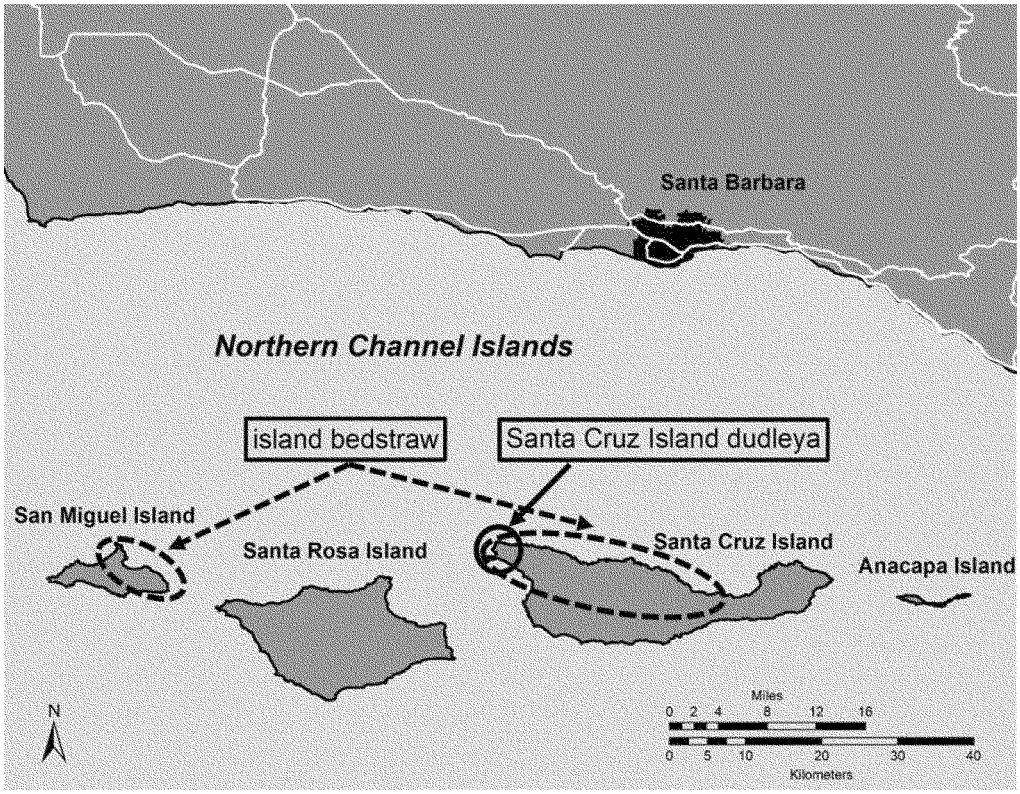

Figure 1. Locations of island bedstraw and Santa Cruz Island dudleya in the Channel Islands National Park off the coast of California.

Recovery Plan and Recovery Criteria

Section 4(f) of the Act directs us to develop and implement recovery plans for the conservation and survival of endangered and threatened species unless we determine that such a plan will not promote the conservation of the species. Under section 4(f)(1)(B)(ii) of the Act, recovery plans must, to the maximum extent practicable, include objective, measurable criteria which, when met, would result in a determination, in accordance with the provisions of section 4 of the Act, that the species be removed from the Lists of Endangered and Threatened Wildlife and Plants.

Recovery plans provide a roadmap for us and our partners on methods of enhancing conservation and minimizing threats to listed species, as well as measurable criteria against which to evaluate progress towards recovery and assess the species' likely future condition. However, they are not regulatory documents and do not substitute for the determinations and promulgation of regulations required under section 4(a)(1) of the Act. A decision to revise the status of a species or to delist a species is ultimately based on an analysis of the best scientific and commercial data available to determine whether a species is no longer an endangered species or a threatened species, regardless of whether that information differs from the recovery plan's delisting or downlisting criteria.

There are many paths to accomplishing recovery of a species, and recovery may be achieved without all of the criteria in a recovery plan being fully met. For example, one or more criteria may be exceeded while other criteria may not yet be accomplished. In that instance, we may determine that the threats are minimized sufficiently, and that the species is robust enough, that it no longer meets the definition of an endangered species or a threatened species. In other cases, we may discover new recovery opportunities after having finalized the recovery plan. Parties seeking to conserve the species may use these opportunities instead of methods identified in the recovery plan. Likewise, we may learn new information about the species after we finalize the recovery plan. The new information may change the extent to which existing criteria are appropriate for identifying recovery of the species. The recovery of a species is a dynamic process requiring adaptive management that may or may not follow all of the guidance provided in a recovery plan.

The Recovery Plan (Service 2000, p. 62) describes the recovery goals, objectives, and criteria that need to be achieved to consider removing island bedstraw and Santa Cruz Island dudleya from the Federal List of Endangered and Threatened Plants. We summarize the goals and then discuss progress toward meeting the recovery criteria in the following sections.

Recovery Goals and Objectives

In a recovery plan, the overall recovery goal is to improve the status of the species such that the protections of the Act are no longer needed. Preliminary goals and objectives include (1) stabilizing and protecting populations, (2) conducting research necessary to refine recovery criteria, and (3) reclassifying to threatened (downlisting) those species currently listed as endangered (reclassification being appropriate when a taxon is no longer in danger of extinction throughout all or a significant portion of its range). Because data upon which to base decisions about reclassification and recovery were mostly lacking when the Recovery Plan was developed, downlisting and recovery criteria in the Recovery Plan are necessarily preliminary (Service 2000, p. 62).

The following Recovery Plan criteria that generally apply to both of these species have been met: (1) provide protection and adaptive management of currently known (and in some cases historical) sites, (2) provide evidence

that the populations at these sites are stable or increasing over a number of years, which is determined by the life history of the individual species, (3) preserve the genetic diversity of the species by storing seeds in cooperating facilities, and (4) develop reliable seed germination and propagation techniques.

Determining whether a species' current status meets the overall recovery goal and associated objectives requires a broad evaluation of the trends in the observed numbers of occurrences indicated by surveys and monitoring, the abundance and distribution of suitable habitat, evaluation of the seed bank, and the effectiveness of protective measures that have been implemented to reduce threats from human activities such as soil loss and herbivory by feral pigs and ungulates, disturbance by pig rooting, collecting for botanical and horticultural use, and trampling by humans. In addition, we also examine the effectiveness of protective measures that have been implemented to reduce threats from nonnative plants, the risk associated with small population size, climate change, and fire. In order to evaluate threats to the species, we must consider potential impacts within the foreseeable future. The Recovery Plan (Service 2000, entire) used 10–15 years as the period of time to evaluate population stability because that time period reflects a typical multiyear precipitation cycle (Service 2000, p. 63). Unique recovery criteria for island bedstraw and Santa Cruz Island dudleya are covered in the Recovery Plan (Service 2000, pp. 64–68) and are discussed below.

Recovery Criteria

Island Bedstraw Downlisting Criteria

The Recovery Plan identified seven criteria for reclassifying island bedstraw to a threatened species (Service 2000, pp. 64–68):

- *Downlisting Criterion 1: Stabilize or increase populations on Santa Cruz and San Miguel Islands with evidence of natural recruitment for a period of 20 years that includes the normal precipitation cycle.*

Status of achieving recovery criterion: Since the time of listing, researchers have found 20 new sites on Santa Cruz Island, increasing the total number of sites from 19 to 39. On San Miguel Island, for three of the six historical sites that were surveyed, significant increases in numbers occurred between the time of listing and the most recent survey. Combined numbers for both islands have increased from 512–603 at time of listing to at least 15,730 individuals at the time of 2015/2017 helicopter surveys. We conclude that this criterion has been met.

- *Downlisting Criterion 2: Reintroduce plants to historical locations.*

Status of achieving recovery criterion: No introduction of island bedstraw to any of the historical locations where it is possibly extirpated and no outplantings to augment extant historical sites have occurred. However, at the historical sites, plant numbers are generally increasing without plants being added artificially. Although this criterion has not been met, we conclude it is no longer needed.

- *Downlisting Criterion 3: Seed stored in CPC cooperating facilities.*

Status of achieving recovery criterion: Currently, only a small amount of seed from a few sites on Santa Cruz Island is stored at the Santa Barbara Botanic Garden, a Center for Plant Conservation (CPC) facility. Thorough conservation seed banking requires seed in storage from a good representation of sites over the range of the species. A few sites with currently only a small amount of seed is not sufficient to cover that standard. We conclude that this criterion has not been met. While there are plans to bolster the conservation seed bank, with its substantial natural recovery of island bedstraw this criterion no longer has the urgency it did at the time of listing. Because so many new populations have been documented, and the abundance is so great, conservation seed banking is not as important as it was thought to be at the time of the recovery plan.

- *Downlisting Criterion 4: Seed germination and propagation techniques understood.*

Status of achieving recovery criterion: While seeds have been germinated and the resulting plants have grown for several years, the conditions in which the seeds were germinated were fairly general, and optimal protocols have not been developed. We conclude that this criterion has not been met. However, we do not think Downlisting Criterion 4 is needed anymore because the numbers of island bedstraw are increasing naturally.

- *Downlisting Criterion 5: Life-history research conducted.*

Status of achieving recovery criterion: Research over a 10-year period on the life history of the species, particularly flower biology and demography, has shown recruitment episodes and documented transitions through life-history stages. We conclude that this criterion has been met.

- *Downlisting Criterion 6: Surveys of historical locations conducted.*

Status of achieving recovery criterion: Most of the 13 historical sites on Santa Cruz Island have been resurveyed at least once, and plants were found at most of those sites. In addition, most of the 14 new locations found in 2004–2006 were either remapped or had plant numbers estimated in 2015 surveys. Most of the six historical sites on San Miguel Island have also been resurveyed, and plants were also found at all of those resurveyed sites. We conclude that this criterion has been met.

- *Downlisting Criterion 7: If declining, determine cause and reverse trend.*

Status of achieving recovery criterion: The species has not been declining on either Santa Cruz or San Miguel Islands. Rather, it has been dramatically increasing, and many new sites have been found since the time of listing. We conclude that this criterion has been met.

