

**Recovery Plan for Marsh Sandwort (*Arenaria paludicola*) and Gambel's Watercress (*Rorippa gambelii*)**

**Original Approved:** 1998

**Original Prepared by:** Ventura Fish and Wildlife Office

**AMENDMENT 1**

We have identified best available information that indicates the need to amend recovery criteria for these species since the recovery plan was completed. In this modification, we synthesize the adequacy of the existing recovery criteria, show amended recovery criteria, and the rationale supporting the recovery plan modification. The modification is shown as an appendix that supplements the recovery plan, superseding only section II.A. (pp. 30-31) for *Arenaria paludicola* (Marsh sandwort) and *Rorippa gambelii* [*Nasturtium gambelii*] (Gambel's watercress) of the recovery plan.

**For  
U.S. Fish and Wildlife Service  
Pacific Southwest Region  
Ventura, CA**

**September 2019**

**BACKGROUND INFORMATION**

Recovery plans should be consulted frequently, used to initiate recovery activities, and updated as needed. A review of the recovery plan and its implementation may show that the plan is out of date or its usefulness is limited, and therefore warrants modification. Keeping recovery plans current ensures that the species benefits through timely, partner-coordinated implementation based on the best available information. The need for, and extent of, plan modifications will vary considerably among plans. Maintaining a useful and current recovery plan depends on the scope and complexity of the initial plan, the structure of the document, and the involvement of stakeholders.

An amendment involves a substantial rewrite of a portion of a recovery plan that changes any of the statutory elements. The need for an amendment may be triggered when, among other possibilities: (1) the current recovery plan is out of compliance with regard to statutory requirements; (2) new information has been identified, such as population-level threats to the species or previously unknown life history traits, that necessitates new or refined recovery actions and/or criteria; or (3) the current recovery plan is not achieving its objectives. The amendment replaces only that specific portion of the recovery plan, supplementing the existing recovery plan, but not completely replacing it. An amendment may be most appropriate if significant plan improvements are needed, but resources are too scarce to accomplish a full recovery plan revision in a short time.

Although it would be inappropriate for an amendment to include changes in the recovery program that contradict the approved recovery plan, it could incorporate study findings that enhance the scientific basis of the plan, or that reduce uncertainties as to the life history, threats, or species' response to management. An amendment could serve a critical function while awaiting a revised recovery plan by: (1) refining and/or prioritizing recovery actions that need to be emphasized, (2) refining recovery criteria, or (3) adding a species to a multispecies or ecosystem plan. An amendment can, therefore, efficiently balance resources spent on modifying a plan against those spent on managing implementation of ongoing recovery actions.

#### **METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT**

This amendment was prepared by the Ventura Fish and Wildlife Office. We used information from our files, the California Natural Diversity Database maintained by the California Department of Fish and Game, and information from species experts. The amended criteria will be peer reviewed in accordance with the OMB Peer Review Bulletin following the publication of the Notice of Availability.

#### **ADEQUACY OF RECOVERY CRITERIA**

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, "objective, measurable criteria which, when met, would result in a determination...that the species be removed from the list." Legal challenges to recovery plans (see *Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Audit (GAO 2006) also have affirmed the need to frame recovery criteria in terms of threats assessed under the five delisting factors.

#### **Recovery Criteria**

See previous version of criteria in recovery plan for *Arenaria paludicola* (Marsh sandwort) and *Rorippa gambellii* [*Nasturtium gambellii*] (Gambel's watercress) on pages 30-31.

#### **Synthesis**

##### *Arenaria paludicola* (Marsh sandwort)

*Arenaria paludicola* is an herbaceous perennial in the Caryophyllaceae (pink family). It has trailing stems that can be up to 39 inches (in) (1 meter (m)) long and are often supported and hidden by surrounding vegetation. *Arenaria paludicola* has small, white flowers that are borne singly on long stalks arising from the leaf axils (point of leaf attachment to the stem). This plant can reproduce asexually and easily roots from leaf nodes. It will produce adventitious roots on the trailing stems that come in contact with suitable conditions. This species typically blooms from May through August. At the time of listing, *Arenaria paludicola* was known from a single natural occurrence within Black Lake Canyon, in southwestern San Luis Obispo County. Its historic range is thought to extend along the Pacific Coast from Washington state south throughout Southern California.

