

Grant Application



Tim Greseth

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Application ID : A47GT107

Custom Ref. -

Application Start Date: 2023-02-11 00:33:09

Application Completed Date: 2023-02-11 00:58:45

1 Have you previously applied for a grant from the Oregon Wildlife Foundation?

yes

2 Has a previously submitted grant application been denied funding support?

no

3 Title of your proposed project

Wildlife Crossings for Coastal Marten in Oregon

4 Name of your organization

Oregon Wildlife Foundation

5 If your organization is not a 501c3 nonprofit, please identify your fiscal sponsor

-

If this does not apply to you, write N/A

NA

6 Your name or the name of the Project Manager

Tim Greseth

7 organization mailing address

-

Please enter full address with city, state & zip

2337 NW York Street, Suite 201C, Portland, OR 97210

8 your phone number or that of the Project Manager

503-939-2257

9 your email address or that of the Project Manager

tim@myowf.org

10 a brief biographical statement about yourself or that of the Project Manager

Either Tim Greseth or Mike Szumski with USFWS will be the Manager for this project. That is not yet determined.

11 social media handles that your organization uses

-

Enter social handles or URLs such as instagram, facebook, twitter, youtube, etc. so that we can use to cross promote on our channels - if you do not have any, please place N/A

NA

12 are you are currently following Oregon Wildlife Foundation on its social media channels?

- Instagram

- LinkedIn

- Twitter

- YouTube

13 what is the total estimated cost of your project?

125000

14 Funding that you are requesting from OWF -
If you're request is for more than \$5,000, please contact Tim Greseth - tim@myowf.org before submitting your application.

50000

15 what type of project are your proposing?

fish or wildlife research

16 will your project address an Oregon Conservation Strategy habitat or species?

yes

16.1 What habitat or species is addressed?

coastal (Humboldt) marten

17 what is the location of your proposed project?

U.S. 101, Coos Bay, OR, USA

18 what ecoregion and Conservation Opportunity Area (COA) is your proposed project located in?

-

See <https://www.compass.dfw.state.or.us/> for the information you need to answer this question

Coast Range; Siuslaw River Estuary, Tahkenich-Siltcoos Lakes, Umpqua River Estuary, Tenmile Lake, Coos Bay

19 what is the anticipated start date of your project? -

Day/Month/Year

13-03-2023

20 what is the anticipated end date of your project?

01-10-2024

21 has a local, state or federal biologist reviewed this project?

yes

22 have you already or will you obtain necessary permits from all requisite agencies as applicable to proposed project?

yes

23 what will the funds you are requesting be used for?

-

this would be a good time to review, if you haven't already done so, our grantmaking guidelines at www.myowf.org/grants

Hiring of a contractor, purchase and deployment of wildlife cameras

24 provide us a brief summary of your proposed project

The conservation and recovery of threatened coastal marten (*Martes caurina*) is a high priority for the Oregon Department of Fish and Wildlife (ODFW), U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), and Bureau of Land Management (BLM), as well as multiple conservation organizations. On the central Oregon coast in particular, the loss of individuals to roadkill is a significant concern for small marten populations. The goal of this project is to determine the feasibility and cost of modifying road culverts to provide safe passage for coastal marten in areas demonstrating high vehicle-related mortality.

25 upload pre-project pictures or a video

-

By submitting these photos or video I warrant that I am the legal owner of this media and grant the Foundation permission to reproduce, exhibit, or publish them for all general purposes in relation to Oregon Wildlife Foundation's work. If you have questions about photo or video submissions please refer to myowf.org/grants for guidance.

1 Document Uploaded

26 fill out our budget form

Project Revenue	Cash	In-Kind	Committed / Pending
Oregon Wildlife Foundation Request	50000		Pending
OWF, Private Donor	5000		
USFWS - OCRF Award	50000		

28 upload letters of support

-

letters of support are strongly encouraged. in particular a letter from a supervising biologist

1 Document Uploaded

29

I understand that I am required to submit a Project Completion Report, copies of any publications or social media posts crediting the Foundation's support, and post-project pictures at the completion of my project

yes

Powered by **Submit.com**

Project Title

Assessment of Wildlife Crossings for Coastal Marten in Oregon

Project Overview

The conservation and recovery of threatened coastal marten (*Martes caurina*) is a high priority for the Oregon Department of Fish and Wildlife (ODFW), U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), and Bureau of Land Management (BLM), as well as multiple other conservation organizations. On the central Oregon coast in particular, the loss of individuals to roadkill is a significant concern for small marten populations. The goal of this project is to determine the feasibility and cost of modifying road culverts to provide safe passage for coastal marten in areas demonstrating high vehicle-related mortality.

