

Recovery Plan for the Morro Shoulderband Snail and Four Plants from Western San Luis Obispo County, California

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. pp. 41-43 for *Eriodictyon altissimum* (Indian Knob mountainbalm), *Cirsium fontinale* var. *obispoense* (Chorro Creek bog thistle), and *Clarkia speciosa* ssp. *immaculata* (Pismo clarkia) 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 A review of the recovery plan and its implementation may show that the plan is out of date or its usefulness is limited, and therefore warrants modification.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 were 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 *Eriodictyon altissimum* (Indian Knob mountainbalm), *Cirsium fontinale* var. *obispoense* (Chorro Creek bog thistle), and *Clarkia speciosa* ssp. *immaculata* (Pismo clarkia), pp. 41-43.

Synthesis

Eriodictyon altissimum (Indian Knob mountainbalm)

Eriodictyon altissimum is a perennial plant species endemic to southwestern San Luis Obispo County, California. It is included in the family (Nymphaeaceae). *Eriodictyon altissimum* is a relatively weak, diffusely-branched evergreen shrub that can reach heights up to 18 feet (5.5 meters). The linear leaves are somewhat sticky and the lavender flowers are arranged in coiled clusters. Reproduction is believed to be primarily vegetative by underground rhizomes, although the flowers also produce tiny seeds. *Eriodictyon altissimum* occurs within coastal dune scrub and coastal chaparral plant communities where it grows on sand and sandstone.

Our 2019 5-year review determined that *Eriodictyon altissimum* remains endangered in 2019 (Service 2019, entire). Of the seven known occurrences, five are extant and two are likely

extirpated. One extant occurrence is large with more than 6,000 stems in 2016, while four extant occurrences are small with 80 stems or less in 2016. Two extant occurrences are in decline, and the trends for three extant occurrence are unknown because of the lack of prior monitoring. Six occurrences are in protected areas, and one occurrence is mostly in a protected area. The geographic range of the species is small (13 square miles /34 square kilometers), and the occupied area is small (0.9 square miles/2.3 square kilometers). For all plants in this amendment, we define an occurrence as a group of individuals that are separated by at least 0.25 mile from other groups of individuals of the same species or subspecies. The quality of the habitat for *E. altissimum* is continuing to decline, specifically by the vegetation becoming denser and the lack of recent fire. The genetics of the species is unknown, and there is potential for clonal colonies and clonal occurrences in which the stems/ramets have the same genetic constitution. There is only little management, if any, of the seven known occurrences (Kofron *et al.* 2019, entire).

The 2018 Central Coast Summary Report from California's Fourth Climate Change Assessment indicates that maximum and minimum temperatures for the Central Coast will continue to increase through the next century, with greater increases in the inland region; precipitation is expected to increase slightly, but precipitation variability will increase substantially (Langridge 2018, entire). Thus, changing climate may be a threat to all plants covered in this recovery plan amendment.

Cirsium fontinale var. *obispoense* (Chorro Creek bog thistle)

Cirsium fontinale var. *obispoense* (Asteraceae) is a biennial or short-lived perennial plant up to 6.6 feet (2 meters) tall that occurs only in San Luis Obispo County, west of the outer Coast Ranges. It is a serpentine endemic, occupying perennial seeps and springs in serpentine soil and rock in western San Luis Obispo County from San Simeon Creek to south of the city of San Luis Obispo. At listing in 1994, it was known from nine occurrences (one of these presumed extirpated) and with an estimate of less than 3,000 individuals. Two occurrences were protected. The identified threats were cattle grazing (trampling and herbivory), proposed development and water diversions, road maintenance, inadequacy of existing regulatory mechanisms, stochastic events (in particular drought), and invasive plants. In our 2014 5-year review (Service 2014), we reported 19 occurrences of which eight were entirely protected.

Based upon the most recent information (Kofron and Havlik 2016, entire), the situation of *Cirsium fontinale* var. *obispoense* has substantially improved since listing because of an increased number of known occurrences ($n = 21$) along with an increased number of occurrences that are now protected ($n = 10$). Ten occurrences were surveyed during the 5-year period from 2012 to 2016, during which 5,128 plants were recorded and with one of these occurrences having zero plants. Survey data for the other 10 occurrences are not current. Five occurrences were last surveyed from 1994 to 2011, and five other occurrences were last surveyed from 1987 to 1993. Kofron and Havlik (2016) identified the following immediate threats: invasive plants (5 occurrences), development (3 occurrences), native plants (2 occurrences), water extraction and cattle trampling (1 occurrence), road and utility maintenance (1 occurrence), agriculture (1 occurrence), and unknown (4 occurrences). Four occurrences had no immediate threats. The Eurasian flower-head weevil and climate change with severe drought were newly identified threats.