A 5-Year Review for the species was conducted in 2008 and *Arenaria paludicola* was still known only from a single wild occurrence. However, this 2008 occurrence was different than the location known at the time of listing, which had become extirpated to spite several unsuccessful

outplanting attempts. The newly discovered occurrence was found at Oso Flaco Lake, but was also in a state of decline. In addition to plants at this site, another successful outplanting was established at the Sweet Springs Nature Preserve, managed and owned by the Morro Coast Audubon Society. Since that time, several other outplanting efforts have taken place and occurrences have been established at sites in Marin and Santa Cruz counties. The main threats to the species include habitat modification from invasive species, climate change and resultant sea level rise and stochastic (random and unpredictable) extirpation and extinction.

*Nasturtium gambelii* (Gambel's watercress)

*Nasturtium gambelii* (formerly known as *Rorippa gambelii*) is a rhizomatous perennial herb in the Brassicaceae (mustard family) that can grow up to six feet (2 meters) tall. It has small white flowers, born on an elongated stalk where the bottom flowers open first and it typically blooms May through August. The species occurs in marsh and wetland habitats and its historic range is thought to extend from southwestern San Luis Obispo County south along the coast and east into Los Angeles and Riverside counties. At the time of listing in 1993, *Nasturtium gambelii* was restricted to only three known locations, all within San Luis Obispo County.

A 5-Year Review was conducted for the species in 2011 and at this time all of these three occurrences had evidence of introgression with the more abundant *N. officinale* (common watercress). No *Nasturtium gambelii* was observed at several of the sites and these only supported the common watercress species (Service 2011, entire). Another natural occurrence of *Nasturtium gambelii* was discovered in 1996, on Vandenberg Air Force Base in Santa Barbara County and this occurrence is thought to remain genetically pure. The primary threats to *Nasturtium gambelii* are loss and degradation of suitable habitat due to development and urbanization, invasive species, stochastic extirpation/extinction events and continued hybridization with common watercress.

#### **AMENDED RECOVERY CRITERIA**

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened, or that the protections afforded by the Act are no longer necessary and *Arenaria paludicola* (Marsh sandwort) and *Nasturtium gambelii* (Gambel's watercress) may be delisted. Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from endangered to threatened. The term "endangered species" means any species (species, sub-species, or DPS) which is in danger of extinction throughout all or a significant portion of its range. The term "threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

We provide both downlisting and delisting criteria for the *Arenaria paludicola* (marsh sandwort) and *Nasturtium gambelii* (Gambel's watercress), which will supersede those included in the Recovery Plan for Marsh Sandwort (*Arenaria paludicola*) and Gambel's Watercress (*Rorippa gambelii*) as follows:

#### Current recovery criteria

The main objective for the long-term management and recovery of *Arenaria paludicola* and *Rorippa gambelii* is to secure viable, self-sustaining populations of both species in their natural habitats. The objective is to reclassify them from endangered to threatened status, and ultimately to delist them completely.

Preliminary criteria for downlisting are:

- 1) new plants of each species are established so that there are at least 5 populations of at least 500 individuals each,
- 2) some of these populations occur in permanently protected habitats in Black Lake Canyon and the Dune Lakes area,
- 3) some of the populations must be in other areas of suitable habitat within the species' historical ranges in the United States, and
- 4) the populations remain viable for at least 5 years.

Viable populations are defined as those that are showing natural reproduction and either stable or increasing in size over time, without artificial augmentation.

Permanent protection of habitats means not only protection of the sites through permanent securing of the sites through ownership or conservation easements, permanent arrangements for appropriate management, and substantial progress by managers towards assuring habitats are appropriately managed to minimize threats.

#### Amended recovery criteria

##### *Arenaria paludicola* (marsh sandwort)

Delisting may be warranted when the downlisting criteria have been met and the species exhibits sufficient resiliency, redundancy, and representation to support long-term viability. For this species, the historical distribution of colonies within four geographically separated areas (Puget Sound in Washington State, San Francisco Bay to Santa Cruz, central coastal region (Santa Barbara County to Los Angeles County), and San Bernardino County) is important for its resiliency, redundancy, and representation. With respect to resiliency, propagation and outplanting efforts over the last decade have shown that this species has a potential to propagate vegetatively, though with the caveat that much of the vegetatively-propagated material represents a small genetic stock. Redundancy has been somewhat increased, as the species is now extant in two of the four geographic areas it used to occur. On the other hand, one outplanted population in the central coastal region was recently extirpated due to a stochastic event. While representation has been increased somewhat on a regional scale, this is tempered by the fact that, on a microhabitat scale, this species has a very narrow tolerance for soil moisture and salinity conditions, as elucidated by the outplanting trials; therefore, there are a limited number of locations where those habitat conditions can be met for future outplanting efforts.