Road culverts between the Siuslaw River and Coos Bay will be evaluated for their potential to alleviate road mortalities and facilitate safe passage by considering factors such as proximity to marten detections, past roadkill and trapping locations, suitability of adjacent habitat, and size and type of culvert. In coordination with the Oregon Department of Transportation (ODOT), 10 culverts will be selected at high-risk locations for modification. Culverts can be modified by adding lateral shelves, or by constructing pathways made of soil, stone, or concrete to facilitate dry passage. An engineering firm will produce design plans and estimate the cost of each modification, which will include fencing and natural elements designed to guide marten to the culvert openings. In addition, we will use trail cameras to collect baseline activity data on the use of selected culverts by wildlife. Should we determine that such modifications are feasible and cost effective, we will pursue additional funding sources for implementation.

Project Narrative

Pacific marten once ranged throughout coastal forests of northern California, Oregon, Washington, and British Columbia (Moriarty et al. 2016). The coastal distinct population segment (DPS) of the Pacific marten (also known as the coastal marten) was listed as threatened under the Endangered Species Act in November 2020 (85 FR 63806). Currently, four small, isolated populations of coastal marten are known to exist (identified as “extant population areas” named as follows: northern coastal California, California-Oregon border, southern coastal Oregon, and central coastal Oregon) (85 FR 63809). Each of these populations is believed to contain fewer than 100 individuals (85 FR 63808). Oregon’s central coastal population is particularly small, with an estimated total of 71 adults existing in two distinct subpopulations separated by the Umpqua River (Linnell et al. 2018), making every individual critically important to the population’s continued existence. Although historical trapping, habitat loss, and predation are primarily responsible for the marten’s precipitous decline, mortality from vehicle strikes appears to be a significant source of mortality in the central coastal Oregon population (USFWS 2018).

The central coastal Oregon population occurs along a narrow stretch of coastline from Cape Perpetua to the Coos Bay North Spit (Figure 1). Most detections of marten occur in the Oregon Dunes Recreational Area just south of Florence (USFWS 2018). The central coastal Oregon population appears largely limited to areas west of Highway 101, with most detections confined to a narrow band of habitat <500 m wide (Linnell et al. 2018). At the time of listing, there had been 19 documented mortalities of coastal marten, all in Oregon, primarily on Highway 101. More recently, three road-killed marten have been documented from 2019-2020 along a 1.5 km stretch of the Trans-Pacific Highway on the Coos Bay North Spit (Figure 2). These were likely juveniles in search of unoccupied habitat. Linnell et al. (2018) assessed the viability of the central coastal Oregon population and suggested that an annual loss of 2 or more individuals would lead to a substantial risk of extirpation within 30 years.

Wildlife crossings have proven an effective means of safely moving animals of both large and small species across high-traffic corridors throughout the US and Canada (Ament et al. 2021, McGuire et al. 2021, Clevenger and Barrueto 2014). Culverts are one form of wildlife crossing readily used by small- and medium-sized mammals, including marten (Clevenger and Barrueto 2014) (Figure 3). Marten prefers long culverts, 0.5-1.0 m in diameter, having a high openness value (Clevenger and Barrueto 2014).

Depending on local conditions, fencing may also be needed to guide marten to the culverts. Fencing should be constructed of 0.5-1 in welded wire mesh at least 4 ft high, with the top 6-10 inches angled backwards to prevent marten from climbing over the fence (Clevenger and Huijser 2011).

Although capable of swimming, it is generally believed that marten prefer to travel over dry land whenever possible (K. Moriarty, pers. comm.). Therefore, if high water is present in the culvert during critical times of movement (such as spring dispersal), design elements could be added to the inside of the culvert to provide marten dry passage. This may include installation of lateral shelves or construction of dry pathways made of soil, stone, or concrete (Figure 4).

The siting of these crossings is also critically important. Carefully planned wildlife crossings that employ consideration of the local conditions and behavior of the target species have proven to be highly effective at reducing mortalities from vehicle collisions (Forman et al. 2003, Jacobson et al. 2016). We will hire a consultant with expertise in wildlife crossing design and implementation to assess the culverts near the central coastal Oregon population. In addition to determining whether modifications are technically feasible, culvert locations will be evaluated for proximity to marten detections, roadkill and trap locations, potential connectivity to suitable habitat, local hydrology, and topography. The consultant will work with agency partners and ODOT to prioritize and select final culverts for modification.

