Attachment 5

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Youth Programs & Kayak Tours

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

We provide youth kayaking and sailing programs aimed at getting young people out on the water safely. In addition, we also provide guided kayak tours in Yaquina Bay that allow anyone to experience and engage with the wildlife, natural history, and community of Newport, Oregon.

Primary Contact Person *

Brian Getting

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Oregon Boating Foundation

Mailing address *

PO Box 701, Newport, OR 97365

Lead Organization Federal Tax ID *

26-2469712

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [ ] East Cascades
- [ ] Klamath Mountains
- [x] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Newport, OR

Project Location (County) *

Lincoln County

Project Start Date

MM DD YYYY

06 / 20 / 2022

Project End Date

MM DD YYYY

09 / 05 / 2022

Funding Amount Requested *

The maximum request is $20,000.

12250

Total Project Cost *

30000

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

Our youth programs are designed to get kids out on the water, teach them the skills that they need to kayak and sail safely, and instill a love of outdoor recreation in them. Our hope is that they create lifelong memories and are encouraged to continue enjoying the outdoors for the rest of their lives. We believe that the same skills that let them enjoy the outdoors safely and responsibly also translate to other areas in their lives. Many of our former youth camp participants have gone on to become assistants, instructors and guides for us.

Our guided kayak tours in Yaquina Bay provide a unique platform for participants to experience the wildlife, natural history, landmarks, and fishing community of the area. The sit-on-top kayaks that we use provide a safe platform for a two-hour tour along the Newport bay front that focuses on educating our guests about the fisheries that operate in Newport, the wildlife that inhabits Yaquina Bay, the natural history of the area, and the importance of environmental stewardship.

Guests are introduced to the boats that catch much of the seafood that comes into the port including Salmon, Black Cod, Dungeness Crab, Squid, Shrimp, Hagfish, Albacore Tuna, and more. They learn about how different species are caught, the economic impact those fisheries have on our area, and the challenges being faced by those species from fisheries and threats to their environment.

We also provide guests with the opportunity to observe the wildlife that inhabits Yaquina Bay, and educate them about those species. Examples of the plant and animal species that we regularly encounter include California Sea Lions, Harbor Seals, Ochre Sea Stars, Bull Kelp, Native Eelgrass, Pelicans, Black Brants, Oystercatchers, Harlequin Ducks, Ospreys, Bald Eagles, Murrelets, Grebes, and more.

We focus in on a few species in more depth. For example, we teach our guests about the wasting disease that the Sea Starts are just now recovering from, and how that helped the Urchin population in our area explode, which is now threatening the Bull Kelp. It's a great opportunity to showcase the interconnectedness of different species. Another example is how we teach guests about Native Eelgrass, its importance as a nursery for young fish and other species, and the threats to its habitat in a dredged environment such as Yaquina Bay.

Our goal is to get people out on the water in a fun, educational way. The feedback that we have gotten so far suggests that most guests are surprised at how much they learn while out on the water. And, of course, we manage to pick up quite a bit of trash from the bay over the course of the season.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

Our primary goal is to provide a safe experience to encourage people get out on the water.

One of our objectives is to provide boating education for young people to instill a love of outdoor recreation in them. We want them to create lifelong memories and learn the skills required to enjoy the outdoors safely and responsibly. We believe many of these same skills translate to other areas of life as well.

Another objective is to introduce visitors to the fisheries that are important to our area, to let them experience the wildlife of Yaquina Bay first-hand, and to educate them about the wildlife and ecosystem of the area.

A final objective of the guided kayak tours is to provide employment opportunities for young people in our area. Most of our staff is comprised of former youth campers that went on to become assistants, instructors, and guides.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

The expected outcomes of this project is to provide an outdoor experiences that are memorable and educational.

We measure the success of our youth programs by the number of kids that participate each year, as well as the number that return year after year to continue learning.

We measure the success of our kayak tours by the total number of people that participate in the tours each year, and by the feedback we get from participants. We frequently get feedback about how much people learned from our guides.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [ ] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [ ] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [x] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [x] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

Our youth programs provide opportunities for young people to engage in sailing and kayaking. Our donor supported scholarship fund allows us to ensure that anyone can participate in our programs, regardless of their financial standing. To date we have covered away more than $5,000 in program fees to ensure every kid has an opportunity to get outside, get on the water, and learn to sail or kayak.

Our tours provide a safe, affordable opportunity for people to kayak on Yaquina Bay. A majority of our guests are visitors to the area, and do not have this opportunity at home. Most are unfamiliar with the fisheries and wildlife that they encounter on our tour, and we hope that they leave with a better understanding of the coastal estuary ecosystem. The diversity of our guest matches the diversity of those that visit the Oregon Coast, and we see guests from all ages, economic backgrounds, and ethnic/racial backgrounds.

