

**Draft Recovery Plan for the coastal DPS of the Pacific marten
(*Martes caurina*)**



Photo: Mark Stevens, NCASI

**U.S. Fish and Wildlife Service
Pacific Southwest Region 8
Arcata Fish and Wildlife Office, California
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Approved: XXXXXXXXXXXXXXXXXXXX
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PURPOSE AND DISCLAIMER

This document presents the U.S. Fish and Wildlife Service's (Service) plan for the conservation of the coastal DPS of the Pacific marten. The recovery plan is the second part of the Service's 3-part recovery planning framework and includes the statutorily required elements pursuant to section [4\(f\)](#) of the Endangered Species Act (Act). This recovery plan is informed by the first part of the framework, a Species Status Assessment (SSA). The SSA report delivers foundational science for informing decisions related to the Act and includes an analysis of the best available scientific and commercial information regarding a species' life history, biology, and current and future conditions that characterizes the species' viability (i.e., ability to sustain populations in the wild over time) and extinction risk. We have also prepared a Recovery Implementation Strategy (RIS), the third part of the framework. The RIS is an easily updateable operational plan that is separate and complementary to this recovery plan that details the on the ground recovery activities needed to complete the recovery actions contained in this recovery plan.

Recovery plans describe the envisioned recovered state for a listed species (when it should no longer meet the Act's definitions of a threatened species or endangered species) and include a recovery strategy, recovery criteria, recovery actions, and the estimates of time and cost needed to achieve it. Plans are published by the Service and are often prepared with the assistance of recovery teams, contractors, State agencies, and others. Recovery plans do not necessarily represent the views, official positions, or approval of any individuals or agencies involved in plan formulation, other than the Service. They represent the official position of the Service only after they have been signed by the Regional Director as approved. Recovery plans are guiding and planning documents only; 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 this plan should be construed as a commitment or requirement that any Federal agency obligate or pay funds in any one fiscal year in excess of appropriations made by Congress for that fiscal year in contravention of the Anti-Deficiency Act, 31 U.S.C. 1341, or any other law or regulation. Approved recovery plans are subject to modification as dictated by new findings, changes in species status, and completion of recovery actions.

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RECOMMENDED CITATION AND ELECTRONIC AVAILABILITY

U.S. Fish and Wildlife Service. Draft recovery plan for coastal DPS of the Pacific marten (*Martes caurina*). Arcata Field Office, U.S. Fish and Wildlife Service, USA. 10 pp.

An electronic copy of this draft Recovery Plan will be made available at:

<https://ecos.fws.gov/ecp/species/9081>

1. INTRODUCTION

The U.S. Fish and Wildlife Service (Service) published a final rule listing the coastal DPS of the Pacific marten (*Martes caurina*) (sometimes abbreviated as coastal marten) as a threatened species on October 8, 2020 (85 FR 63806). This recovery plan describes criteria for determining when the coastal DPS of the Pacific marten should be considered for delisting, lists site-specific actions that will be necessary to meet those criteria, and estimates the time and cost to achieve recovery. Additionally, a summary of information on the species' biology and status are included, along with a brief discussion of factors limiting the coastal marten's populations. A detailed discussion of these and other topics pertinent to the recovery of the coastal DPS of the Pacific marten can be found in the Species Status Assessment (SSA). Detailed on-the-ground activities implementing recovery actions can be found in the Recovery Implementation Strategy. These supplemental documents are available at <https://ecos.fws.gov/ecp/species/9081>. The Recovery Implementation Strategy (RIS) and SSA are finalized separately from this Recovery Plan and will be updated on a routine basis.