Island Bedstraw Delisting Criteria

The Recovery Plan identified three criteria for removing island bedstraw from the Federal List of Endangered and Threatened Plants (Service 2000, pp. 64–68):

- *Delisting Criterion 1: Discover or establish five additional populations per island (San Miguel and Santa Cruz).*

Status of achieving recovery criterion: Researchers have discovered 23 previously unknown sites on Santa Cruz Island. No new sites have been discovered or established on San Miguel Island. San Miguel Island lacks the extensive suitable habitat of Santa Cruz Island, and there may not be additional undiscovered populations; however, surveyed populations have increased in numbers of individuals. We conclude that this criterion has been met for Santa Cruz Island but not for San Miguel Island, but the criterion may not be possible for San Miguel Island.

- *Delisting Criterion 2: No decline after downlisting for 10 years.*

Status of achieving recovery criterion: We conclude that this criterion is not relevant since we have not downlisted the species.

- *Delisting Criterion 3: All potential habitat surveyed.*

Status of achieving recovery criterion: Currently, not every part of the north coast of Santa Cruz Island has been surveyed, nor have detailed surveys occurred everywhere on San Miguel Island or in potential habitat on the north coast of Santa Rosa Island. Additionally, historical interior sites have not been resurveyed sufficiently. We conclude that this criterion has not been met. However, this criterion may

no longer be needed because the numbers of island bedstraw plants have increased substantially on the islands from which it is known.

Santa Cruz Island Dudleya Delisting Criteria

The Recovery Plan identified six criteria for removing Santa Cruz Island dudleya from the Federal List of Endangered and Threatened Plants (Service 2000, pp. 64–68):

• *Delisting Criterion 1: Maintain the existing population as stable with evidence of natural recruitment for a period of 20 years that includes the normal precipitation cycle.*

Status of achieving recovery criterion: Data indicate that the population size is stable at between 40,000 and 200,000 plants estimated per survey over the last 25 years, with the last estimate of 120,000 in 2019. In 2019 a robust repeatable survey protocol was established, and baseline data have been collected to assess future trends. This criterion has been met.

• *Delisting Criterion 2: Seed stored in CPC cooperating facilities.*

Status of achieving recovery criterion: An abundance of recently collected seed is stored at the SBBG. This criterion has been met.

• *Delisting Criterion 3: Seed germination and propagation techniques understood.*

Status of achieving recovery criterion: While no specific work has been done with Santa Cruz Island dudleya, seed germination and plant propagation techniques are well understood for many other *Dudleya* species, including other closely related species in the same subgenus. We conclude that this criterion has been met.

• *Delisting Criterion 4: Weed competition understood and managed.*

Status of achieving recovery criterion: The vegetation of Santa Cruz Island is still changing since the complete removal of feral ungulates. Some aspects of the interactions of nonnative annual grasses and Santa Cruz Island dudleya were investigated more than 20 years ago, but little has been done recently. We conclude this criterion has not been met. However, Santa Cruz Island dudleya has not been observed to have been competitively impacted by weeds and is at least stable in population size at 40,000–200,000 individuals over the last 25 years, so while weeds may be a threat, they have not seemed to have had an impact on population stability.

• *Delisting Criterion 5: Pig damage controlled.*

Status of achieving recovery criterion: Pigs were completely removed from Santa Cruz Island by 2006, and substantial passive vegetation recovery has occurred. This criterion has been met.

• *Delisting Criterion 6: Life-history research conducted.*

Status of achieving recovery criterion: While originally planned, no additional life-history research has been conducted specifically on Santa Cruz Island dudleya since the time of listing. However, many life-history characteristics are similar throughout *Dudleya* and applicable to this species. The criterion is considered met through knowledge of the biology of similar species.

Summary of Recovery Criteria

In the Recovery Plan, the overall recovery goal is to improve the status of the species such that the protections of the Act are no longer needed. Preliminary goals and objectives include stabilizing and protecting populations, conducting research, and reclassifying species to threatened (downlisting) when appropriate. The Recovery Plan criteria that generally apply to both of these species have been met. The Recovery Plan's unique recovery criteria for island bedstraw and Santa Cruz Island dudleya (Service 2000, pp. 64–68) are discussed above and summarized below.

Research and survey efforts have clarified the distribution, abundance, and habitat characteristics of island bedstraw and Santa Cruz Island dudleya. This information has resulted in a better understanding of the species' ecology and has shown an increase in the species' range, and numbers of sites and individuals for island bedstraw, and has shown population stability and increase in distribution for Santa Cruz Island dudleya.

Overall, the intent of the recovery criteria has been met in collaboration with our partners. TNC and NPS have provided protection and adaptive management of historical and recent sites. USGS, TNC, and others have provided survey evidence that the populations at these sites are stable or increasing over a number of years. TNC and NPS have coordinated to preserve the genetic diversity of both species by conservation banking of seeds in approved facilities. Both species are considered recovered without reliable seed germination and propagation techniques being developed. Therefore, we conclude that, based on the best available information, the intent of the recovery criteria in the Recovery Plan has been achieved and the recovery goal identified in the Recovery Plan has been met for both island bedstraw and Santa Cruz Island dudleya.

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species is an endangered species or a threatened species. On July 5, 2022, the U.S. District Court for the Northern District of California vacated regulations that the Service (jointly with the National Marine Fisheries Service) promulgated in 2019 modifying how the Services add, remove, and reclassify threatened and endangered species and the criteria for designating listed species' critical habitat (*Center for Biological Diversity* v. *Haaland,* No. 4:19–cv–05206–JST, Doc. 168 (*CBD* v. *Haaland*). As a result of that vacatur, regulations that were in effect before those 2019 regulations now govern species classification and critical habitat decisions. Our analysis for this proposal applied those pre-2019 regulations. However, given that litigation remains regarding the court's vacatur of those 2019 regulations, we also undertook an analysis of whether the proposal would be different if we were to apply the 2019 regulations. We concluded that the proposal would have been the same if we had applied the 2019 regulations. The analysis based on the 2019 regulations is included in the decision file for this proposal.

The Act defines an ''endangered species'' as a species that is in danger of extinction throughout all or a significant portion of its range and a ''threatened species'' as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an endangered species or a threatened species because of any of the following factors:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

(B) Overutilization for commercial, recreational, scientific, or educational purposes;

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive

effects. We consider these same five factors (50 CFR 424.11(c) and (e)) when considering downlisting a species from endangered to threatened and when considering delisting a species.

We use the term ''threat'' to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term ''threat'' includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term ''threat'' may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an ''endangered species'' or a ''threatened species.'' In determining whether a species meets either definition, we must evaluate all identified threats by considering the species' expected response and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species—such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an ''endangered species'' or a ''threatened species'' only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term ''foreseeable future,'' which appears in the statutory definition of ''threatened species.'' Because the decision in *CBD* v. *Haaland* vacated our 2019 regulations regarding the foreseeable future, we refer to a 2009 Department of the Interior Solicitor's opinion entitled ''The Meaning of 'Foreseeable Future' in Section 3(20) of the Endangered Species Act'' (M–37021). That Solicitor's opinion states that the foreseeable future ''must be rooted in the best available data that allow predictions into the future'' and extends as far as those predictions are ''sufficiently reliable to provide a reasonable degree of confidence in the prediction, in light of the conservation purposes of the Act.'' Id. at 13.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species' responses to those threats in view of its life-history characteristics. Data that are typically relevant to assessing the species' biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

Analytical Framework

The island bedstraw and Santa Cruz Island dudleya SSA reports document the results of our comprehensive biological review of the best scientific and commercial data regarding the status of the species, including an assessment of the potential threats to the species. The SSA reports do not represent our decision on whether the species should be proposed for removal from the List of Endangered and Threatened Plants (''delisted''). However, they provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies. The following is a summary of the key results and conclusions from the island bedstraw and Santa Cruz Island dudleya SSA reports; the full SSA reports for both species can be found at Docket FWS–R8–ES–2022–0066 on *https://www.regulations.gov* and at *https://ecos.fws.gov.*

To assess island bedstraw and Santa Cruz Island dudleya viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes). In general, the more resilient and redundant a species is, and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions. Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species' viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the individual species' life-history needs. The next stage involved an assessment of the historical and current condition of the species' demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA involved making predictions about the species' responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of a species to sustain populations in the wild over time. We use this information to inform our regulatory decision.

Summary of Biological Status and Threats

In this discussion, we briefly review the biological condition of the species and their resources, and the threats that influence the species' current and future condition, in order to assess the species' overall viability and the risks to that viability.

Island Bedstraw Biological Condition

Plants like the bedstraw, with functionally unisexual flowers, need flowers of opposite gender for successful seed set, requiring one or more pollinators. Seeds need to be able to survive until germination conditions are appropriate, and they need a stable location to germinate and grow. Larger plants also need stable locations for long-term survival. A sufficient amount of moisture is needed for all island bedstraw life stages, and some of this moisture may be provided by fog. Island bedstraw populations need suitable habitat that supports survival and reproduction of an adequate number of individuals with vital rates that maintain self-sustaining populations despite stochastic events. Overall, the species needs sufficiently resilient populations distributed across its range to withstand catastrophic events. Population sizes should be large enough so that the species has the ability to adapt to changing conditions.

At the time of listing, there were 19 known sites of island bedstraw, 13 on Santa Cruz Island and 6 on San Miguel Island. There may have been 44–133 or more plants on Santa Cruz Island and more than 470 on San Miguel Island, with an estimated 515–603 plants on the 2 islands combined.

After listing in 1997, from 2004 through 2006, significant efforts were

made to survey Santa Cruz Island for island bedstraw. Of the 13 historical sites, 10 were surveyed, and no plants were found at 3 of those sites. An additional 14 new sites were discovered, expanding the distribution of sites to the west and east of the historical sites. At least 692–792 plants were counted at the historical sites, and at least 459 plants were counted at the new sites, for a total of at least 1,151–1,251 plants. No comparable surveys occurred on San Miguel Island; the only observations were counts at two sites in 1998 (McEachern et al. 2019b, pp. 14–16).