Our experience has been that kayaks are a unique platform to view wildlife and experience the bay - particularly when it comes to viewing marine mammals and birds. We are able to view them in their natural surroundings without disturbing or bothering them.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [ ] Birds
- [ ] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [ ] Fish
- [ ] Plants
- [ ] Invertebrates
- [x] Not applicable
- [ ] Other: _____

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [x] Administration
- [ ] Contract services
- [x] Equipment
- [x] Personnel
- [ ] Supplies/materials/services
- [ ] Travel
- [ ] Other: _____

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

Administrative Costs: $2,000.00
Equipment Costs: $250.00
Personnel Costs: $10,000.00

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

We have partnered with a number of organizations to ensure that we can continue to provide our programs. The Port of Toledo provides us with a venue to run our sailing and kayaking camps, as well as storage for our boats. We have recently partnered with the Oregon State University and Portland State University sailing teams to ensure a pipeline of staff for our sailing camps, and to help us expand those programs. The Oregon Youth Sailing Foundation helps us with securing equipment. We have also recently connected with the Oregon Coast Community College to run a community education kayak class in an effort to expand our kayak program.

Timeline *

Please identify the key milestones towards completing the project and achieving results.

Hiring an Executive Director by May 2022. Expanding our sailing program to offer an Intermediate Sailing Camp by June 2022. Hiring and training guides for our kayak tours by June 2022. Securing and training instructors for our youth programs by June 2022.

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

You can explore the programs that we offer at https://oregonboatingfoundation.org. Our kayak tours, which are marketed primarily tours visitors and tourists, can be seen at http://paddlenewport.com.

We have seen great success in the last 5 years solidifying our programs, providing an endpoint for our kayaking program (employment as a guide), and establishing our scholarship fund. We are currently at a point where we know our programs are in demand, our business model has been proven, but we need to ensure that these programs will stay around forever.

Part of this effort involves expanding our sailing program, hiring an Executive Director (the position has been volunteer up until this point), and ensuring that our board provides a strong backbone of support. Each of these items is being addressed this year, but additional capital is necessary for us to ensure that our organization and the programs it provides will continue to serve our community for decades to come.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

Guided Kayak Tours in Yaquina Bay: Our guided kayak tours were introduced in 2019 due to some incredible work by our former youth campers. The idea they came up with in 2017 was an endpoint to our kayak program. After years of attending camps, and then becoming volunteer assistants, they came up with the idea to run guided tours.

Our youth camps provide the skills and training required for someone to be a kayak guide anywhere. Our mission is to get people on the water. At the time our funding sources were primarily donor and grant based, and varied from year to year. Their idea was perfect for us.

We worked with donors and grantors to secure funding to purchase six tandem sit-on-top kayaks, paddles, life jackets, and other gear required for running tours. We purchased a kayak launch dock for our boathouse. We secured permission and blessing from the Port of Newport and the commercial fishing industry in Newport. We ran countless test tours to determine the best route, and make sure the customer experience was as good as it could be.

In 2019 we launched the tours to the public, and were able to employ 8 staff members to help us. In 2020 Covid-19 happened, and our organization was shut down for the entire year. Many of the same young people returned in 2021 to help us get the tours back up and running, and we had a great season. We took nearly 1,000 out on the water this year, and hope to continue doing so in the future.

Project 2

1500 maximum characters

Free Family Boating: In 2015 one of our volunteers began running a program at our boathouse called "Free Family Boating". The idea was that one afternoon each week anyone in the community could come down, sign a waiver, put on a life jacket, and go boating. At the time it was limited to kayaks and sailboats. People showed up, and it was clear that the program was a good idea, but the venue at Port Dock 7 in Newport (where our boathouse is located) was not the right place for it.

The program was subsequently moved to the Port of Toledo and, for insurance reasons, transferred to them. We still provide material support (life jackets, boats, and volunteers) and over the last few years the program has become wildly successful. Now offering sailboats, row boats, kayaks, paddle boards, and even tours on a motor boat, the Free Family Boating program is a staple in our community.

It is so popular, in fact, that we are looking at how we can expand it to other areas. During the summer of 2019 more than 1,000 people turned out to go boating for free. We have been surprised at how many people want to go boating, but are either intimidated by the equipment, cost, and education required, or simply don't have the resources to overcome these barriers.