When the downlisting criteria have been met for a species, the species can be considered for delisting if:

- 1) threats are reduced or eliminated so that protected populations are capable of persisting without significant human intervention or perpetual endowments are secured for management

necessary to maintain the continued existence of the species. The most outstanding management needs currently are: a) controlling competition with nonnative species, and b) managing water conditions, particularly flow and salinity, that the species depends on.

2) protected populations are established across the species ecological settings (in addition to Black Lake Canyon and the Dune Lakes area), including San Mateo Creek in San Onofre State Park in Orange County or comparable site(s) in that region; the San Antonio Creek drainage on Vandenberg Air Force Base in Santa Barbara County or comparable site(s) in that region; and wetlands in Golden Gate National Recreation Area in San Francisco County or comparable site(s) in that region; and

3) the populations remain viable for at least 10 years. Because this species has narrow microhabitat conditions that it will tolerate, particularly with respect to soil moisture and salinity, and in light of fluctuations that can occur with climatic conditions, local groundwater table levels, and saltwater intrusion events, the persistence of populations with these varying conditions over time needs to be confirmed.

#### *Nasturtium gambelii* (Gambel's watercress)

Delisting may be warranted when the downlisting criteria have been met and the species exhibits sufficient resiliency, redundancy, and representation to support long-term viability. For this taxon, the historical distribution of colonies within three geographically separated areas (coastal portions of San Luis Obispo County, Santa Barbara County, and San Bernardino County) is important for its resiliency, redundancy, and representation. The species is currently represented by only one small population in the wild. The species has the potential of having high resiliency, based on its ability to propagate vegetatively, both in the greenhouse and in the wild. However, this is tempered by the fact that, due to the ubiquitousness of common watercress (*Nasturtium officinale*), the genetic purity of the wild population has already been partially compromised by the presence of common watercress, and any efforts to outplant *N. gambelii* in other locations may face the same challenge.

When the downlisting criteria have been met for a species, the species can be considered for delisting if:

1) threats are reduced or eliminated so that protected populations are capable of persisting without significant human intervention or perpetual endowments are secured for management necessary to maintain the continued existence of the species. The most outstanding management needs currently are: a) controlling competition with nonnative species and hybridization with common watercress, and b) managing water conditions, particularly flow and nutrient loads, that the species depends on.

2) populations are established across the species ecological settings (in addition to Black Lake Canyon and the Dune Lakes area in San Luis Obispo County), including suitable site(s) in the Santa Barbara County and Ventura County region (e.g.; the San Antonio Creek drainage on Vandenberg Air Force Base or comparable sites); and coastal wetlands in Los Angeles, Orange, or San Bernardino Counties; and

3) the populations remain viable for at least 10 years. Because this species has narrow microhabitat conditions that it will tolerate, particularly with respect to water flow and nutrient loads, and in light of fluctuations that can occur with climatic conditions and local water

availability and nutrient loading, the persistence of populations with these varying conditions over time needs to be confirmed.

All classification decisions consider the following five factors: (1) is there a present or threatened destruction, modification, or curtailment of the species' habitat or range; (2) is the species subject to overutilization for commercial, recreational scientific or educational purposes; (3) is disease or predation a factor; (4) are there inadequate existing regulatory mechanisms in place outside the ESA (taking into account the efforts by states and other organizations to protect the species or habitat); and (5) are other natural or manmade factors affecting its continued existence. When delisting or downlisting a species, we first propose the action in the *Federal Register* and seek public comment and peer review. Our final decision is announced in the *Federal Register*.