Coastal marten are associated with structurally complex and heterogeneous forests, forests occurring on serpentine soils, and shore-pine forests in and around coastal dune habitats (Service 2026, pp. 21-30). Listed as threatened under the Act, the species' historical range extends from Sonoma County (Fort Ross), California north to the Columbia River in Oregon (Service 2025, p. 14). While distribution is currently reduced below historical levels, there are currently seven extant population areas (EPAs) within the historical range (Service 2026, p. 92) which we expect will change over time with increased survey effort, habitat restoration, and population expansion (organic or augmented). Coastal marten were historically impacted by commercial trapping, habitat loss, and habitat fragmentation which resulted in their decline. Ongoing threats from catastrophic wildfire, vegetation management, manmade barriers, and predators continue to act upon the species. The population-level effects of disease and rodenticides are unknown; however, evidence suggests this species may be detrimentally impacted (Martin et al. 2022, entire). For a detailed description of the species needs, habitat, taxonomy, current condition, threats analysis, future conditions and listing and critical habitat designation, please refer to the 2026 Species Status Assessment, 2021 Recovery Outline, 2018 Listing, and 2024 Critical Habitat designation: <https://ecos.fws.gov/ecp/species/9081>.

2. RECOVERY STRATEGY

The recovery strategy provides a concise overview of the recovered state for the coastal marten, describes the Service's chosen approach to achieve it, and includes the rationale for why the approach was chosen. Specifically, the recovery strategy articulates how the plan's statutory elements (e.g., recovery criteria, recovery actions, and estimates of time and cost) will work together to achieve the coastal marten's recovery.

Coastal marten historically ranged from Sonoma County, California to the Columbia River in Oregon. The reduced distribution currently is believed to be a result of historical fur trapping and habitat loss and fragmentation. The Service intends to increase the resiliency, redundancy and representation of this species by increasing the resiliency of known EPAs and restoring habitat outside of occupied areas. We focused recovery criteria on female marten demographics as best available science indicates female coastal marten have a larger impact on the resiliency of the

population. Therefore, for increased viability we need to ensure there are females that survive, reproduce, and have high kit survival on the landscape. As population sizes grow and expand in distribution, we anticipate that EPAs will morph, with some overlapping, naturally leading to a predicted increase in genetic diversity, connectivity, and gene flow. The SSA (Service 2026 entire) addresses the need for increased genetic viability as a characteristic of resiliency (minimum viable population estimates), representation (genetic variability, adaptive capacity) and redundancy (multiple resilient populations). There are multiple uncertainties in our analyses including the response of coastal marten and their prey to varying levels of wildfire severity and types of vegetation management as well as the impact of various predators on marten populations. Research focused on life history and habitat use, predation risk, addressing manmade barriers associated with movement, pesticide exposure, and development and implementation of vegetation management plans are high priorities for the recovery of the species. There are multiple partners invested in the conservation of this species including Tribal, state, federal and non-governmental organizations. We anticipate that research will provide insights into nuances and strategies related to coastal marten habitat management and as research is developed, we intend to use the best available science to inform and adapt implementation of recovery activities.

3. DELISTING CRITERIA

The following delisting criteria, when met collectively, may indicate that the coastal DPS of the Pacific marten no longer meets the Act's definitions of a threatened species and may be able to be removed from the Federal List of Endangered and Threatened Wildlife:

Recovery Criteria:

1. There are, at a minimum, seven Extant Population Areas (EPA), with at least one EPA occurring within the coastal dune habitat.

Rationale for Criterion 1: The geographic distribution of seven EPAs, across the historical range, provides a sufficient spread of animals and their associated habitats. A minimum, or the equivalent (see strategy for more information), of seven allows for resiliency, redundancy, and representation of both habitats and populations.

2. Each EPA, as considered in Criterion 1, has habitat of suitable quality to support a minimum of 100 female home-ranges as described in the SSA (Service 2026 entire) for 20 out of 25 years.

Rationale for Criterion 2: Habitat sufficient to support 100 female home ranges per EPA (a minimum of 700 female home-ranges in total) across the historical range will provide protection of coastal martens from stochastic events. Higher quality habitat increases immigration and emigration and facilitates maintaining and expanding EPAs through stochastic events. Twenty-five years represents five coastal marten generations and allows flexibility for marten and their habitat to respond to stochastic and catastrophic events. We anticipate monitoring to occur a minimum of once per marten generation (five years) during this timeframe.

