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

DRAFT AMENDMENT

We have identified information that indicates the need to amend recovery criteria for these species since the recovery plan was completed. In this proposed modification, we synthesize the adequacy of the existing recovery criteria, show amended recovery criteria, and describe the rationale supporting the proposed recovery plan modification. The proposed 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

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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 A review of the recovery plan and its implementation may show that the plan is out of date or its usefulness is limited and therefore warrants modification.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 listing factors.

Recovery Criteria

See previous version of criteria in the 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. The original recovery plan is available here.

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 borage family (Boraginaceae). *Eriodictyon altissimum* is a relatively weak, diffusely-branched evergreen shrub that can reach heights between 6 to 13 feet (2 to 4 meters). The linear leaves are somewhat sticky and the lavender flowers are arranged in coiled clusters. Although new growth is primarily from rhizomatous suckers, the flowers also produce numerous tiny seeds. *Eriodictyon altissimum* occurs within coastal dune scrub and coastal chaparral plant communities where it grows on tarsand or sandy loam soils.

At the time of our last 5-Year Review (Service 2009a, entire), the current status of *Eriodictyon altissimum* did not appear to be markedly different from that summarized in the 1994 final listing rule and final recovery plan completed in 1998. Absent the results of long-term monitoring or research, anecdotal observations indicate that the occurrences of *Eriodictyon altissimum* are self-

sustaining and stable. While its habitat in Los Osos continues to be degraded by the incursion of invasive non-native plant species (particularly veldt grass) and proximity to urban development, similar anecdotal information indicates that *Eriodictyon altissimum*, as a perennial shrub species, is not being adversely affected in a substantial way. Invasive non-native plants do not appear to be an issue for the occurrence in the vicinity of Indian Knob. The focal issue for this species appears to be its need for some form of disturbance to regenerate and revitalize populations. While the species appears to respond to light and occasional anthropogenic disturbance (e.g., clearing of utility roads) by seedling germination or increased rhizomatous activity, it is most likely that fire is the natural disturbance agent. Due to the proximity of those populations off of State Park lands at Montaña de Oro (i.e., element occurrences 1 and 4-6) and fire suppression activities in areas of urban interface, the development of climax, closed canopy chaparral appears to be adversely affecting *Eriodictyon altissimum* by precluding expansion into otherwise suitable habitat and maintenance of even-aged, eventually senescing stands. Anecdotal observations indicate that lack of regeneration may present a significant impediment to the recovery of the species.

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

Cirsium fontinale var. *obispoense* is endemic to perennial seeps and springs in serpentine soil and rock in western San Luis Obispo County, California. At listing in 1994 it was known from nine occurrences, with one of these presumed to be extirpated. 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.

At the time of the 2014 5-Year Review, the taxon is now known from 19 occurrences, including the type locality on Camp San Luis Obispo with 1,872 individuals in 2008 (Service 2014, entire). Census data are available for 12 occurrences over the 5 years from 2008 to 2013. Five occurrences have not been censused since the 1990s, one occurrence has not been censused since 2001, and one occurrence is known only from two specimens that were collected on private property (precise location unknown) in 1987. Invasive plants are a potential threat to five occurrences, and native plants are a threat to two occurrences. There have been no triggers to invoke Federal and State regulations for protecting *Cirsium fontinale* var. *obispoense* on non-Federal and non-State lands. Stochastic events remain a threat to all occurrences. We identified the Eurasian flower-head weevil and climate change as new threats.

Clarkia speciosa ssp. *immaculata* (Pismo clarkia)

Clarkia speciosa subsp. *immaculata* is an annual herb, with branched stems, in the four o'clock family (Onagraceae). It is up to 50 centimeters (cm) (20 inches (in)) tall and has flowers 1.5 to 2.5 cm (0.5 to 1.0 in) wide that are white or cream colored at the base, streaking into pinkish or reddish-lavender at the tips. At the time of listing, the known distribution of *C. speciosa* subsp. *immaculata* ranged from San Luis Obispo south to the Nipomo Mesa area, in pockets of dry sandy soils within grassy openings in chaparral and oak woodlands.

At the time of our last 5-Year Review (Service 2009b, entire), we determined that while more populations have been found in recent years, the overall status of this species is not improving. Development has adversely affected or threatens to adversely affect 9 of the remaining 14 known

populations, and fragmentation due to development is a serious concern for the survival of the species as a whole. There are only two populations that currently have any protection. 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, polygons, and populations, as well as a loss of suitable but currently unoccupied habitat.

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 (from original recovery plans)

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, 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) populations 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) populations 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 populations 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 populations 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 grassland 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 populations are on lands secured from human-induced threats with adequate surrounding habitat to permit natural population expansion and movement as suitable microhabitats shift in the landscape, (2) the eight protected populations represent the plant's entire range, (3) these populations must be large, stable or increasing (a minimum of ten years of monitoring is needed because population sizes fluctuate due to precipitation), and (4) management of these populations and associated lands in the future must be reasonably assured for the long term, and must be effective, as demonstrated by stable or increasing populations.

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 colonies within two geographically separated areas (Morro Bay area and Indian Knob area) is important to redundancy and representation. With respect to resiliency, all of the colonies in the Morro Bay area are in poor or declining condition and represented by a small number of stems.

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

1) Threats are reduced or eliminated so that 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) 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 size; and c) install educational signing to deter the public from cutting shrubs along trails;

2) The populations remain viable for at least 15 years to demonstrate long-term viability under a range of environmental conditions. Fifteen years is necessary because the species is a relatively long-lived perennial, so even though an appropriate range of environmental conditions will likely occur in a shorter time, the response of the species to those changing conditions may take longer to appear than for the other two species included here. 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 and by seed production. These data should provide a basis for monitoring population 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 known to have very 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 colonies, 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 the species, it can be considered for delisting if:

1) Threats are reduced or eliminated so that 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;
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 population could be reseeded, should long-term drought – or other stochastic events – make it necessary; and
3) All existing populations are stable or increasing in the wild for at least 10 years. We expect above-ground population size to fluctuate annually, based on response to amount and timing of rainfall (e.g. see Fox et al. 2005). 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).

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 the species, it can be considered for delisting if:

1) Threats are reduced or eliminated so that 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; 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 a population could be reseeded, should long-term drought – or other stochastic events – make it necessary; and
3) All existing populations are stable or increasing in the wild for at least 10 years. We expect above-ground population size to fluctuate annually, based on response to amount and timing of rainfall (e.g. see Fox et al. 2005). 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).

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. The amended criteria were developed based on the Service's current understanding of the species needs and requirements. This understanding includes information gathered since the original recovery plan was published, such as more recent information about population status and trends along with an updated understanding of the threats acting on the species. The criteria presented are based on the reduction of threats to the species and include a temporal aspect to ensure that the species are resilient to expected variation within a reasonable time frame.

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