### **Rationale for Recovery Criteria**

We have amended the recovery criteria for *Arenaria paludicola* (Marsh sandwort) and *Nasturtium gambelii* (Gambel's watercress) to include delisting criteria that incorporate the biodiversity principles of representation, resiliency, and redundancy (Schaffer and Stein 2000) and threats addressed under the five factors. Legal challenges to recovery plans have affirmed the need to frame recovery criteria in terms of threats assessed under the five factors (see *Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995)). A 2006 Government Accountability Office audit of NMFS' and FWS' endangered species recovery programs recommended that the Secretaries of Commerce and Interior direct their staff to ensure that all new and revised recovery plans have either recovery criteria evidencing consideration of all five factors, or a statement regarding why it is not practicable to do so (GAO 2006).

## LITERATURE CITED

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- Schaffer, M. L., and B. A. Stein. 2000. Safeguarding our precious heritage (Chapter 11), in B.A. Stein, L.S. Kutner, and J.S. Adams editors, Precious heritage: the status of biodiversity in the United States. Oxford University Press, New York: 301-321.
- U.S. Fish and Wildlife Service (Service) 2008. *Arenaria paludicola* (Marsh sandwort) 5-Year Review: Summary and Evaluation. Ventura Fish and Wildlife Office.
- U.S. Fish and Wildlife Service (Service) 2011. *Rorippa gambellii* [*Nasturtium gambellii*] (Gambel's watercress) 5-Year Review: Summary and Evaluation. Ventura Fish and Wildlife Office.
- Zedler, P.H. and C. Black. 1989. Observations on the creation of artificial habitat for species preservation. Presentation at: Endangered Plant Program Workshop on restoration and creation of vernal pools, Sacramento CA February 14-15, 1989. See pp 3-5, and figures 1 and 2.

## APPENDIX A – SUMMARY OF PUBLIC, PARTNER, AND PEER REVIEW COMMENTS RECEIVED

### Summary of Public Comments

We published a notice of availability in the *Federal Register* on January 31, 2019 (84 FR 790-795) to announce that the proposed recovery plan amendment was available for public review, and to solicit comments by the scientific community, State and Federal agencies, Tribal governments, and other interested parties on the general information base, assumptions, and conclusions presented in the draft revision. An electronic version of the proposed recovery plan amendment was posted on the Service's Species Profile website ([https://ecos.fws.gov/docs/recovery\\_plan/Draft%20Recovery%20Plan%20Amendment%20NAGA%20ROGA.pdf](https://ecos.fws.gov/docs/recovery_plan/Draft%20Recovery%20Plan%20Amendment%20NAGA%20ROGA.pdf)). We also developed and implemented an outreach plan that included (1) publishing a news release on our national webpage (<https://www.fws.gov/news/>) on January 30, 2019, (2) sending specific notifications to Congressional contacts (D-20 Rep. Jimmy Panetta, D-18 Rep. Anna Eshoo, and D-24 Rep. Salud Carbajal), and (3) sending specific notifications to key stakeholders in conservation and recovery efforts. These outreach efforts were conducted in advance of the *Federal Register* publication to ensure that we provided adequate notification to all potentially interested audiences of the opportunity to review and comment on the proposed recovery plan amendment.

### Summary of Public Review Comments

*Comment (1):* Concern that, “criteria are being added in the absence of any scientific peer review and that this will lead to a failure on the Service’s part to follow the best-available science.”

*Response:* Peer review was conducted following the publication of the Notice of Availability, and in accordance with the requirements of the Endangered Species Act (Act). We provide a detailed summary of peer review comments below.

*Comment (2):* Concern that, “the decision to update recovery criteria for these 42 species as a group is indicative of the Service moving away from utilizing recovery teams and outside scientific expertise.”

*Response:* Section 4 of the Act provides the Service with the authority and discretion to appoint recovery teams for the purpose of developing and implementing recovery plans. The current effort to update recovery plans with quantitative recovery criteria for what constitutes a recovered species is not indicative of the future need for, and does not preclude the future utilization of, recovery teams to complete recovery planning needs for listed species.

*Comment (3):* New and significant information has been developed in the years since the existing recovery plan was adopted. Updating this plan can serve to better inform the Service, the regulated community, and Federal, State, and local resource agencies.

*Response:* We agree. A recovery plan should be a living document, reflecting meaningful change when new substantive information becomes available. Keeping a recovery plan current

increases its usefulness in recovering a species by ensuring that the species benefits through timely, partner-coordinated implementation based on the best available information.

*Comment (4):* The Service should consider whether the updated recovery criteria would be less burdensome on Federal agencies and the regulated community than the existing criteria.