3. Each EPA, as considered in Criterion 1, demonstrates successful dispersal and evidence of either stable or increasing genetic diversity or connectivity and gene flow with other EPAs, as measured at least every 2 generations.

Rationale for Criterion 3: Successful dispersal for coastal marten affects genetic diversity between and among populations especially as it relates to marten fitness and population growth. Previous work indicates connectivity is currently limited between EPAs, especially in Oregon (Hallerud et al. in review). We expect to be able to measure genetic diversity and dispersal success using a combination of scat surveys, telemetry, baited cameras, and hair snares.

4. The population size of each EPA, as considered in Criterion 1, for 20 out of 25 years, are at or above “moderate” condition as described in the SSA, with a minimum of three EPAs meeting “high” condition.

Rationale for Criterion 4: Factors that affect population dynamics, including demographic shifts, environmental uncertainty, natural catastrophes, and random genetic changes, have larger effects with decreasing population resiliency. We measured resiliency in the SSA by assessing between population factors (cost-weighted distance to nearest population, number of large dispersal filters between populations, and number of populations functionally connected) and within population factors (population size, number of available female home ranges) (Service 2026, pp. 107-109). These metrics reflect both the population need to be above certain demographic thresholds and the species need for connectivity and maintenance of genetic diversity overall. Maintenance of moderate to high resiliency populations indicates primary threats have been addressed as they relate to population viability. Twenty-five years represents five coastal marten generations and allows flexibility for marten and their habitat to respond to stochastic and catastrophic events. We anticipate monitoring to occur a minimum of once per marten generation (five years) during this timeframe. Monitoring does not necessarily need to occur in all EPAs in the same year.

4. RECOVERY ACTIONS

Recovery actions are the statutorily required, site-specific management actions needed to achieve recovery criteria, as described in section [4\(f\)\(1\)\(B\)\(i\)](#) of the Act. The Service assigns recovery action priority numbers (1-3) to rank recovery actions. The assignment of priorities does not imply that some recovery actions are of low importance, but instead implies that lower priority items could be deferred while higher priority items are being implemented. Recovery action priority numbers are based on the following:

- Priority 1: An action that must be taken to prevent extinction or to prevent the species from declining irreversibly.
- Priority 2: An action that must be taken to prevent a significant decline in species population/habitat quality, or some other significant negative impact short of extinction.
- Priority 3: All other actions necessary to provide for full recovery of the species.

Marten Recovery Actions

1. Conduct research on marten life history, habitat, and threats. (Priority 1) (Criteria 1-4)
2. Refine coastal marten habitat models (Priority 2) (Criterion 2)
3. Develop, implement, and monitor vegetation management plans with the goal of retaining, restoring, and enhancing coastal marten habitat throughout the current range and within unoccupied habitat, where appropriate, to reduce or eliminate threats including, but not limited to, catastrophic wildfire and vegetation management (Priority 1) (Criteria 1-4)
4. Investigate and mitigate manmade barriers to marten movement and dispersal throughout the areas in which there are multiple documented vehicular strikes, such as Central Coastal Oregon Dune EPAs, to facilitate dispersal, connectivity, and survival (Priority 1) (Criteria 1, 3, 4)
5. Investigate and mitigate manmade barriers to marten movement and dispersal throughout the non-Central Coastal Oregon Dune EPAs to facilitate dispersal, connectivity and survival (Priority 3) (Criteria 1, 3, 4)
6. Using standardized protocols, monitor and survey population metrics associated with each EPA at a minimum every 5 years, to monitor trends and measure success and progress of meeting recovery criteria (Priority 2) (Criteria 1-4)
7. Investigate and mitigate, as necessary, the effects of pesticides, disease, and other known or emerging threats to individuals, populations, and habitats (Priority 2) (Criteria 1-4)
8. Establish new EPAs or augment low condition EPAs, as defined by the SSA, as necessary (Priority 2) (Criteria 1, 3, 4)
9. Preserve genetic material for future population rehabilitation or augmentation (Priority 3) (Criteria 1, 3, 4)