Clarkia speciosa ssp. *immaculata* (Pismo clarkia)

Clarkia speciosa subsp. *immaculata* is an annual herb, in the primrose family (Onagraceae) with branched stems and distinct, radially symmetric flowers. The flowers are magenta and bright white in the center towards the base of the petals and the species typically flowers May through July. This species is generally associated with sandy soils thought to be derived from marine terraces primarily from the Pismo formation, within chaparral, oak woodland, and annual grassland habitats and is known to occur in transitional zones between these types of plant communities. Pismo clarkia is endemic to western San Luis Obispo County and occupies areas between the San Luis Obispo Valley and Arroyo Grande, southeast to the upper portions of the Nipomo Mesa.

At the time of our last 5-Year Review (Service 2009b, entire), we determined that while more occurrences have been found in recent years, the overall status of this species is not improving. Development has adversely affected or threatens to adversely nearly all of the known occurrences and fragmentation due to development is a serious concern for the survival of the species as a whole. There are only two occurrences that are currently afforded protections. However, these sites do not meet the “secured from human-induced threats” recovery criterion in the recovery plan. The main threat to this species is urban growth/development causing a loss of individuals and occurrences, as well as a loss of suitable but currently unoccupied habitat. Invasive species, most notably *Ehrharta calycina* (perennial veldt grass), also pose a threat to Pismo clarkia.

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 *Eriodictyon altissimum* (Indian Knob mountainbalm), *Cirsium fontinale* var. *obispoense* (Chorro Creek bog thistle), and *Clarkia speciosa* ssp. *immaculata* (Pismo clarkia) 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 *Eriodictyon altissimum* (Indian Knob mountainbalm), *Cirsium fontinale* var. *obispoense* (Chorro Creek bog thistle), and *Clarkia speciosa* ssp. *immaculata* (Pismo clarkia) which will supersede those included in the Recovery Plan for the Morro Shoulderband Snail and Four Plants from Western San Luis Obispo County, California as follows:

Current recovery criteria

Eriodictyon altissimum (Indian Knob mountainbalm)

The current recovery objective for Indian Knob mountainbalm is reclassification to threatened status. The Service is providing only downlisting criteria at this time, because so little information is available on this species' reproductive biology, demography, and response to fire, and whether existing occurrences are composed of one or multiple genetic individuals. As management and life history information become available, recovery criteria will be revised and delisting criteria will be developed. Indian Knob mountainbalm can be considered for downlisting when all three of the following have been achieved: (1) at least five occurrences from throughout its range are on lands secure from human-induced threats, (2) surrounding habitat is protected in amounts adequate to permit management of the vegetation community using prescribed fire, if it is deemed beneficial for the species, and (3) occurrences are projected to be self-sustaining and either stable or increasing as determined from long-term monitoring and research results.

Cirsium fontinale var. *obispoense* (Chorro Creek bog thistle)

The current recovery objective for Chorro Creek bog thistle is reclassification to threatened status. The Service is providing only downlisting criteria at this time, because so little information is available on this species' hydrologic needs, pollination biology, requirements for seedling establishment, and demographic fluctuations in response to environmental variation. As information on life history and management become available, recovery criteria will be revised and delisting criteria will be developed. Chorro Creek bog thistle may be considered for downlisting when (1) occurrences from throughout the range of this species, each made up of multiple colonies, and their habitat at six sites are secure from human-induced threats, including water diversions or drawdowns, (2) at least three of these sites are in protected areas of greater than 100 acres and occurrences are deemed viable and stable or increasing as determined by monitoring over a precipitation cycle that includes multiple years of below average rainfall, (3) protected sites are being managed in a way that will support the continued existence of Chorro Creek bog thistle occurrences and their wetland habitats, and (4) management is effective, as shown by at least ten years of monitoring.

Clarkia speciosa ssp. *immaculata* (Pismo clarkia)

The current recovery objective for Pismo clarkia is reclassification to threatened status. The Service is providing only downlisting criteria at this time, because so little information is available on this plant's reproductive biology, soil seedbank dynamics, response to livestock grazing and population dynamics within its suitable habitat. As information on life history and response to management activities becomes available, recovery criteria will be revised and delisting criteria will be developed. Pismo clarkia can be considered for downlisting when (1) eight occurrences are on lands secured from human-induced threats with adequate surrounding habitat to permit natural expansion and movement as suitable microhabitats shift in the landscape, (2) the eight protected occurrences represent the plant's entire range, (3) these occurrences must be large, stable or increasing (a minimum of ten years of monitoring is needed

because sizes fluctuate due to precipitation), and (4) management of these occurrences and associated lands in the future must be reasonably assured for the long term, and must be effective, as demonstrated by stable or increasing occurrences.

Amended recovery criteria

Eriodictyon altissimum (Indian Knob mountainbalm)

Delisting Criteria: 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 distribution of occurrences within two geographically separated areas (Morro Bay area and Indian Knob area) is important to redundancy, and representation. With respect to resiliency, the extant occurrences in the Morro Bay area are in declines or with unknown trend, and represented by a small number of stems ($n = 62$; Kofron et al. 2019).