In 2015 on Santa Cruz Island and in 2017 on San Miguel Island, Wildlands Conservation Science (Lompoc, CA) used helicopter surveys to conduct rare plant surveys (Ball and Olthof 2017, entire; Ball et al. 2018, entire). Additional observations, not associated with helicopter surveys, were made on both islands. For the helicopter surveys conducted in 2015 on Santa Cruz Island, 28 sites were visited consisting of 9 new sites, the 17 sites surveyed in 2004–2006, and 2 previously unsurveyed historical sites. Additional sites discovered during the survey brought the total number of known sites to 36 (13 historical prelisting sites, 14 additional sites discovered 2004–2006, 9 sites in 2015 helicopter surveys), and the known geographical distribution of island bedstraw on the island eastward. Most sites were only photographed, but percent cover and area was estimated for level terraces at seven sites. And with an average plant canopy area derived from monitoring data, researchers estimated that those 7 sites had 8,421 plants. An additional observation in 2019 estimated another 1,000 or more plants at another terrace site.

The 2017 helicopter surveys also conducted on San Miguel Island did not reveal new sites. Three of the six historical sites were visited, and percent cover and area of island bedstraw were estimated for level terraces at those sites. Using the average plant canopy area, researchers estimated that there were 5,339 plants at the 3 sites. A fourth site was previously confirmed to be extant in 2014; the other two sites have not been surveyed but are also presumed to have extant plants.

On Santa Cruz Island, the total number of known island bedstraw sites has increased from 13 at the time of listing, to 27 at the time of the 2004–2006 surveys, to 36 after the 2015 helicopter surveys (Service 2021a, table 14, p. 37). On San Miguel Island, the number of known sites is six, which is the same as at the time of listing. Of the 36 total number of known sites on Santa Cruz Island, 28 are known to be extant based on recent helicopter surveys and observations (Service 2021a, table 13, figure 9, pp. 35–36); five are presumed extant (four sites had plants in the 2004–2006 surveys but were not surveyed thereafter, and one site has not been surveyed since before listing); and three sites are possibly extirpated (targeted surveys took place in 2004–2006, but sites were not relocated or mapped by the 2015 helicopter surveys). Similarly, of the six known sites on San Miguel Island, four are known to be extant based on the 2017 helicopter survey and 2014 observational data (Service 2021a, table 13, figure 10, pp. 35–36), and the remaining two are presumed extant (but have not been surveyed since before listing). There are no known possibly extirpated sites on San Miguel Island.

The current totals, therefore, are 33 known or presumed extant on Santa Cruz Island and 6 on San Miguel Island. The total estimated number of known individuals within those sites on both islands combined has increased from 512–603 before listing to at least 15,730 after recent helicopter surveys.

Currently, island bedstraw appears to have increasing abundance and distribution. It has shown demographic capacity for population growth at one site studied over a 10-year span and adaptive capacity by expansion beyond historically occupied areas into more diverse habitats (*e.g.,* from cliff faces to terraces above the cliffs, and movement into nonnative-dominated vegetation). The species also shows the ability to withstand catastrophic events because it is distributed on two islands, has more sites now than at the time of listing, and has gaps between groups of sites within islands.

Island Bedstraw Threats

In 1997, island bedstraw was listed as an endangered species due to effects (habitat alteration and herbivory) resulting from feral livestock grazing and trampling, and subsequent soil erosion (62 FR 40954–40974, July 31, 1997). By the time the Recovery Plan was signed in 2000, sheep had been removed from both Santa Cruz and San Miguel Islands, but their residual effects remained. No feral pigs occurred on San Miguel Island after 1900, and TNC and NPS initiated an 18-month program that removed all pigs from Santa Cruz Island by the end of 2006. In the 2009 5-year review, we determined that island bedstraw still met the definition of an endangered species based on the following threats: (1) soil loss and erosion resulting from years of feral pig rooting and sheep grazing, (2) loss of habitat to nonnative, invasive plants, (3) random naturally occurring events due to its limited distribution and small population size, and (4) effects from climate change.

The major threats to island bedstraw at the time of listing, feral livestock grazing, trampling, and resulting erosion, have largely been eliminated, which consequently also reduced the threats of small population size and nonnative vegetation identified at the time of the 2009 5-year review. Effects from climate change remain but are not to the level where we conclude that the species is in danger of extinction. We determined that overutilization, disease, predation (herbivory), and the inadequacy of existing regulatory mechanisms are not threats to island bedstraw, so we do not discuss them in detail in this proposed rule. For more information, see the island bedstraw SSA (Service, 2021a).

Soil Loss and Erosion

Currently, vegetation cover has increased significantly on Santa Cruz Island since the eradication of herbivores (Beltran et al. 2014, p. 7), leading to reduced erosion. This trend appears similar on San Miguel Island.

Competition From Nonnative Plants

Nonnative invasive plants were not specifically identified as a threat for this species at the time of listing but were discussed in the 2009 5-year review. While the competitive ability of island bedstraw against nonnative plants is unknown, the species seems to be able to colonize areas dominated by relatively short nonnative annuals, such as the terrace at the ''Bluffs East of Prisoners'' site. Island bedstraw may also have an advantage because native perennials in general tend to be at an advantage over nonnatives at sites that are relatively more mesic (Corry 2006, p. 97), such as the north-facing cliffs, terraces, and slopes on the north coasts of Santa Cruz and San Miguel Islands where island bedstraw is found. Additionally, the loss of leaves by island bedstraw during dry summer conditions may give it another edge over nonnatives (Corry 2006, p. 185) by allowing it to survive drier soil conditions through dormancy.

Random Extinctions of Small Populations

On Santa Cruz Island, historical populations with known numbers of plants had 50 or fewer individuals, and 2004–2006 surveyed populations may have had hundreds of plants. While only a few of the 2015 surveyed sites

have population estimates, these estimates are in the thousands of individuals, and it is likely that more of the unsurveyed sites also have large numbers of plants. These sites with hundreds or thousands of plants have a greater likelihood of future persistence than sites with fewer than 50 plants. The three possibly extirpated historical sites on Santa Cruz Island that could not be located during the most recent surveys (Service 2021b, table 6, p. 26) probably had small numbers of individuals (Service 2021b, table 4, p. 22*).* Two of those sites were in relatively interior locations and could have gone undetected because of poor location descriptions. Similarly, the third site, while coastal, is in an area of extremely dense vegetation and could also have been equally difficult to find. Assuming extirpation, we estimate that these sites are exceptions to the general trend of increasing plant numbers at sites and represent only 3 of the 36 Santa Cruz Island sites. San Miguel Island has demonstrated similar trends of increasing numbers of plants within sites, from historical numbers of 250 or less, to estimates of 1,000 or more plants observed during the 2016 surveys (Service 2021b, table 12, p. 34). The general trend of increasing plant numbers at sites suggests that the threat of random extinction of small populations has been reduced.

Climate Change

The northern Channel Islands lie off mainland Santa Barbara and Ventura Counties. Of the two counties, Santa Barbara County is the better model for assessing climate impacts on the species since the flora of the northern Channel Islands, in general, is considered to have more northern affinities (Raven and Axelrod, 1995, pp. 63–64). Annual average (National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI) 2019a) and maximum (NOAA NCEI 2019b) temperatures for Santa Barbara County for 2014–2018 have been the highest recorded since 1895. Rainfall does not show such distinct trends. However, except for 2017, annual rainfall for 2011–2018 has been below the 1885–2018 mean (NOAA NCEI 2109c), with 2013 and 2015 being two of the five driest years since 1885.

These recent increases in annual average and maximum temperatures and lower annual rainfall do not seem to have adversely affected recent island bedstraw survivorship and expansion. The monitoring data at Pelican Bay (figure 13, McEachern et al. 2019b, p. 26) show an increase in the number of reproductive plants in 2014 compared to 2011. No sites are known to have been extirpated between 2004 and 2019. Spread from cliff locations to adjacent terraces has also been confirmed during that time period. It is unknown how further increases in temperature and decreases in rainfall may affect the species.

The threat of fire increases with increases in annual average and maximum temperatures and lower annual rainfall. Neither natural nor anthropogenic fires are as common on the northern Channel Islands as on the adjacent mainland (Carroll et al. 1993, pp. 75–78). Just four natural fires are known to have occurred on the northern Channel Islands in the last 165 years, none of which have affected island bedstraw sites. Changes in future climate may increase this risk; however, we have no evidence that natural wildfires will be such a serious threat in the future that listing continues to be warranted.

Resiliency, Representation, and Redundancy

Resiliency

Resiliency describes the ability of populations to withstand stochastic disturbance. Resiliency is positively related to population size and growth rate and may be influenced by connectivity among populations. Currently, island bedstraw has populations that are increasing in numbers of individuals and spatial extent. Island bedstraw abundances have increased from 512–603 before listing to at least 15,730 currently, the largest recorded abundance. Individual sites are larger than they were at the time of previous surveys, and larger than at the time of listing. Observations show that populations have spread from cliffs to adjacent level terraces. The rate of growth appears to be positive, from both demographic research and observations of increasing areal extent at individual sites. At least 1,000 plants in half a hectare has been documented in an area that was known to have no plants 15 years earlier. Recent observations show this pattern repeating at other sites.

Representation

Representation describes the ability of a species to adapt to changing environmental conditions over time. It is characterized by the breadth of genetic and environmental diversity within and among populations. Island bedstraw has historically occupied different parts of the islands, from sea cliff faces to the interior of the islands. It is now colonizing terraces above the cliffs. Given how readily island bedstraw moves off the bluffs, onto flats, and into native and nonnative vegetation, the genetic breadth can be interpreted as sufficiently wide to occupy diverse niches. Finally, although the genetics of island bedstraw have not been similarly analyzed, the close relative *G. catalinense* ssp. *acrispum* has been shown to retain high genetic diversity after a ranching period with a similar grazing history (Riley et al. 2010, pp. 2020–2024) and occupies a similar range of habitats.

Redundancy

Redundancy describes the ability of a species to withstand catastrophic events. Redundancy is characterized by having sufficiently resilient populations distributed within the ecological settings of the species and across its range. Island bedstraw exhibits redundancy at two scales: across the northern islands and within each island where it occurs. First, it is distributed on two islands separated by a third, so the entire species is unlikely to be affected by any one catastrophic event. Second, more sites are known than at the time of listing on Santa Cruz Island, and population sizes are larger on both islands. Sites are distributed across the breadth of the northern shores of each island with gaps between groups of sites such that a single island catastrophe (like fire) would be unlikely to affect all sites at once.