*Response:* Recovery plans are guidance documents that outline how best to help listed species achieve recovery, but they are not regulatory documents. Recovery plans are intended to establish goals for long-term conservation of listed species and define criteria that are designed to indicate when the threats facing a species have been removed or reduced to such an extent that the species may no longer need the protections of the Act.

Recovery criteria are achieved through the funding and implementation of recovery actions by both the Service and our partners. In addition to the existing recovery actions included in each of these recovery plans, the amendments address the need for any new, site-specific recovery actions triggered by the modification of recovery criteria, along with the costs, timing, and priority of any such additional actions. Because recovery plans are not regulatory documents, identification of an action to be implemented by any public or private party does not create a legal obligation beyond existing legal requirements. Nothing in a recovery plan should be construed as a commitment or requirement that any Federal agency obligate or provide funds.

*Comment (5):* The Service should consider whether the recovery criteria are achievable, because including unattainable recovery criteria could render such plans meaningless, or impede other processes under the Act.

*Response:* The National Marine Fisheries Service and U.S. Fish and Wildlife Service Interim Endangered and Threatened Species Recovery Plan Guidance (2010) emphasizes the development of recovery criteria that are specific, measurable, achievable, realistic, and time-referenced (SMART). The achievable component of SMART criteria implies that the authority, funding, and staffing needed to meet recovery criteria are feasible, even if not always likely.

In developing recovery criteria specifically, we attempt to establish criteria that are both scientifically defensible and achievable to the greatest extent possible. At times, however, the feasibility of achieving certain criteria can be, or appear to be, constrained by the particular, difficult circumstances that face a species. Even in such cases, criteria serve to guide recovery actions and priorities for the species. Furthermore, as recovery progresses, periodic reevaluation of the species status through the 5-year review process may reveal that the barriers to achieving certain criteria have been removed or that circumstances or our understanding of the species have evolved. In that event, the Service can revise recovery criteria to ensure that they reflect the strategy most likely to succeed in the goal of recovery.

*Comment (6):* The Service should consider conservation efforts that have been put into place for the listed species since the previous iteration of the recovery plan, especially where the Service has supported conservation efforts, in formulating recovery criteria that will be established or amended by the revised draft plan.

*Response:* We agree. While section 4 of the Act directs the Service to specifically develop and implement recovery plans, several other sections of the Act and associated programs and activities also provide important opportunities to promote recovery. Information from these programs and activities about the biological needs of the species can inform recovery planning (including the formulation or revision of recovery criteria) and implementation. These conservation efforts have been considered during the development of this and other recovery plans.

*Comment (7):* The Service should determine whether ongoing species conservation efforts beneficially address one or more of the listing factors set forth in the Act implementing regulations addressing species listings and designation of critical habitat.

*Response:* All Service decisions that affect the listed status or critical habitat designation of a particular species, including our 5-year review of each listed species, are made by analyzing the five factors described in section 4 of the Act. Such an analysis necessarily includes an assessment of any conservation efforts or other actions that may mitigate or reduce impacts on the species. While our objective with this particular effort was to establish objective, measurable criteria for delisting, conservation actions play a crucial role in determining if and when those criteria have been satisfied.

*Comment (8):* The Service should be mindful of the impacts that recovery plan criteria can have on the section 7 process of the Act for the regulated community, because the Service and other Federal resource agencies sometimes request that recovery criteria be addressed in biological assessments and other planning processes under the Act addressing listed species.

*Response:* We agree. Recovery plans can both inform, and be informed by section 7 processes of the Act. When revising a recovery plan, existing section 7 consultations may provide helpful information on: recent threats and mechanisms to avoid, minimize, or compensate for impacts associated with those threats; a summarized status of the species; and indication of who important partners may be. Section 7 consultations can inform the need for revised recovery actions, recovery implementation schedule activities, recovery criteria, or species status assessments to provide more comprehensive recovery planning while the species remains listed.

*Comment (9):* The Service should include the full panoply of current information available for the species in all revised draft recovery plans.

*Response:* Our recovery planning guidance recommends that recovery planning be supported by compilation of available information that supports the best possible scientific understanding of the species. Although it is not necessary to exhaustively include all current information within the text of the recovery plan, to the extent that this information is specifically relevant and useful to recovery, the recovery plan may summarize such material or incorporate it by reference. Supporting biological information may also be included within a species status assessment or biological report separate from the recovery plan document itself.