Table 1. Threats summary table for coastal marten including associated section 4(a)(1) factors, threats descriptions, recovery actions, and recovery criteria addressed

Listing Factors under the Act	Threats Description	Recovery Actions	Recovery Criteria
Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range	Habitat loss and associated changes in habitat quality and distribution influenced by vegetation management and catastrophic wildfire.	1, 2, 3, 4, 5, 6, 8	2, 3
Factor B. Overutilization for Commercial, Recreational, Scientific, or Education Purposes	Trapping	6, 8, 9	1, 3, 4

Listing Factors under the Act	Threats Description	Recovery Actions	Recovery Criteria
Factor C. Disease or predation.	Diseases and increased risk of predation due to changes in vegetation composition.	1, 3, 6, 7	2, 3
Factor E. Other natural or manmade factors affecting its continued existence.	Collisions with vehicles, pesticides, catastrophic human-influenced wildfire and forest conversion.	1, 3, 4, 5, 6, 7, 8, 9	1-4

5. ESTIMATED TIME AND COSTS TO ACHIEVE RECOVERY

Estimates of time and cost, as defined in section [4\(f\)\(1\)\(B\)\(iii\)](#) of the Act, must reflect, to the maximum extent practicable, the total amount of time and costs it will take to achieve the recovery (delisting) of the coastal DPS of the Pacific marten. The cost estimates provided do not account for possible future inflation.

We estimate that the full implementation of the recovery actions would improve the status of the coastal DPS of the Pacific marten so that it could be delisted within 30-35 years following the adoption of this recovery plan and cost \$12,358,823 dollars. We note that the recovery program may change over time, or the timeframe estimated to implement the recovery actions to achieve recovery of the species may take longer than expected. The recovery of the coastal DPS of the Pacific marten will depend largely on the commitment and the ability of the Service and partners to implement the recovery actions necessary to achieve the recovery criteria.

Table 2. Estimated time and costs of coastal marten recovery actions (refer to RIS for recovery action details)

Recovery Action Number	Recovery Action	Estimated Time to Achieve	Estimated Cost
1	Conduct research on marten life history, habitat, and threats	10 years	\$5,502,000
2	Refine coastal marten habitat models	1 year	\$145,000

Recovery Action Number	Recovery Action	Estimated Time to Achieve	Estimated Cost
3	Develop vegetation management plans, implement and monitor vegetation management to retain, restore, and enhance marten habitat throughout the current range and within unoccupied habitat where appropriate to reduce or eliminate threats including, but not limited to, catastrophic wildfire and vegetation management	10 years	\$2,874,000
4	Investigate and mitigate manmade barriers to marten movement and dispersal throughout the areas in which there are multiple documented vehicular strikes such as Central Coastal Oregon Dune EPAs to facilitate dispersal, connectivity and survival	3 years	\$886,000
5	Investigate and mitigate manmade barriers to marten movement and dispersal throughout the non-Central Coastal Oregon Dune EPAs to facilitate dispersal, connectivity and survival	3 years	\$800,000
6	Using standardized protocols, monitor and survey, populations associated with each EPA at a minimum every 5 years, to monitor trends and measure success and progress of meeting criteria	25 years	\$946,000
7	Investigate and mitigate the effects of pesticides, disease and other known or emerging threats to individuals, populations and habitats	5 years	\$900,000
8	Establish new EPAs or augment low condition EPAs, as defined by the SSA, as necessary	10 years	\$276,000
9	Preserve genetic material for future population rehabilitation or enhancement	25 years	\$30,000-TBD
		TOTAL ESTIMATED COSTS	\$12,359,000

LITERATURE CITED

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