Summary—Current Condition, Threats Influencing Viability

The major threats to island bedstraw at the time of listing were feral livestock grazing, trampling, and the resulting erosion. These major threats are either no longer relevant or have been minimized. The threats of small population size and loss of habitat to nonnative, invasive plants identified at the time of the 2009 5-year review have also been reduced. Additionally, there have been no apparent negative effects since the 2009 5-year review that are attributable to temperature and precipitation patterns associated with projected climate change trends.

Currently, island bedstraw is increasing in abundance and distribution and expanding beyond historically occupied areas and into more diverse habitats (*e.g.,* from cliff faces to terraces above the cliffs and movement into nonnative-dominated vegetation), indicating increasing resiliency, representation, and general overall adaptive capacity. Additionally, with a distribution on two islands (separated by a third) and more sites

now than at the time of listing with gaps between groups of sites within islands, a single island catastrophe would be unlikely to affect all sites at once. The catastrophic loss on one island would not affect the other islands, and the populations are spread out enough that there is some redundancy within islands.

The major remaining potential factor influencing island bedstraw population viability is climate change. Our current data do not show that the species is experiencing any significant effects from changing climate conditions.

Future Condition

Of the threats that have been discussed above, climate change remains the most reasonably foreseeable threat to persist and potentially affect island bedstraw. It is a potential catalyst of change for other threats and is expected to have multiple effects in the California Central Coast Region, including an increase in temperatures, changes in precipitation, sea level rise, and an increase in fire frequency (Langridge 2018, pp. 12–23). Fifty years is the evaluation timeframe for climate change because the best available information presented in the current integrated climate assessment for the Central California Coast forecast uses 2069 as its climate change analysis interval (Langridge 2018, pp. 12–23). The 50-year period integrates a wide amount of interannual variability in temperature and rainfall and contains typical drought cycles (NOAA NCEI 2019a, 2019b, 2019c). Sea level rise projections are from Griggs et al. 2017 (pp. 24–27), which is cited by Langridge 2018 (p. 24) as the latest California-focused sea level rise projections; Griggs et al. 2017 uses an 80-year timeframe.

We developed two future scenarios that capture the range of plausible effects to the species from a projected change in the factors influencing its viability over a 50-year period.

Future Scenario 1 summarizes effects of Representative Concentration Pathway (RCP) 4.5, and Future Scenario 2 summarizes effects of RCP8.5. The RCPs are based on alternate projections for climate change in the California Central Coast region based on Langridge (2018, pp. 12–22, 29–31) and Griggs et al. (2017, p. 27). RCP4.5 and RCP8.5 are described more fully in the SSA (Service 2021a, entire).

Under Future Scenario 1, the combination of increased temperature and increased rainfall support continued recruitment and expansion of island bedstraw over the next 50 years. Most vegetation is recovering island wide, and as it recovers, leaf litter depth and area of cover increase, as do subsurface roots. These factors protect the soil from direct impact and allow increased percolation of water into the soil. Surface flows are moderated, and erosion is reduced. Therefore, increasing rainfall does not substantially increase erosion, largely because most vegetation would benefit from the moderate additional rainfall and vegetation reduces the intensity of runoff. Moderate sea level rise could cause minor impacts from landslides on some Santa Cruz Island sites but not at the population level. If sea level rise is only a few feet, it will not directly impact many plants or sites because they are substantially higher in elevation. Because most sites are on relatively tough igneous rock, enough erosion will not occur to undermine and cause collapse of these coastal sites. Moreover, the negative effects of fire frequency on the species are not expected to increase, as vegetation flammability and ignition sources are not projected to increase. Few minor negative and some potential positive effects of climate change would occur under this future scenario, and sites are likely to persist while the species' abundance and range will continue to expand. Overall, Future Scenario 1 projects increases in abundance and expansion, which suggests resiliency would increase and representation and redundancy would remain stable for island bedstraw.

Under Future Scenario 2, during the next 50 years, temperatures are projected to increase over the current baseline even more than under Scenario 1, with rainfall also increasing over baseline but less than under Scenario 1. In addition, there is a projected increase in year-to-year variability with an increase in extreme dry events, drought conditions, and extreme rain events. The increase in extreme rain events would lead to flashier, more intense runoff.

Increased drying and drought events could lead to decreased soil moisture that will affect recruitment and adult survival, leading to less population expansion and possibly smaller increases in abundance, relative to Scenario 1. Rainfall events may increase the severity of runoff, which may dislodge or cover plants and lead to decreases in abundance. If conditions are severe enough, sites could be extirpated. The effects of sea level rise could be greater than in Scenario 1 for sites on sedimentary cliffs on the eastern end of the species' distribution on Santa Cruz Island. Undercutting from surf could increase landslides, eliminating some if not all plants in sites. Fire frequency and size could increase on Santa Cruz Island because of warmer temperatures, drier vegetation, windier conditions, increased lightning strikes, and increased visitor use over time that may lead to increased wildfire starts by the public. Fires could reduce abundance and eliminate sites. Overall, Future Scenario 2 projects decreases in abundance and expansion and potentially extirpation of sites, which suggests resiliency, representation, and redundancy could decrease for island bedstraw; however, given the improved habitat conditions for the species and increasing baseline distribution and abundance, we do not expect these threats to affect the species at the population level.

Summary of Species Potential Future Condition

Under Future Scenario 1, changes in abundance and distribution of island bedstraw continue on their current positive trajectory, with increasing numbers and site expansion. Under Scenario 2, some sites may decline and possibly become extirpated. Decreased soil moisture and drought are likely to negatively affect the species because recruitment, survivorship, and the rate of expansion would be slower than under Future Scenario 1, reducing resiliency. Increased soil and shoreline erosion and fire would also negatively affect island bedstraw by killing individuals and degrading habitat, reducing representation and redundancy. Given the improved habitat conditions for the species and increasing baseline distribution and abundance, we do not expect threat levels under either future scenario to affect the island bedstraw at the species level.

Island Bedstraw Overall Synthesis

Island bedstraw occurs on Santa Cruz and San Miguel Islands. At the time of listing, there were 19 known sites of island bedstraw, 13 on Santa Cruz Island and 6 on San Miguel Island. Currently, the number of sites known or presumed to be extant is 33 on Santa Cruz Island and 6 on San Miguel Island. The total estimated number of known individuals within those sites on both islands combined has increased from 512–603, at the time of listing, to at least 15,730, after recent helicopter surveys. This number (15,730) is likely an underestimate, because plant number estimates were not done at most sites during the helicopter surveys, but last had plant counts in the mid-2000s. Given the increase in the number of individuals at sites where plant number estimates were conducted during the

helicopter surveys, the sites that were last counted in the mid-2000s likely have more individuals. The major threats to island bedstraw at the time of listing, feral livestock grazing, trampling, and resulting erosion, are either no longer relevant or have been minimized. The threats of small population size and nonnative vegetation identified at the time of the 2009 5-year review have also been minimized. Currently, island bedstraw is increasing in abundance and distribution. It has shown demographic capacity for population growth at one site studied over a 10-year span and adaptive capacity by expansion beyond historically occupied areas and into more diverse habitats (*e.g.,* from cliff faces to terraces above the cliffs and movement into nonnative-dominated vegetation). The species also shows the ability to withstand some catastrophic events with its distribution on two islands (separated by a third), having more sites now than at the time of listing, and gaps between groups of sites within islands.

Potentially negative effects of future climate change remain, and we developed two future scenarios that capture the range of plausible effects to the species from projected changes in the factors influencing viability over a 50-year period. Climate change is expected to have multiple effects in the California Central Coast Region, including an increase in temperatures, change in precipitation, sea level rise, and increase in fire frequency. Future Scenarios 1 and 2 summarize effects of RCP4.5 and RCP8.5, respectively, based on projections for climate change in the California Central Coast Region derived from Langridge (2018, entire). Under Future Scenario 1, changes in abundance and distribution of island bedstraw continue on their current positive trajectory, with increasing numbers and site expansion. Under Future Scenario 2, some sites may decline and possibly become extirpated. Decreased soil moisture and drought are likely to negatively affect the species because recruitment, survivorship, and the rate of expansion would be slower than under Future Scenario 1. Increased erosion and fire would also negatively affect island bedstraw by killing individuals and reducing habitat. Given the improved habitat conditions for the species and increasing baseline distribution and abundance, we do not expect threat levels under either future scenario to affect the species at the population level.

Cumulative and synergistic interactions are possible between the effects of climate change and the effects of other potential threats, such as small population size, fire, and nonnative plant invasion. Increases in temperature and changes in precipitation are likely to cause increases in nonnative grasses, which are abundant in island bedstraw habitat. Increased grass abundance has the potential to carry fire more readily, which could affect the geographically limited population of island bedstraw. Uncertainty about how different plant species will respond under climate change, combined with uncertainty about how changes in plant species composition would affect suitability of island bedstraw habitat, make projecting possible cumulative and synergistic effects of climate change on island bedstraw challenging.

Our draft post-delisting monitoring plans will provide guidelines for evaluating both species following delisting to detect substantial declines that may lead to consideration of re-listing to threatened or endangered. Changes in land use will still be subject to State and Federal environmental review.

Santa Cruz Island Dudleya Biological Condition

The genus *Dudleya* is typically considered to be made up of three subgenera: Dudleya, Stylophyllum, and Hasseanthus, each of which at some time has been considered a distinct genus; Santa Cruz Island dudleya is in subgenus Hasseanthus.

Santa Cruz Island dudleya needs the right combination of position in soil, litter depth, and light to emerge from the seed and survive to and past the seedling stage. Seedlings and larger plants need seasonal soil moisture, light availability, and space to survive the dry season, reach a reproductive size, and successfully reproduce. The species, comprising a single population, needs a sufficiently broad distribution to adapt to changing environmental conditions and withstand catastrophic events. Finally, Santa Cruz Island dudleya needs a sufficient community of generalist pollinators to ensure effective pollination and seed set.

