

## RECOVERY OUTLINE

### Coastal Marten, Distinct Population Segment of the Pacific Marten

**Common name:** Coastal marten

**Scientific name:** *Martes caurina*

**Listing Status:** Threatened

**Date Listed:** October 8, 2020

**Lead Region:** U.S. Fish and Wildlife Service, Interior Region 10. Cooperating region is Interior Region 9.

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**Purpose of the Recovery Outline:** This document serves as an interim strategy to guide recovery efforts for the coastal distinct population segment of the Pacific marten (hereafter, coastal marten, synonymous with Humboldt marten [*M. c. humboldtensis*]) until a draft recovery plan has been completed. Recovery outlines are intended primarily for internal U.S. Fish and Wildlife Service (Service) use; formal public participation will be invited upon release of the draft recovery plan. We will consider any new information or comments that members of the public may wish to offer regarding this outline during the recovery planning process. For more information on Federal recovery efforts for the coastal marten, or to provide additional comments, interested parties may contact the lead biologist for this species, Jenny Hutchinson, at the above address, telephone, or e-mail.

**Scope of Recovery and Available Information:** The scope of this recovery effort is the coastal distinct population segment of the Pacific marten (Service 2015 and 2020). This outline provides a general overview of the pertinent information related to recovery of the coastal marten, and provides preliminary recovery objectives and actions based on coastal marten ecology. Because of the gaps in our knowledge of this species, for this recovery outline we made some

assumptions regarding coastal marten ecology. We recognize the uncertainties around the ecology of this species and have identified the assumptions we made.

## OVERVIEW

**Species Description and Life History:** This outline is intended to provide an interim framework and not as an information repository. For detailed description of the species needs, habitat, taxonomy, current conditions, threats analysis, and future conditions please refer to the 2019 Species Status Assessment: <https://ecos.fws.gov/ServCat/DownloadFile/164696>.

## PRELIMINARY RECOVERY ASSESSMENT

The historical and current range of the coastal marten is confined to coastal Oregon and coastal northern California. The current distribution occupies roughly seven percent of the historical distribution.

Based on our examination of historical and recent evidence, coastal marten occurrence and habitat can be categorized as 1) extant population areas (EPAs), 2) secondary areas, and 3) additional unsurveyed areas. The areas with the strongest long-term evidence of the persistence of coastal marten populations are defined as EPAs and have at least five coastal marten detections in an area with detections separated by less than 5 kilometers (~3 miles) from other verifiable detections. Please see the 2019 Species Status Assessment and the Humboldt Marten Conservation Assessment and Strategy for the Humboldt Marten in California and Oregon for a more detailed description of how these areas were delineated (Service 2019, pp. 72-75 and USFS 2019, pp. 72-73). Focusing coastal marten conservation efforts on these EPAs will ensure the continued persistence of coastal marten by addressing the following fundamental principles of conservation biology (Shaffer and Stein 2000, pp. 308-311):

- 1) *Representation* by conserving the breadth of ecological settings of the distinct population segment;
- 2) *Redundancy* by retaining a sufficient number of populations or distribution to provide a margin of safety to withstand catastrophic events; and
- 3) *Resiliency* by maintaining sufficient numbers of animals in each population to withstand randomly occurring events, such as demographic changes, weather, or prey population dynamics.

Based on distributions of current verifiable coastal marten detections we identified four EPAs within coastal Oregon and northern coastal California (Service 2019, p. 77):

- 1) Central Coastal Oregon EPA;
- 2) Southern Coastal Oregon EPA;
- 3) Oregon-California Border EPA; and
- 4) Northern Coastal California EPA.

Additional detections of coastal marten have occurred outside of these four EPAs, but they did not meet the criteria of a population according to the methods outlined above. Areas classified as “secondary areas” are those with fewer than five verifiable coastal marten detections but with some record of current or historical occurrences of coastal marten. These areas generally have no current record of population size. Secondary areas also include those areas with historical records and no recent surveys to document presence of coastal marten. Lastly, we acknowledge that there may be areas outside of EPAs and secondary areas that support the species but which have not been surveyed or have been surveyed inconsistently. At this time, the role of these additional habitat areas in sustaining coastal marten populations is somewhat unclear given the inconsistency of survey effort across the range and outside of EPAs. If future surveys document presence and reproduction in a secondary area, the area could be considered for elevation to an EPA. We hypothesize that secondary areas may contribute to coastal marten persistence by providing habitat to support coastal marten during dispersal movements or other periods, and possibly supporting gene flow between some of the EPAs. At this time, we do not have enough information to clearly examine the relative importance of these areas outside of EPAs and secondary areas to the persistence of coastal marten in western Oregon and northwestern California.