We intend to evaluate the potential of the project by monitoring culvert openings for wildlife activity. Motion-activated trail cameras will be installed up to a year before culverts are modified. If funding for the modifications is secured, cameras will continue operation for a year or more post installation. In this way we will be able to document and quantify increased use of the culverts by marten and other species over time. The information collected and techniques developed through this project could assist future efforts to modify additional culverts. In addition, the photos taken of animals using the culverts can be used for public outreach to encourage the public to learn more about coastal marten and Oregon's coastal forests.

This project may also have a positive effect on coastal recreation. Off-highway vehicle (OHV) recreation is an important component of the Oregon Dunes National Recreation Area (ODNRA), where most of the remaining coastal martens are located. Reducing highway-related mortalities will assist in preserving this small, isolated population, thereby reducing the likelihood of additional OHV restrictions on the ODNRA. In addition, increasing public awareness of the existence of the coastal marten may inspire hikers to visit coastal forests in hopes of seeing this elusive mustelid.

Project Goals and Objectives

The goal of this project is to examine the feasibility and cost of modifying culverts to reduce mortality from vehicle collisions in Oregon's central coastal population of Pacific marten, and improve connectivity to nearby, underutilized habitat. This will be accomplished through the following objectives:

1. Examine all available coastal marten telemetry, sighting, trapping, roadkill, core habitat, and connectivity data. Identify stretches of roads and highways near marten populations where the risk of vehicle encounters is high.
2. Locate culverts crossing under roads and highways in high-risk areas. Identify the type and size of culvert at each location. Work with ODOT to evaluate the feasibility of modifying these culverts.
3. Select culverts likely to provide the greatest benefits to coastal marten. Deploy trail cameras and begin monitoring culvert openings for signs of wildlife activity.
4. Complete engineering designs on selected culverts. Designs will include fencing and habitat features that guide marten to culverts (if needed).
5. Raise public awareness of the plight of coastal marten by posting stories of project and camera photos on agency websites and other media platforms.

We will employ an experienced contractor to oversee all aspects of the project. Partners will provide technical expertise and local field support.

Outcomes and Measuring Success

We will measure success by accomplishing the following:

1. Identification of stretches of roads and highways posing the greatest threat to the coastal marten population.
2. Identification and prioritization of culverts in high-risk areas needing modification.
3. Completion of design modifications of 10 culverts to provide safe passage for marten and other small animals.
4. Completion of pre-implementation monitoring of selected culverts for martens and other species. This will lay the foundation for implementation of culvert modifications to reduce mortalities of coastal marten from road strikes, contributing to the conservation and recovery of the population.
5. Increased public awareness of the coastal marten through stories and photos posted on agency web sites and media platforms.

Program Priorities Narrative

Many Oregonians are drawn to Oregon's coastal forests containing complex ecosystems and rare species like the coastal marten. The coastal marten is an essential part of the coastal forest ecosystem, and the public expects State and Federal agencies to do what is necessary to ensure this species continues to exist for future generations. This project will assist agencies in protecting the coastal marten and will have a positive impact on this highly vulnerable population.

The protection of coastal marten is a high priority for ODFW, USFWS, USFS, BLM and many conservation groups. This project supports the Oregon Conservation Strategy in improving the health of Oregon's coastal forest ecosystem by reducing mortality and increasing the connectivity of coastal marten populations. A diverse array of other forest species will likely also benefit from this project as well, since they could also make use of the safe passage afforded marten through culvert modifications; these would include, but are not limited to mink, weasels, muskrats, skunks, raccoons, porcupines, opossums, coyotes, foxes, bobcats, Douglas squirrels, ground squirrels, chipmunks, brush rabbits, mice, voles and shrews.

Our project supports the Oregon Conservation Strategy (OCS) in multiple ways. Marten are one of the top five priority *Strategy Species* for the Coast Range ecoregion. This project aims to reduce barriers to animal movement, a *Key Conservation Issue* in the OCS, and the area where the project is planned falls within four *Conservation Opportunity Areas*.

OWF Watch for Wildlife Funds Requested

Funds requested from the Foundation (\$50K) will be used to hire a contractor experienced in wildlife crossing design to evaluate and select culverts for modification, purchase some of the needed camera gear, and begin monitoring wildlife activity of selected culverts.