Santa Cruz Island dudleya is composed of one population and five subpopulations that occur in a general area of about 200 ha, although the total occupied area within that general area is about 13.7 ha (Schneider and Carson 2019, p. 10). The best information available suggests that, over the last 25 years, the population has fluctuated between at least 40,000 and 200,000 individuals and the current abundance is in the middle of that range (approximately 120,000 individuals). Past survey methods were not standardized, which limits our ability to confirm a definitive trend in abundance over time. However, the population at 120,000 is stable, and the most recent survey (Schneider and Carson 2019, entire) established robust survey methods that can be used in the future to detect changes in distribution and abundance.

Santa Cruz Island Dudleya Threats

At the time of listing, soil loss, herbivory by feral pigs (*Sus scrofa*), disturbance by pig rooting, and collecting for botanical or horticultural use were identified as threats to the species. The Recovery Plan identified the additional threats of competition from nonnative grasses, trampling by humans, and an increased risk of extinction from naturally occurring random events due to the species' limited distribution (Service 2000, p. 35). The 2009 5-year review also considered the effects of low genetic variability, climate change, and fire (Service 2009a, p. 12).

Soil Loss, Herbivory by Feral Pigs, Disturbance by Pig Rooting

In the original listing, the source of soil loss is specified as the result of feral ungulate activities (62 FR 40954, July 31, 1997; p. 40966). All feral ungulates were removed from Santa Cruz Island by 2006 (McEachern et al. 2016, pp. 759–760), eliminating that source of soil loss. Vegetation cover has increased significantly on Santa Cruz Island since 2006 (Beltran et al. 2014, p. 7), leading to reduced erosion and mitigating this threat.

Collecting for Botanical and Horticultural Use, Trampling by Humans

While Santa Cruz Island dudleya has a limited geographical range, it is very abundant where it is found. While Moran (1979) considered collecting to be a threat, McCabe (2004) did not. The species is in cultivation (*e.g.,* Trager 2004, entire) but is not often available for sale. It may be that the seasonal ephemerality of plants in the subgenus Hasseanthus makes Santa Cruz Island dudleya a plant not sought out for personal collections.

Trampling by humans is still a possible threat to the species, but it is unlikely to be a primary threat. TNC maintains a permit system for boaters that plan to land on TNC property (TNC 2020, p. 2), and offroad travel in the Fraser Point/Forney Cove area is prohibited to protect resources. TNC has erected signage in the area to reinforce the closure (Knapp pers. comm. 2021). Trespass occurs infrequently, and its

effects on Santa Cruz Island dudleya are likely to be light, especially in grassland locations away from the immediate coast because trespassers are more likely to stay close to the ocean.

Competition From Nonnative Annual Plants

Klinger et al. (unpublished entire) investigated the effects of nonnative grasses on Santa Cruz Island dudleya density. While the study offered no data about trends in overall abundance, Santa Cruz Island dudleya density declined in study plots in which annual grass density and litter increased. The study occurred before a major increase in the nonnative annual grass *Aegilops cylindrica* and does not explain a seemingly steady abundance of Santa Cruz Island dudleya over the years despite that increase. These differing findings suggest that the interactions among nonnative annual grasses and Santa Cruz Island dudleya are complex.

Moran (1979, p. 1) lists the nonnative annual succulent *Mesembryanthemum cystallinum* (crystalline ice plant) as found with Santa Cruz Island dudleya at Fraser Point. McCabe (2004, p. 269) lists *M. crystallinum* as a threat to Santa Cruz Island dudleya but does not define how it is a threat. *M. crystallinum* can dominate coastal vegetation by increasing soil salinity to levels higher than that tolerated by some native plants (Vivrette and Muller 1977, pp. 315–317), but it is unknown if this situation is a threat to Santa Cruz Island dudleya. *M. crystallinum* has been reported to be periodically abundant in the coastal bluff scrub vegetation, cycling with *Lasthenia gracilis* (common goldfields), depending on rainfall and temperature combinations (Vivrette 2002, entire). Schneider and Carson (2019) do not report *M. crystallinum* as common in their surveys. The data do not indicate if *M. crystallinum* is at a low abundance in a cycle or if there has been a major change in vegetation that may have disrupted the cycle.

Random Extinctions of Small Populations

The Recovery Plan identified randomly occurring natural events as threats to Santa Cruz Island dudleya (Service 2000, p. 35) because the species has a single population with a limited distribution over a small range. The 2009 5-year review (Service 2009a, p. 12) specified low genetic variability (inferred by small population size), climate change, and fire and emphasized their importance as threats to the continued existence of Santa Cruz Island dudleya, given its single population and limited distribution.

Low Genetic Variability

Because Santa Cruz Island dudleya has a single population with a small range, the genetic variability and the resiliency of the species to human-caused or natural disasters may be low (Ellstrand and Elam 1993, pp. 232–237). No studies have been done of genetic variability in Santa Cruz Island dudleya, but the 2009 5-year review speculated that species might have inherently low genetic diversity. If so, this situation has likely been the case throughout the existence of this species, and there is no indication that this level of genetic variability is a threat to the species or contributes to low population resiliency or viability.

Climate Change

Santa Cruz Island lies off mainland Santa Barbara and Ventura Counties. Of the two counties, Santa Barbara County is the better model for assessing climate impacts on the species since the flora of the northern Channel Islands is generally considered to have similar affinities (Raven and Axelrod 1995, pp. 63–64). Annual average (NOAA NCEI 2019a) and maximum (NOAA NCEI 2019b) temperatures for Santa Barbara County for 2014–2018 have been the highest recorded since 1895. Rainfall does not show such distinct trends. However, except for 2017, annual rainfall for 2011–2018 has been below the 1885–2018 mean (NOAA NCEI 2109c), with 2013 and 2015 being two of the five driest years since 1885.

In general, increased temperature and decreased rainfall could negatively affect survival and reproduction of the species. However, these recent increases in annual average and maximum temperatures and lower annual rainfall (combined with the removal of nonnative herbivores) do not seem to have adversely affected Santa Cruz Island dudleya abundance or distribution. The most recent survey (Schneider and Carson 2019, p. 11) shows an increased overall abundance and an additional subpopulation (figure 5) since the last surveys of 2006 (McEachern et al. 2010, p. 12), although one subpopulation did decrease in abundance.

A new threat to the species may be sea level rise. Sea level rise has been slow over the 20th century but has accelerated and is expected to keep accelerating (Sievanen et al. 2018, pp. 16–18). Sea level is expected to rise 0.4 to 1.1 m (16–43 in) by 2100 (Griggs et al. 2017, pp. 24–27). Sea level rise could affect Santa Cruz Island dudleya in two ways. First, some plants are close enough to the ocean that they can be directly impacted and dislodged by surf action. However, most plants are high enough up on the marine terrace that direct impacts of the surf would not affect them. Second, rising sea level and larger waves could undercut the sea cliffs and bluffs, causing slumps and landslides, and disturbing or destroying whole groups of plants. Most plants, however, are sufficiently inland that they would not be affected.

Fire

Neither natural nor anthropogenic fires are as common on the northern Channel Islands as on the adjacent mainland (Carroll et al. 1993, pp. 82–85). Just four natural fires have been known to occur on the northern Channel Islands in the last 165 years. More human-caused fires, mostly from machinery operation or uncontrolled campfires, have occurred. Campfires are prohibited in Channel Islands National Park, but they occasionally happen on isolated beaches on TNC property on Santa Cruz Island (Knapp pers. comm. 2020), and clandestine prohibited smoking is frequent. Three human-caused brush fires have occurred on Santa Cruz in the last 15 years: a vehicle-caused fire in 2007 (Knapp pers. comm. 2020), a biomass reduction burn escape in 2018 (Knapp pers. comm. 2020), and a construction-related fire in 2020 (KEYT 2020).

While no fires are known to have impacted the species, fire has been and remains a concern for land managers (Knapp pers. comm. 2020). Passive restoration after removal of feral ungulates (Beltran et al. 2014, entire) has increased fuel loads, and the results of a fire could be severe. With five distinct subpopulations across different vegetation types, the chance of a fire causing the extinction of the entire population of the species is reduced. However, each subpopulation is still within 400 m of another, which is relatively close in the event of a wind-driven wildfire.

Resiliency, Representation, Redundancy

Resiliency

Resiliency describes the ability of populations to withstand stochastic events. Resiliency is positively related to population size and growth rate and may be influenced by connectivity among populations. Recent research and survey efforts have shown Santa Cruz Island dudleya is at least stable in population size at 40,000–200,000 individuals over the last 25 years with

an increase in distribution (Schneider and Carson 2019, entire).

Currently, the single Santa Cruz Island dudleya population appears to have no trend of increasing or decreasing abundance, but the lack of standardized surveys makes it difficult to draw conclusions about changes in species abundance and distribution. Additional surveys over an appropriate time span and area are needed to document changes in abundance and further changes in distribution.

Threats to the species identified at listing have been removed, including soil loss, herbivory by feral pigs, disturbance by pig rooting, and collecting for botanical or horticultural use (62 FR 40954, July 31, 1997; p. 40959). We have found no evidence to show that trampling by humans or low genetic variability are currently affecting abundance, and resiliency is not increasing or decreasing. Remaining potential threats include competition from nonnative grasses, climate change, and fire. These threats may affect sparsely vegetated areas, suitable temperatures, and adequate soil moisture/rainfall needed for survival and reproduction, thereby decreasing the abundance and distribution of Santa Cruz Island dudleya. However, except for negative effects of nonnative grasses (Klinger unpublished entire), the effects of these factors on resiliency have not been studied, but they do not appear to be currently adversely affecting the species.

Representation

Representation describes the ability of a species to adapt to changing environmental conditions over time. It is characterized by the breadth of genetic, phenotypic, and ecological diversity within and among populations. No genetic analysis has been conducted to reveal the genetic diversity within Santa Cruz Island dudleya compared to other *Dudleya,* especially other members of subgenus Hasseanthus. Santa Cruz Island dudleya is limited to a small area, but within that area, plants are growing in a variety of combinations of distance from the ocean, substrate type, and vegetation type, which may reflect some amount of adaptive capacity within the population. It is unknown whether representation has changed for this species since it was first described.