## **SUMMARY OF LISTING FACTORS**

Our analysis of past, current, and future influences on what the coastal marten needs for long-term viability revealed that two factors pose the largest risk to the future viability of the species. These risks are primarily related to habitat loss and associated changes in habitat quality and distribution (including habitat fragmentation) (Factor A) and include: (1) A decrease in connectivity between populations; and (2) habitat conversion from that suitable for coastal marten to that suitable for generalist predators and competitors, thereby potentially increasing interactions and subsequent coastal marten injury, mortality, or predation. Predation of coastal marten (Factor B) may be affected by changes in forest composition, potentially increasing predator habitat and increasing coastal marten vulnerability to predation. Dispersal is the means by which coastal marten populations maintain and expand their distribution. There is no functional connectivity between the Central Coastal Oregon EPA and any other population. The Southern Coastal Oregon EPA is beyond the mean dispersal distance to the Oregon-California Border EPA, but fragmented habitat is available that may facilitate movement over time. These factors are all influenced by vegetation management, wildlife, and changing climate.

In addition to being mostly isolated, all four EPAs are relatively small (<100 animals in each population) and face other threats in addition to habitat loss. Since 1980, 19 mortalities of coastal marten caused by vehicles (Factor E) have been documented, all in Oregon and mostly along U.S. Highway 101. Exposure to rodenticides (Factor E), through direct ingestion or the consumption of exposed prey, has been documented in coastal marten. Certain diseases (Factor C) are also a concern to coastal marten including canine distemper viruses (CDV), rabies viruses, parvoviruses, and the protozoan (single-celled organism) *Toxoplasma gondii*.

This is a brief summary of the primary threats to coastal marten and a detailed analysis can be found in the 2019 Species Status Assessment and in the final listing rule (Service 2019 and 2020).

**Ongoing Conservation Efforts:** The Humboldt Marten Working Group is a voluntary stakeholder group consisting of representatives from Federal, State, private, Tribal, and nongovernmental organizations that was formed in 2011 around a common interest in conservation and management of the species on public, Tribal, and private forests in coastal northwestern California and coastal Oregon. Collaboratively, this group published the Conservation Assessment and Strategy for the Humboldt marten in California and Oregon (USFS 2019, entire).

Research on coastal marten ecology, habitat requirements, population demographics, and factors influencing coastal marten populations continues in Oregon and California with a variety of partners including Federal, State, private, and Tribal entities. The Arcata Fish and Wildlife Office is working with the Pacific Southwest Research Station of the U.S. Forest Service to determine the feasibility of translocation. We are also working with researchers to develop a spatially explicit rangewide population viability analysis that will allow us to evaluate a suite of potential recovery projects. A rangewide habitat model is being developed to better inform our understanding of available marten habitat and supplement existing habitat models.

The Arcata Fish and Wildlife Office has two signed Memoranda of Understanding with the North Coast Redwoods District of California State Parks and Green Diamond Resource Company focused on coastal marten conservation and research needs. We are developing a similar agreement with the Yurok Tribe and recognize that the Yurok Tribe has land management plans in place that include coastal marten conservation measures and manage for the coastal marten as a tribally significant species. The Oregon Fish and Wildlife Office is also working on agreements with landowners in Oregon that would further coastal marten conservation.

## **PRELIMINARY RECOVERY STRATEGY**

**Recovery Priority Number:** 9C, on a scale of 1C (highest) to 18 (lowest) (Service 1983a, b). This ranking is based on a moderate degree of threat, a high potential for recovery, a taxonomic classification as a distinct population segment under the Endangered Species Act, and a potential for conflict with economic activity (16 U.S.C. 1531, *et seq.*) (Service 1983a, b).

**Recovery Goal, Objectives, and Actions:** The goal of this recovery effort is to address threats to the coastal marten so that protection of this species under the Endangered Species Act is no longer required, and delisting is warranted. Recovery of the coastal marten will be achieved when conditions have been attained that will allow coastal marten populations to persist long-term throughout a portion of western Oregon and northwestern California. Here we present our

preliminary recovery objectives for calculating progress toward the recovery goal of delisting the coastal marten, as well as the recommended recovery actions to attain each goal, with the understanding that all are subject to change as new information is gathered. Some of these conservation strategies are based on the Conservation Assessment and Strategy for the Humboldt Marten in California and Oregon; more specific recovery objectives, delisting criteria, and actions will be developed in the course of the formal recovery planning process and as additional data become available for analysis. Note that the development of demographic criteria for delisting is not possible at this time (see “Additional Recovery Considerations,” below). We present our recommended preliminary recovery actions here to encourage the immediate implementation of such actions, rather than waiting on the release of the draft recovery plan, to make positive progress toward recovery of the coastal marten.