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 occurrences 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) integrate, or find a replacement for, a fire regime as a means of revitalizing declining or senescing colonies; b) manage adjacent shrub habitat through thinning to provide sufficient space for the species to expand in numbers, and c) educational signing to deter the public from cutting shrubs along trails;
- 2) the occurrences remain viable for at least 15 years to demonstrate long-term viability under a range of environmental conditions. Rangewide surveys in 2016 and 2017 provide a baseline for numbers of stems or individuals, and in some cases, additional information regarding vigor of individuals, as measured by size. These data should provide a basis for monitoring occurrence attributes to determine viability over time, and;
- 3) an *ex situ* collection of plant material is established in a Center for Plant Conservation-affiliated botanic garden. A soil seedbank would typically provide a strategy for a species to regenerate populations in the face of stochastic events as well as natural senescence. However, this species is suspected to have low seed production. Research on seed production and viability will be undertaken in the near future. Whether reproduction through banked seed proves to be efficacious or not, reproduction through vegetative propagation (e.g. cuttings) also holds potential as a means of replenishing occurrences, should it be necessary in the future.

Cirsium fontinale var. *obispoense* (Chorro Creek bog thistle)

Delisting Criteria: 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.

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 occurrences are capable of persisting without significant human intervention or perpetual endowments are secured for management necessary to maintain the continued existence of the species;
- 2) an *ex situ* seedbank is established in a Center for Plant Conservation-affiliated botanic garden. While sufficient seedbank in the soil would typically provide a strategy for the taxon to persist through several years of short- or medium-term drought, it may not be sufficient to persist through long-term drought. Therefore, an *ex situ* seedbank would provide assurance that a occurrences could be reseeded, should long-term drought – or other stochastic events – make it necessary; and
- 3) all existing occurrences are stable or increasing in the wild for at least 10 years. We expect above-ground occurrences size to fluctuate annually, based on response to amount and timing of rainfall (e.g. see Fox et al. 2006). Therefore, a period of 10 years should be long enough to include most of the variability in rainfall that occurs in this region (Zedler & Black 1989; NOAA 2018). Ten occurrences were surveyed during the 5-year period from 2012 to 2016, which will provide a baseline for the status of these occurrences; these data should provide a basis for monitoring occurrence attributes to determine trajectory over time.

Clarkia speciosa ssp. *immaculata* (Pismo clarkia)

Delisting Criteria: 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.

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 occurrences are capable of persisting without significant human intervention or perpetual endowments are secured for management necessary to maintain the continued existence of the species; and
- 2) an *ex situ* seedbank is established in a Center for Plant Conservation-affiliated botanic garden. While sufficient seedbank in the soil would typically provide a strategy for the taxon to persist through several years of short- or medium-term drought, it may not be sufficient to persist through long-term drought. Therefore, an *ex situ* seedbank would provide assurance that an occurrences could be reseeded, should long-term drought – or other stochastic events – make it necessary; and
- 3) all existing occurrences are stable or increasing in the wild for at least 10 years. We expect above-ground occurrence size to fluctuate annually, based on response to amount and timing of rainfall (e.g. see Fox et al. 2006). Therefore, a period of 10 years should be long enough to include most of the variability in rainfall that occurs in this region (Zedler & Black 1989; NOAA 2018). Monitoring of occurrences should be undertaken and access to private properties that support the species should be pursued, which will provide a baseline for the status of these occurrences; these data should provide a basis for monitoring occurrence attributes and trends to determine the species trajectory over time.

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 *Eriodictyon altissimum* (Indian Knob mountainbalm), *Cirsium fontinale* var. *obispoense* (Chorro Creek bog thistle), and *Clarkia speciosa* ssp. *immaculata* (Pismo clarkia) 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).

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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%20MCIover%20CDMVetch%20YAPP%20HickPot.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 *Astragalus tener* var. *titi* (coastal dunes milk-vetch), *Piperia yadonii* (Yadon's piperia), *Potentilla hickmanii* (Hickman's potentilla), and *Trifolium trichocalyx* (Monterey clover). 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 4 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.

Recovery Plan for Insect and Plant Taxa from the Santa Cruz Mountains in California Original Recovery Plan Approved: 1998 Page(s) Superseded: 45-48 Species Included: <i>Chorizanthe robusta</i> var. <i>hartwegii</i> (Scotts Valley spineflower)
Recovery Plan for Five Plants from Monterey County, California 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)
Recovery Plan for the Morro Shoulderband Snail and Four Plants from Western San Luis Obispo County, California 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)
Recovery Plan for Marsh Sandwort (<i>Arenaria paludicola</i>) and Gambel's Watercress (<i>Rorippa gambelii</i>) 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