Redundancy

Redundancy describes the ability of a species to withstand catastrophic events. Redundancy is characterized by having multiple, sufficiently resilient populations distributed within the ecological settings of the species and across its range. Santa Cruz Island dudleya has inherently low redundancy as a narrow endemic with only a single population in a relatively small geographic range. However, there are physical gaps between subpopulations, and the subpopulations occur in different vegetation types that could carry fire differently. Subpopulations also occur at different elevations, and some are protected from extreme wave events. Although germinable seeds are found in natural soil samples, the amount of seed in the natural soil seed bank is unknown (Wilken 1996, p. 25). Redundancy is somewhat bolstered by a high number of seeds that have recently been seed-banked at the SBBG (Service 2000, table 3, p. 25).

Additionally, an active grant issued under section 6 of the Act (Schneider 2017, pp. 4–6, 13) calls for bulking that banked seed (in progress) and establishing two new ''populations'' on Santa Cruz Island (planned but delayed because of the Covid–19 pandemic). These activities will continue into 2023 with additional NPS funding (McEachern et al. 2019a, pp. 9, 11).

Summary—Current Condition, Threats Influencing Viability

Several major threats to Santa Cruz Island dudleya identified at the time of listing, including soil loss, herbivory by feral pigs, and disturbance by pig rooting, have been removed or are no longer occurring. Collecting for botanical and horticultural use and trampling by humans also no longer pose threats to the species due to controls on access. Nonnative plants continue to occur with the species and do not seem to have affected population size, although no recent study on the specific effects of particular nonnatives or how changes in the nonnative assemblage might alter those effects has been undertaken. The threat of small population size still exists, as does concern about climate change and fire, but since the 2009 5-year review, there is no evidence that these potential threats have affected the species.

Santa Cruz Island dudleya abundance is apparently not increasing or decreasing in an obvious way, but data over time are lacking. Recent research and survey efforts have shown Santa Cruz Island dudleya is at least stable in population size over the last 25 years with an increase in distribution (Schneider and Carson 2019, entire).

Some amount of adaptive capacity is demonstrated in the variation in vegetation types and elevation where Santa Cruz Island dudleya is found. While the elevational range seems small and vegetation differences may seem negligible if gauged simply by absolute plant height, the locations where individuals of the species grow are remarkably varied. At the lowest elevations, the plants are in open native forb scrub that are likely subjected to relatively high amounts of salt spray. Soils here are influenced by the wind and are somewhat rocky. We suspect that here the primary stressors on the plants are from the physical environment. By contrast, higher up on the terraces, plants are in dense nonnative grassland with deeper soil that is less affected by salt spray. Given how dense the grasses are, we suspect that the primary stressor to the species must be competition. The two habitats grade into each other at some sites. In both situations, the species seems to be doing fine, and robust plants are showing good reproductive effort. The adaptability of this plant through disparate habitat zones is similar to a large species of tree capable of growing in open deserts or savanna to dense forests with similar-sized trees. We suspect that there must be quite a bit of phenotypic plasticity or genetic variability (adaptive capacity) that lets the species do well in such different conditions.

With only one population, redundancy is inherently low, but that issue may be mitigated somewhat by the diversity of the locations in which the species occurs, the presence of a seed bank, and the limited potential and extent of the most likely catastrophic threat. The most likely potential catastrophic threat to the species is fire. Fire has affected some mainland *Dudleya* species dramatically, while others seem to endure little mortality from being burned. We do not have specific fire data for Santa Cruz Island dudleya. While fire could be carried in areas where it occurs in dense grass, lower elevation areas are so open that fire is unlikely to spread there, so there is redundancy for the species, even over its small geographic range.

Future Condition

Of the threats that have been discussed above, climate change remains the most reasonably foreseeable to persist and potentially affect Santa Cruz Island dudleya. It is a potential catalyst of change for other threats and is expected to have multiple effects in the California Central Coast Region, including an increase in temperatures, change in precipitation, sea level rise, and increase in fire frequency (Langridge 2018, pp. 12–23). Fifty years is the evaluation timeframe for climate change because the best available

information presented in the current integrated climate assessment for the Central California Coast forecast uses 2069 as its climate change analysis interval (Langridge 2018, pp. 12–23). The 50-year period integrates a wide amount of interannual variability in temperature and rainfall and contains typical drought cycles (NOAA NCEI 2019a, 2019b, 2019c). Sea level rise projections are from Griggs et al. 2017 (pp. 24–27), which is cited by Langridge 2018 (p. 24) as the latest California-focused sea level rise projections; Griggs et al. 2017 uses an 80-year timeframe.

We developed two future scenarios that capture the range of plausible effects to the species from projected changes in the factors influencing its viability over a 50-year period. Future Scenario 1 summarizes effects of RCP4.5, and Future Scenario 2 summarizes effects of RCP8.5. The RCPs are alternate projections for climate change in the California Central Coast Region based on Langridge (2018, pp. 12–22, 29–31) and Griggs et al. (2017, p. 27). Under Future Scenario 1 (RCP scenario 4.5 for climate change), the combination of increased temperature and rainfall continue over the next 50 years but not at levels anticipated to affect current levels of recruitment and survivorship. Moderate sea level rise could cause minor impacts from coastal bluff undercutting at the lowest elevation sites. Under RCP4.5, anticipated sea level rise is less than 1 m, which is less likely to cause damage than the sea level rise under RCP8.5. Negative effects of fire frequency on the species are not expected to increase, as vegetation flammability and ignition sources are not projected to increase. Because there are few negative effects of climate change under RCP4.5, the population is likely to maintain viability, if not expand. Overall, under Scenario 1, we project stability or increases in abundance and distribution, which suggests resiliency, representation, and redundancy would remain similar to the current condition for Santa Cruz Island dudleya.

Under Future Scenario 2 (RCP scenario 8.5 for climate change), temperature and rainfall increase, with fewer, more intense rain events, with a net result that soil moisture decreases over the next 50 years. The decreased soil moisture affects recruitment and adult survival, leading to decreases in expansion, and possibly abundance. If conditions are severe enough, subpopulations could be extirpated. The effects of competition with nonnative annual grasses will increase with rising temperatures and likely affect recruitment and expansion of the species. The effects of sea level rise could be substantial for plants on coastal bluffs. Undercutting from surf and erosion from episodic rainfall could increase the occurrence of landslides, eliminating some if not all plants on coastal bluffs. Fire frequency and size could increase because of warmer temperatures, drier vegetation, windier conditions, increased lightning strikes, and increased visitor use over time due to increases in human population. Fires could reduce abundance and distribution of the species. Overall, under Scenario 2, we project a decrease in abundance and a reduced rate of expansion, and potentially the extirpation of subpopulations, which suggests resiliency, representation, and redundancy could decrease for Santa Cruz Island dudleya. Given the improved habitat conditions for the species and apparently stable baseline distribution and abundance, we do not expect threat levels under either future scenario to affect the species at the population level.

Summary of Species Potential Future Condition

Under Future Scenario 1, maintenance of recruitment and survivorship continue over the next 50 years. Because few negative effects of climate change are expected under Scenario 1, the population is likely to maintain viability, if not expand. Overall, Scenario 1 predicts little or no change in abundance and distribution, which suggests resiliency, representation, and redundancy would remain comparable to current levels for Santa Cruz Island dudleya. Under Scenario 2, decreases in abundance and reduced geographic expansion and potentially extirpation of subpopulations could occur, which suggests resiliency, representation, and redundancy could decrease for Santa Cruz Island dudleya. Given the improved habitat conditions for the species and apparently stable baseline distribution and abundance, we do not expect threat levels under either future scenario to affect the species at the population level.

Santa Cruz Island Dudleya Overall Synthesis

Santa Cruz Island dudleya is composed of one population and five subpopulations that occur in a total occupied area of 13.7 ha in a general area of about 200 ha (Schneider and Carson 2019, p. 10) on the westernmost tip of Santa Cruz Island. Over the last 25 years, the population has fluctuated between at least 40,000 and 200,000 individuals, and abundance is currently approximately 120,000 individuals.

Several major threats to Santa Cruz Island dudleya identified at the time of listing have been removed or are no longer occurring. Collecting for botanical and horticultural use and trampling by humans also no longer pose threats to the species due to controls on access. Nonnative plants continue to occur with the species. The risk associated with small population size still exists, as does concern about climate change and fire, but since the 2009 5-year review, there is no evidence that these risk factors have affected the species. Santa Cruz Island dudleya abundance is apparently not increasing or decreasing in an obvious way, nor is resiliency increasing or decreasing. Some amount of representation is demonstrated in variation in vegetation types and elevation where Santa Cruz Island dudleya is found. Redundancy is inherently low with only one population, but that issue may be mitigated somewhat by the diversity of the locations in which the species occurs and the presence of a seed bank, and the limited potential and extent of wildfire. We do not have specific fire data for Santa Cruz Island dudleya. While fire could be carried in areas where it occurs in dense grass, lower elevation areas are so open that fire is unlikely to spread there, so there is redundancy for the species, even over its small geographic range.

Under Future Scenario 1 (RCP scenario 4.5 for climate change), the combination of increased temperature and rainfall continue over the next 50 years but not at levels anticipated to affect current levels of recruitment and survivorship. Moderate sea level rise could cause minor impacts from coastal bluff undercutting at the lowest elevation sites. The effects of fire on the species are not expected to increase. Because few negative effects of climate change are expected under RCP4.5, the population is likely to maintain viability, if not expand. Overall, under Scenario 1, we project stability or increases in abundance and distribution, which suggests resiliency, representation, and redundancy would remain similar to the current condition for Santa Cruz Island dudleya.

Under Future Scenario 2 (RCP scenario 8.5 for climate change), temperature and rainfall increase, with fewer, more intense rain events, with a net result that soil moisture decreases (due to drought) over the next 50 years. The decreased soil moisture affects recruitment and adult survival, leading to decreases in expansion, and possibly abundance. If conditions are severe

enough, subpopulations could be extirpated. The effects of competition with nonnative annual grasses will increase and likely affect recruitment and expansion of the species. The effects of sea level rise could be substantial for plants on coastal bluffs. Undercutting from surf and erosion from episodic rainfall could increase the occurrence of landslides, eliminating some if not all plants on coastal bluffs. Fire frequency and size could increase because of warmer temperatures, drier vegetation, windier conditions, increased lightning strikes, and increased visitor use over time with increases in the human population. Fires could reduce abundance and distribution of the species. Overall, under Scenario 2, we project a decrease in abundance and a reduced rate of expansion, and potentially the extirpation of subpopulations, which suggests resiliency, representation, and redundancy could decrease for Santa Cruz Island dudleya. Given the improved habitat conditions for the species and apparently stable baseline distribution and abundance, we do not expect threat levels under either future scenario to affect the species at the population level.