*Comment (10):* The Service should consider whether the existing recovery plan should be revised or replaced in its entirety rather than amended in part.

*Response:* Under guidance established in 2010, partial revisions allow the Service to efficiently and effectively update recovery plans with the latest science and information when a recovery plan may not warrant the time or resources required to undertake a full revision of the plan. To further gauge whether we had assembled, considered, and incorporated the best available scientific and commercial information into this recovery plan revision, we solicited submission of any information, during the public comment period, that would enhance the necessary understanding of the species' biology and threats, and recovery needs and related implementation issues or concerns. We believe the recovery plan amendment, which targets updating recovery criteria, is appropriate for the species. However, we will also continue to evaluate the accuracy and usefulness of the existing recovery plan with respect to current information and status of conservation actions, and may pursue a full revision of the plan in the future, if appropriate.

### **Summary of Peer Review Comments**

We solicited independent peer review between the draft and final revision of the plan amendment in accordance with the requirements of the Act from academic and scientific groups. Criteria used for selecting peer reviewers included their demonstrated expertise and specialized knowledge related to *Arenaria paludicola* (Marsh sandwort) and *Rorippa gambellii* [*Nasturtium gambellii*] (Gambel's watercress). The qualifications of the peer reviewers are in the decision file and the administrative record for this recovery plan amendment.

In total, we solicited review and comment from 3 peer reviewers. We received comments from 1 peer reviewer. In general, the draft recovery plan revision was well-received by the reviewer who asked for additional information in the final version.

We considered all substantive comments, and to the extent appropriate, we incorporated the applicable information or suggested changes into the final revised recovery plan. We addressed the reviewer's specific comments and incorporated their suggestions as changes to the final revised recovery plan. Such comments did not warrant an explicit response, and as such, are not addressed here. We appreciate the input from the commenter, which helped us to consider and incorporate the best available scientific and commercial information during development and approval of the final revised recovery plan amendment.

## Recovery Plan Amendments for 10 Pacific Southwest Species

The U.S. Fish and Wildlife Service has identified best available information that indicates the need to amend recovery criteria for the species listed below. Each amendment is recognized as an addendum that supplements the specific portions of the existing recovery plans.

<b>Recovery Plan for Insect and Plant Taxa from the Santa Cruz Mountains in California</b> Original Recovery Plan Approved: 1998 Page(s) Superseded: 45-48 Species Included: <i>Chorizanthe robusta</i> var. <i>hartwegii</i> (Scotts Valley spineflower)
<b>Recovery Plan for Five Plants from Monterey County, California</b> Original Recovery Plan Approved: 2004 Pages superseded: 49-56 Species Included: <i>Astragalus tener</i> var. <i>titi</i> (coastal dunes milk-vetch) <i>Piperia yadonii</i> (Yadon's piperia) <i>Potentilla hickmanii</i> (Hickman's potentilla) <i>Trifolium trichocalyx</i> (Monterey clover)
<b>Recovery Plan for the Morro Shoulderband Snail and Four Plants from Western San Luis Obispo County, California</b> Original Recovery Plan Approved: 1998 Pages Superseded: 41-43 Species Included: <i>Eriodictyon altissimum</i> (Indian Knob mountainbalm) <i>Cirsium fontinale</i> var. <i>obispoense</i> (Chorro Creek bog thistle) <i>Clarkia speciosa</i> ssp. <i>immaculata</i> (Pismo clarkia)
<b>Recovery Plan for Marsh Sandwort (<i>Arenaria paludicola</i>) and Gambel's Watercress (<i>Rorippa gambelii</i>)</b> Original Recovery Plan Approved: 1998 Pages superseded: 30-31 Species Included: <i>Arenaria paludicola</i> (Marsh sandwort) <i>Rorippa gambelii</i> [ <i>Nasturtium gambelii</i> ] (Gambel's watercress)

**For  
U.S. Fish and Wildlife Service  
Pacific Southwest Region  
Ventura, CA**

**September 2019**

Approved: \_\_\_\_\_

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke, positioned above a horizontal line.

Regional Director, U.S. Fish and Wildlife Service  
Pacific Southwest Region

Date: \_\_\_\_\_

9/13/19