**Objective 1: Continue to fill knowledge gaps** on species and population needs, habitat use, and threats.

- 1.1. Complete a spatially explicit rangewide population viability analysis to inform future development of demographic criteria for a draft recovery plan.
- 1.2. Conduct surveys to determine which areas support coastal marten populations and, based on results, adjust EPAs and secondary area designations as appropriate.
- 1.3. Continue and complete studies necessary to gather basic information on the ecological requirements, distribution, population size, and trends in each of the EPAs and, to the extent possible, for secondary areas. This includes setting specific targets for population and habitat recovery metrics to be presented in a draft recovery plan.

**Objective 2: Protect existing population areas and currently suitable habitat** by establishing management commitments in EPAs that will provide for adequate quality and quantity of habitat such that there is a reasonable expectation that persistent coastal marten populations can be supported for the foreseeable future.

- 2.1. On major Federal land ownerships within each EPA, establish and implement long-term guidance adequate to conserve coastal marten and their habitat as verified by a biological opinion or other conservation agreement tailored to each landowner.
- 2.2. On non-Federal lands in the EPAs, develop and implement best management practices and long-term management agreements for coastal marten and their habitat with key State, private, and Tribal forest managers.
- 2.3. Conduct research and develop guidance for assessing impacts of wildfire and fuels reduction treatments on coastal marten habitat and provide decision support for fire management planning.

**Objective 3: Explore feasibility and need to reestablish populations** where currently suitable habitat is available.

- 3.1. Conduct research to estimate the current level of gene flow between and among populations and determine the need to reestablish connectivity in target areas informed by survey efforts and habitat models.
- 3.2. Complete a feasibility study examining the need and potential for translocation and use these results to inform action 1.1 and subsequent development of demographic criteria for a draft recovery plan.
- 3.3. If substantial evidence suggests translocation will benefit species recovery, reintroduction of coastal marten into historically occupied, suitable habitat may be considered and implemented as part of our recovery efforts.

**Objective 4: Restore suitable habitat conditions** in specific areas to increase population size and distribution.

- 4.1. Conduct research to determine the role of secondary areas in ensuring the persistence of coastal marten. Based on results, adjust recovery objectives and criteria as appropriate.
- 4.2. Identify and implement management efforts as necessary to evaluate, improve, and maintain coastal marten habitat in secondary areas. Consider the development of a habitat management guide capable of identifying actions most likely to support maintenance or improvement of suitable habitat that supports coastal marten occupancy, reproduction, survival, and dispersal.
- 4.3. Research dispersal behavior between EPAs and secondary areas and develop and implement management agreements with key landowners to conserve these habitats if necessary.

**Objective 5: Ameliorate primary threats** so that coastal marten populations will persist for the foreseeable future.

- 5.1. Identify the risk to coastal marten populations posed by forest management techniques, human-induced mortality such as direct mortality from vehicles, exposure to anti-coagulant rodenticides, and disease. Address these factors as necessary to ensure the long-term persistence of coastal marten populations in EPAs and possible secondary areas.
- 5.2. Complete studies to assess the role of potential competitors and predators in limiting persistence of coastal marten in EPAs and secondary areas, and if determined to be limiting factors address as necessary. Determine habitat management recommendations, if appropriate, for habitat that is suitable for martens and how that differs for habitat suited for more generalist predators.
- 5.3. Monitor the effects of wildfire and changing climate on forest habitat in each of the EPAs. Modify the delineation of EPAs and adjust management strategies if necessary.
- 5.4. Assess whether EPAs are genetically isolated by quantifying genetic diversity and assessing inbreeding potential, particularly in the central coastal Oregon EPA.

**Stakeholder Involvement:** Stakeholders will be involved during the process of plan development. Stakeholders may include but are not limited to: States, U.S. Forest Service, Tribes, Bureau of Land Management, National Park Service, researchers, timber industry, environmental groups, recreational interests, and other members of the public. At the local or regional level, stakeholders will be able to participate in coastal marten conservation efforts.

**Approval:**

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Assistant Regional Director  
U.S. Fish and Wildlife Service  
Sacramento, California

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Date

## REFERENCES:

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- U.S. Fish and Wildlife Service. 1983a. Endangered and threatened species listing and recovery priority guidance. Federal Register 48:43098–43105.
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- U.S. Fish and Wildlife Service. 2019. Species status assessment for the coastal marten (*Martes caurina*). Version 2.1. July 2019. Arcata, CA. Available online at <https://ecos.fws.gov/ServCat/DownloadFile/164696>.
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