Cumulative and synergistic interactions are possible between the effects of climate change and the effects of other potential threats, such as small population size, fire, and nonnative plant invasion. Increases in temperature and changes in precipitation are likely to cause increases in nonnative grasses, which are abundant in Santa Cruz Island dudleya habitat. Increased grass abundance can possibly more readily carry fire, which could affect the geographically limited population of Santa Cruz Island dudleya. Uncertainty about how different plant species will respond under climate change, combined with uncertainty about how changes in plant species composition would affect suitability of Santa Cruz Island dudleya habitat, make projecting possible cumulative and synergistic effects of climate change on Santa Cruz Island dudleya challenging.

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on each of the species, but we have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize the current and future condition of the species. To assess the current and future condition of the species, we undertake an iterative analysis that encompasses and incorporates the threats individually and then accumulates and evaluates the effects of all the factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

Our draft post-delisting monitoring plan will provide guidelines for evaluating both species following delisting to detect substantial declines that may lead to consideration of re-listing to threatened or endangered. Changes in land use will still be subject to State and Federal environmental review.

Island Bedstraw and Santa Cruz Island Dudleya Conservation Efforts and Regulatory Mechanisms

State Protections

Island bedstraw and Santa Cruz Island dudleya are both listed as State Rare by the State of California under the Native Plant Protection Act of 1977 (Fish and Game Code chapter 10, sections 1900–1913) and the California Endangered Species Act of 1984 (California Code of Regulations, title 14, chapter 6, sections 783.0–787.9; Fish and Game Code chapter 1.5, sections 2050–2115.5) and so they receive special considerations for their protection by the State of California under the California Environmental Quality Act (CEQA) for California permitted projects on private TNC land. The official California listing of endangered and threatened species is contained in the California Code of Regulations, title 14, section 670.5.

Island bedstraw is listed as 1B.2 by the California Native Plant Society (CNPS), meaning it is considered rare, threatened, or endangered in California or elsewhere and moderately threatened in California. Santa Cruz Island dudleya is listed as 1B.1 by the California Native Plant Society (CNPS), meaning it is considered rare, threatened, or endangered in California or elsewhere and seriously threatened in California. A cooperative relationship exists between the California Department of Fish and Wildlife—California Natural Diversity Database (CNDDB) (the State) and CNPS. The ''threatened'' category means two different things in the CNPS rankings. The first ''threatened category'' (''considered rare, threatened, or endangered in California or elsewhere'') refers to a government agency (*e.g.,* Service, CDFW) or nongovernmental organization (NGO) (*e.g.,* CNPS, NatureServe) having formally declared a plant in some sense to be rare, threatened, or endangered. The second threatened category (''moderately threatened in California'' for bedstraw and ''seriously threatened in California'' for dudleya) are estimates at the time of listing (by CNPS or CDFW) about the degree to which the species is under threat (in the sense that something might harm the species). They have different ranking systems for rare plants but work together on them. Because of the efforts of the CNDDB program and CNPS to bring attention to rare plants through these parallel ranking systems, these plants receive some attention via the CEQA and the National Environmental Policy Act (CNDDB and CNPS, 2020).

Federal and Federal Partner Protections

We evaluated whether any existing regulatory mechanisms or other voluntary conservation efforts may have ameliorated any of the threats acting on island bedstraw and Santa Cruz Island dudleya. All of the land on which both species occur is managed by TNC or NPS for conservation of unique island species and habitats. The most significant single action has been the elimination of feral ungulates and feral pigs by TNC and NPS, as discussed above. The elimination of feral ungulates and feral pigs has eliminated the major sources of soil loss, habitat alteration, and herbivory affecting the species. This effort has resulted in passive restoration of the vegetation. It is likely that the positive effects of the feral ungulate and feral pig removal will continue into the future.

Determination of Status for Island Bedstraw and Santa Cruz Island Dudleya

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of an endangered species or a threatened species. The Act defines an ''endangered species'' as a species that is in danger of extinction throughout all or a significant portion of its range and a ''threatened species'' as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of an endangered species or a threatened species because of any of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial,

recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence.

Status Throughout the Range

Island Bedstraw

Through this proposed rule, we have assessed the section 4(a)(1) factors by evaluating the best scientific and commercial information available regarding the past, present, and future threats faced by island bedstraw. We have found that the major threats to island bedstraw at the time of listing, feral livestock grazing (Factor A), trampling (Factor A), and the resulting erosion (Factor A), have either been removed or have been minimized. The threats of risk from small population size (Factor E) and loss of habitat to nonnative invasive plants (Factor A) identified in the 2009 5-year review have also been minimized.

At the time of listing, there were 19 known sites of island bedstraw, 13 on Santa Cruz Island and 6 on San Miguel Island. Currently, the number of sites known or presumed to be extant has grown to 33 on Santa Cruz Island and continues at 6 on San Miguel Island. The total estimated number of known individuals within those sites on both islands combined has increased from 512–603 before listing to at least 15,730. Currently, island bedstraw is increasing in abundance and distribution. It has shown demographic capacity for population growth and adaptive capacity by expansion beyond historically occupied areas into more diverse habitats (*e.g.,* from cliff faces to terraces above the cliffs and movement into nonnative-dominated vegetation), indicating increasing resiliency, representation, and generally overall adaptive capacity. The species also shows the ability to withstand catastrophic events because it is distributed on two islands, has more sites now than at the time of listing, and has gaps between groups of sites within islands. A single island catastrophe would be unlikely to affect all sites at once.

Although climate change (Factor E) has had no apparent effects since the 2009 5-year review, the potentially negative effects of climate change remain and may still impact the species, but such impacts are not currently causing the species to be in danger of extinction. The best available information indicates that overutilization (Factor B), disease (Factor C), predation (herbivory) (Factor C), and the inadequacy of existing regulatory mechanisms (Factor D) are not currently affecting the species throughout its range. The existing regulatory mechanisms will remain in place to ensure the continued persistence of island bedstraw occurrences and suitable potential habitat even if the species is delisted and protections under the Act are removed.

All of the occurrences of island bedstraw are on Federal and private lands that are protected and managed for conservation by the NPS and TNC. Both NPS and TNC have natural resource conservation as part of their mission. For example, the mission of TNC is to conserve the lands and waters on which all life depends. The TNC vision is a world where the diversity of life thrives and people act to conserve nature for its own sake and its ability to fulfill our needs and enrich lives. The NPS preserves unimpaired the natural and cultural resources and values of the NPS System for the enjoyment, education, and inspiration of this and future generations. The NPS cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world. Thus, after assessing the best available information, we conclude that island bedstraw is not currently in danger of extinction throughout all of its range and, therefore, does not meet the definition of an endangered species.

In order to assess whether the species is likely to become in danger of extinction within the foreseeable future, we evaluated any remaining future threats. The major remaining potential threat influencing island bedstraw population viability in the future is climate change. Future climate change is expected to have multiple effects in the California Central Coast Region, including increases in temperatures, changes in precipitation, sea level rise, and increases in fire frequency (Langridge 2018, pp. 12–23). Fifty years is the evaluation timeframe for climate change because the best available information presented in the current integrated climate assessment for the Central California Coast forecast uses 2069 as its climate change analysis interval (Langridge 2018, pp. 12–23). The 50-year period integrates a wide amount of interannual variability in temperature and rainfall and contains typical drought cycles (NOAA NCEI 2019a, 2019b, 2019c). Sea level rise projections are from Griggs et al. 2017 (pp. 24–27), which is cited by Langridge 2018 (p. 24) as the latest California-focused sea level rise projections; Griggs et al. 2017 uses an 80-year timeframe.

We developed two future scenarios that capture the range of plausible effects to the species from projected changes in factors influencing viability over a 50-year period. Future Scenario 1 summarizes effects of RCP4.5, and Future Scenario 2 summarizes effects of RCP8.5 projections for climate change in the California Central Coast Region based on Langridge (2018, entire). Under Future Scenario 1, changes in abundance and distribution of island bedstraw continue on their current positive trajectory, with increasing numbers and site expansion. Under Future Scenario 2, some sites may decline and possibly become extirpated. Decreased soil moisture and drought are likely to negatively affect the species because recruitment, survivorship, and the rate of expansion would be lower. Increased erosion and fire would also negatively affect island bedstraw by killing individuals and reducing habitat. Negative impacts to individuals may occur under RCP8.5 but given the current improvement in habitat and increases in distribution and abundance, we do not think that the impacts will rise to a population level such that the species is likely to become endangered in the foreseeable future throughout its range. Therefore, the currently predicted changes in climate do not indicate that the species may become endangered due to those changes in the foreseeable future throughout its range. Thus, after assessing the best available information, we conclude that island bedstraw is not currently in danger of extinction or likely to become so within the foreseeable future throughout all of its range.

Santa Cruz Island Dudleya

Through this proposed rule, we have assessed the section 4(a)(1) factors by evaluating the best scientific and commercial information available regarding the past, present, and future threats faced by Santa Cruz Island dudleya. We have found that the major threats to Santa Cruz Island dudleya identified at the time of listing have either been removed or have been minimized, due to the removal of feral pigs from Santa Cruz Island by NPS. Those prior threats included soil loss (Factor A), herbivory by feral pigs (Factor A), and disturbance by pig rooting (Factor A). The threats of collecting for botanical and horticultural use (Factor B) and trampling by humans (Factor A) also have been reduced by conservation and protection measures implemented by NPS and no longer

appear to pose threats to the species. At the time of listing, nonnative plants (Factor A) as a whole were considered a threat to island native plant species in general, though there have been no recent studies of the effects of individual nonnative species or of the shifting composition of nonnatives on the persistence of Santa Cruz Island dudleya. However, non-native plants are not considered to be a concern as they were at the time of listing because the species is stable. The threats presented by the risk of small population size (Factor E), climate change (Factor E), and fire (Factor E) still exist, but since the 2009 5-year review there is no evidence that these threats have affected Santa Cruz Island dudleya. We determined that disease (Factor C), predation (herbivory) (Factor C), and the inadequacy of existing regulatory mechanisms (Factor D) are not currently affecting Santa Cruz Island dudleya throughout its range. The existing regulatory mechanisms in place ensure the continued persistence of Santa Cruz Island dudleya occurrences and suitable potential habitat even if the species is delisted and protections under the Act are removed; the single occurrence is on private land and is protected and managed for conservation by TNC. Thus, after assessing the best available information, we conclude that Santa Cruz Island dudleya is not currently in danger of extinction throughout all of its range and, therefore, does not meet the definition of an endangered species.