Additional funding provided by partners (\$50K - see attached budget) will go towards the purchase of the remaining camera gear and completion of engineering designs. Should we determine that such modifications are feasible and cost effective, additional funding for materials (fencing and shelving) and labor (\$150K) will be pursued from partner agencies, various conservation organizations, and private donors.

The organization tasked with contracting for the work to be performed is yet to be determined. A meeting of the Coastal Marten Passage Coalition is being planned. At that time, a decision will be made regarding whom will take the lead on contracting responsibilities.

Partners

This project is submitted by OWF staff in cooperation with the following partners: the U.S. Fish and Wildlife Service, Ecological Services Division (Arcata, Newport, Roseburg, and Portland Field Offices), Oregon Department of Fish and Wildlife (Conservation Program-Central Point and Salem Offices), Oregon Department of Transportation (Regions 2 and 3), U.S. Forest Service (Siuslaw National Forest), and Bureau of Land Management (Coos Bay District).

Timeline

If our project receives OWF funding, we can immediately begin the solicitation/selection/hiring process for the contractor. We would expect to have the contractor in place by this spring and begin collecting information on culverts immediately thereafter. Engineering designs should be completed by spring 2024. Provided we can secure additional funds, culvert modification could begin fall 2024. Culverts would be monitored for at least one-year post-modification.

References

- Ament, R., S. Jacobson, R. Callahan, and M. Brocki (eds). 2021. Highway crossing structures for wildlife: opportunities for improving driver and animal safety. Gen. Tech. Rep. PSW-GTR-271. Albany, CA: U.S. Department of Agriculture, U.S. Forest Service, Pacific Southwest Research Station. 51 p.
- Clevenger, A.P., and M. Barrueto (eds). 2014. Trans-Canada Highway Wildlife and Monitoring Research, Final Report. Part B: Research. Prepared for Parks Canada Agency, Radium Hot Springs, British Columbia.
- Clevenger, A.P., and M.P. Huijser (eds). 2011. Wildlife Crossing Structure Handbook, Design and Evaluation in North America. Pub. No. FHWA-CFL/TD-11-003. U.S. Department of Transportation, Federal Highway Administration, Washington, D.C.
- Forman, R., D. Sperling, J. Bissonette, and A. Clevenger. (2003). Road Ecology: Science and Solutions. Island Press, Washington, D.C. 481 pp.
- Jacobson, S. L., L. L. Bliss-Ketchum, C. E. de Rivera, and W. P. Smith. 2016. A behavior-based framework for assessing barrier effects to wildlife from vehicle traffic volume. *Ecosphere* 7(4):e01345. 10.1002/ecs2.1345
- Linnell, M.A., K. Moriarty, D.S. Green and T. Levi. 2018. Density and population viability of coastal marten: a rare and geographically isolated small carnivore. *PeerJ*, DOI 10.7717/peerj.4530
- McGuire, T.M., A.P. Clevenger, R. Ament, R. Callahan, S. Jacobson, and M. Brocki eds. 2021. Innovative strategies to reduce the costs of effective wildlife overpasses. Gen. Tech. Rep. PSW-GTR-267. Albany, CA: U.S. Department of Agriculture, U.S. Forest Service, Pacific Southwest Research Station. 30 p.
- Moriarty, K.M., J.D. Bailey, S.E. Smythe, and J. Verschuyt. 2016. Distribution of Pacific marten in coastal Oregon. *Northwestern Naturalist* 97:71-81.
- U.S. Fish and Wildlife Service [USFWS]. 2018. Species status assessment report for the coastal marten (*Martes caurina humboldtensis*), Version 1.1. June 2018. Arcata, California.
- U.S. Fish and Wildlife Service [USFWS]. 2020. Threatened Species Status for Coastal Distinct Population Segment of the Pacific Marten with a Section 4(d) Rule. *Federal Register* 85:68306-63831.

This is an OWF-sponsored Project





Figure 1. Recent detections of central coastal Oregon population of coastal marten (USFWS 2018). Circle indicates location of recent marten road kills on the Coos Bay North Spit (USFWS 2018).



Figure 2. Locations of three recent, vehicle-related marten mortalities on the Trans-Pacific Parkway (Coos Bay North Spit). This is an example of a high-risk area for marten, where documented roadkills are highly concentrated.



Figure 51. Photo. American marten using a drainage culvert to cross the Trans-Canada Highway, Banff National Park, Alberta (Credit: Tony Clevenger).



Figure 3. Marten using culverts.



Figure 4. Examples of dry passageways created for small- and mid-sized mammals (USDA, NYSDOT, TNC).