In order to assess whether the species is likely to become in danger of extinction within the foreseeable future, we evaluated any remaining future threats. Similar to island bedstraw, as discussed above, the major remaining potential factor influencing Santa Cruz Island dudleya viability in the future is climate change. Santa Cruz Island dudleya occurs with nonnative plants (Factor A), which are still considered a threat, though there have been no comprehensive studies that project the future effects of individual nonnative species or of the shifting composition of nonnatives on the persistence of Santa Cruz Island dudleya. However, non-native plants are not considered to be a concern as they were at the time of listing because the species is projected to be either increasing or stable in the future. The threats presented by the risk of small population size (Factor E), climate change (Factor E), and fire (Factor E) may continue into the future, but since the 2009 5-year review, there is no evidence that these threats have significantly affected Santa Cruz Island dudleya and we do not think this will change in the foreseeable future. Negative impacts to individuals may occur under climate change RCP8.5 but given the improvement in habitat conditions and apparent baseline population stability, we find that the impacts will not likely rise to a population level such that the species would be likely to become endangered in the foreseeable future. Therefore, the currently predicted changes in climate do not indicate that the species may become endangered due to those changes in the foreseeable future.

Thus, after assessing the best available information, we conclude that Santa Cruz Island dudleya is not currently in danger of extinction or likely to become so within the foreseeable future throughout all of its range.

Status in Significant Portion of Their Ranges

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. Since we determined that neither species warrants continued listing as endangered or threatened throughout their ranges, we proceed to evaluating whether the species are threatened or endangered in a significant portion of their range—that is, whether there is any portion of the species' range for which both (1) the portion is significant and (2) the species is in danger of extinction now, or likely to become so in the foreseeable future, in that portion. Depending on the case, it might be more efficient for us to address the ''significance'' question or the ''status'' question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species' range.

In undertaking this analysis for island bedstraw and Santa Cruz Island dudleya, we choose to address the status question first. We consider information pertaining to the geographic distribution of the species and the threats that the species faces to identify any portions of the range where the species may be threatened or endangered.

For island bedstraw, we considered whether the threats are geographically concentrated in any portion of the species' range at a biologically meaningful scale. Island bedstraw consists of 33 sites on Santa Cruz Island and 6 sites on San Miguel Island where each site is treated as a separate population. The total estimated number of known individuals is at least 15,730 after recent helicopter surveys occurred in a general area of about 6,000 ha (15,000 acres), although the total occupied area within that general area is much less (has not been estimated). We examined the following threats to island bedstraw: feral livestock grazing, trampling, erosion, small population size, and climate change including cumulative effects.

We found that the major threats to island bedstraw at the time of listing, feral livestock grazing, trampling, and resulting erosion, have largely been eliminated on both Santa Cruz and San Miguel Islands. The elimination of these threats also minimized the threats of small population size and nonnative vegetation on both islands. The major remaining potential factor influencing island bedstraw population viability is climate change. Our current analysis does not show that the species is experiencing any significant effects from changing climate conditions in any of the populations on either island, or that the species will in the foreseeable future. We did not find any biologically meaningful portion of island bedstraw's range where the condition of the species differs from its condition elsewhere in its range such that the status of the species in that portion differs from any other portion of the species' range either now or in the foreseeable future. Therefore, there is no difference in the status of the species in any portion of the range because we have determined that the threat of climate change is acting on the species evenly throughout the range now and in the foreseeable future.

Thus, there are no portions of the species' range where the species has a different status from its rangewide status. Therefore, no portion of the species' range can provide a basis for determining that the species is in danger of extinction now or likely to become so in the foreseeable future in a significant portion of its range, and we find the species is not in danger of extinction now or likely to become so in the foreseeable future in any significant portion of its range.

Two court decisions (*Desert Survivors* v. *U.S. Department of the Interior,* 321 F. Supp. 3d 1011, 1070–1074 (N.D. Cal. 2018) and *Center for Biological Diversity* v. *Jewell,* 248 F. Supp. 3d 946, 959 (D. Ariz. 2017)) held that aspects of the definition of ''significant'' in the Final Policy on Interpretation of the Phrase ''Significant Portion of Its Range'' in the Endangered Species Act's Definitions of ''Endangered Species'' and ''Threatened Species'' (''Final Policy''; 79 FR 37577, July 1, 2014), are invalid. However, in

reaching our conclusion regarding island bedstraw, we did not need to consider whether any portions of the range are significant. Therefore, this finding does not conflict with the courts' holdings regarding the definition of ''significant.''

Santa Cruz Island dudleya occurs in a general area of about 200 ha, although the total occupied area within that general area is about 13.7 ha (Schneider and Carson 2019 p. 10). The area can be divided into five sites or subpopulations, each within 400 m of another, that function as a single, contiguous population. Therefore, according to the definition of the California Natural Diversity Database (CNDDB 2018 p. 3), these sites comprise a single occurrence. Previous work on gene flow in a population of another member of the subgenus Hasseanthus, *Dudleya multicaulis* (Marchant et al. 1998, pp. 217–219) that is similarly dispersed, suggests that all *D. nesiotica* subpopulations probably comprise a single mixing population. Thus, due to being a narrow endemic that functions as a single, contiguous population and occurs within a very small area, there is no biologically meaningful way to break the limited range of Santa Cruz Island dudleya into notable portions. This means that no portions of the species' range have a different status from its rangewide status. Therefore, no portion of the species' range can provide a basis for determining that the species is in danger of extinction now or likely to become so in the foreseeable future in any significant portion of its range.

As explained above for our finding regarding island bedstraw, this finding does not conflict with the courts' holdings in *Desert Survivors* v. *U.S. Department of the Interior,* 321 F. Supp. 3d 1011, 1070–1074 (N.D. Cal. 2018), and *Center for Biological Diversity* v. *Jewell,* 248 F. Supp. 3d. 946, 959 (D. Ariz. 2017) because, in reaching this conclusion, we did not need to consider whether any portions are significant and therefore did not apply the aspects of the Final Policy's definition of ''significant'' that those court decisions held were invalid.

Determination of Status

Our review of the best scientific and commercial data available indicates that island bedstraw and Santa Cruz Island dudleya do not meet the definition of endangered species or threatened species in accordance with sections 3(6) and 3(20) of the Act. In accordance with our regulations at 50 CFR 424.11(e)(2), Island bedstraw and Santa Cruz Island dudleya have recovered. Therefore, we propose to remove island bedstraw and Santa Cruz Island dudleya from the Federal List of Endangered and Threatened Plants.

Effects of This Rule

This proposed rule, if made final, would revise 50 CFR 17.12(h) by removing island bedstraw and Santa Cruz Island dudleya from the Federal List of Endangered and Threatened Plants. The prohibitions and conservation measures provided by the Act, particularly through sections 7 and 9, would no longer apply to these species. Federal agencies would no longer be required to consult with the Service under section 7 of the Act in the event that activities they authorize, fund, or carry out may affect island bedstraw and Santa Cruz Island dudleya. No critical habitat is designated for island bedstraw or Santa Cruz Island dudleya, so this rulemaking action would have no effect on 50 CFR 17.96.

Post-Delisting Monitoring

Section 4(g)(1) of the Act requires us, in cooperation with the States, to implement a monitoring program for not less than 5 years for all species that have been delisted due to recovery. The purpose of this requirement is to develop a program that detects the failure of any delisted species to sustain itself without the protective measures provided by the Act. If, at any time during the monitoring period, data indicate that protective status under the Act should be reinstated, we can initiate listing procedures, including, if appropriate, emergency listing.

We are proposing to delist island bedstraw and Santa Cruz Island dudleya based on our analysis in the SSA report, expert opinions, and conservation and recovery actions taken. Since delisting would be, in part, due to conservation actions taken by stakeholders, we have prepared draft post-delisting monitoring (PDM) plans for island bedstraw and Santa Cruz Island dudleya. The draft PDM plans describe the methods proposed for monitoring if we delist these taxa. The draft PDM plans: (1) describe frequency and duration of monitoring; (2) discuss monitoring methods and potential sampling regimes; (3) define what potential triggers will be evaluated to address the need for additional monitoring; (4) outline reporting requirements and procedures; (5) propose a schedule for implementing the PDM plans; and (6) define responsibilities. It is our intent to work with our partners towards maintaining the recovered status of island bedstraw and Santa Cruz Island dudleya. We will seek public and peer reviewer comments on the draft PDM plans, including their objectives and procedures (see **FOR FURTHER INFORMATION CONTACT** and Information Requested, above), with the publication of this proposed rule.

Required Determinations

Clarity of the Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*), need not be prepared in connection with determining a species' listing status under the Endangered Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206

of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. No Tribal lands are associated with this proposed rule.

References Cited

A complete list of references cited in this rulemaking is available on the internet at *https://www.regulations.gov* and upon request from the Ventura Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are staff members of the Fish and Wildlife Service's Species Assessment Team and the Ventura Fish and Wildlife Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Plants, Reporting and recordkeeping requirements, Transportation, Wildlife.

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; 4201–4245, unless otherwise noted.

§ 17.12 [Amended]

■ 2. In § 17.12, in paragraph (h) amend the table ''List of Endangered and Threatened Plants'' by removing the entries for ''*Dudleya nesiotica*'' and ''*Galium buxifolium*'' under Flowering Plants.

Stephen Guertin,

Acting Director, U.S. Fish and Wildlife Service.

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