While Covid-19 has impacted the program in 2020 and 2021, we anticipate continuing our plans to expand the program to other locations in the near future (2022 or 2023). You can learn more at http://freefamilyboating.com

OCRF Project Proposal Form

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Email *

[redacted]

Project Information

Project Title *

Continuing the Upper Klamath Basin Juvenile Chinook Salmon Release Study

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

Four dams on the mainstem Klamath River are expected to be removed in 2023. Following Dam removal fish passage will be restored to the Upper Klamath Basin allowing Chinook Salmon to access hundreds of miles of habitat in Oregon that has been blocked for over 100 years. Historically, Chinook Salmon in the Oregon portion of the Klamath Basin were a significant part of the food source and culture of The Klamath Tribes in Oregon (TKT). ODFW is working with TKT to find the most appropriate strategy to repopulate historic Chinook Salmon habitat to harvestable levels following dam removal. Additionally, ODFW and The Klamath Tribes' Reintroduction Implementation Plan recommends that spring-run Chinook Salmon be actively reintroduced into tributaries above Upper Klamath Lake (UKL) due to the uncertainty of a source population immediately downstream of the dams that could naturally recolonize newly available habitat. The Reintroduction Implementation Plan recommends the use of juveniles from in-basin stocks to be released into suitable habitat above Upper Klamath Lake. A team of State (ODFW and CDFW), Federal (NMFS/NOAA), and Tribal (TKT) biologists intend to continue to learn how juvenile Chinook Salmon move through the Upper Klamath Basin during a hypothetical outmigration event. By releasing tagged fish in tributaries of UKL, the team hopes to use telemetry receivers in addition to existing (passive integrated transponder) PIT tag antenna arrays throughout the Basin to detect tagged individuals as thy migrate out of the upper basin. The intent of the requested funding is to continue this study for another year building on what was learned after the initial release study, which will occur in the spring of 2022. Extending this study another year will increase the ability to make better decisions when it comes to reintroducing spring-run Chinook Salmon to the Upper Klamath Basin following dam removal.

Primary Contact Person *

Mark Hereford

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Oregon Department of Fish and Wildlife - Klamath District Office

Mailing address *

1850 Miller Island Rd., Klamath Falls, OR 97601

Lead Organization Federal Tax ID *

na

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [x] East Cascades
- [x] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Klamath Falls

Project Location (County) *

Klamath

Project Start Date

MM DD YYYY

03 / 01 / 2022

Project End Date

MM DD YYYY

12 / 31 / 2023

Funding Amount Requested *

The maximum request is $20,000.

20000

Total Project Cost *

100000

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

Prior to the construction of the Klamath hydroelectric dams located in California and Oregon in the early 1900's the Upper Klamath Basin in Oregon provided hundreds of miles of habitat for Chinook Salmon. Populations of Chinook Salmon were so robust that the Klamath River Basin was the third largest producer of salmon on the West Coast, behind the Sacramento and Columbia Rivers. The cold, groundwater sourced streams of the upper basin provided habitat to some of the largest populations of spring-run Chinook Salmon, which require cool water temperatures as adults, within the entire Klamath River Basin. The exclusion of this habitat which resulted in the extirpation of Chinook Salmon in the upper basin, along with other incompatible land use practices in the Lower Klamath River Basin has resulted in extremely low numbers of spring-run Chinook Salmon in the basin as a whole. The current downward population trends of Chinook Salmon threaten the tribal substance fishing, which has sustained First Peoples of the basin since time immemorial. The Upper Klamath Basin in Oregon consists of many large groundwater sourced tributaries which are more resilient to climate change than tributaries in the lower basin. Allowing salmon access to this habitat will greatly increase the ability for salmon and steelhead to persist in the Klamath River Basin into the future in the face of climate change.

The four hydroelectric dams on the Klamath River are scheduled to be removed in 2023. Removing the dams will open up hundreds of miles of historic salmon and steelhead habitat in Oregon as well as improve water quality and a more natural flow regime downstream of the dams, with the overall goal of increasing salmon and steelhead populations throughout the basin. Oregon Department of Fish and Wildlife in collaboration with The Klamath Tribes have developed an Implementation Plan for the Reintroduction of Anadromous Fishes into the Upper Klamath Basin. While the plan is to let the majority of fish anadromous fish species repopulate habitat on their own, it has been determined that spring-run Chinook Salmon will need some assistance due to the remaining populations in the lower basin existing in habitat a long distance downstream from the dams to be removed and the available habitat in the upper basin. The plan is to first conduct release studies in the upper basin with a relatively small number of fish to better understand how well juvenile Chinook Salmon can navigate a system that has been altered since they last existed in this habitat, including two dams with fish ladders that will remain in place after the four hydroelectric dams are removed. A successful way to determine the ability of juvenile outmigration is to tag them prior to release and to subsequently detect them at key locations such as the mouths of tributaries, above and below dams, and points of diversions. ODFW and The Klamath Tribe's Reintroduction Plan specifically recommends a tag and detect study of juvenile spring-run Chinook Salmon to occur to help inform reintroduction efforts.

A team of state (ODFW and CDFW), Tribal (The Klamath Tribes), and federal (NMFS/NOAA) biologists intend to continue to learn how juvenile Chinook Salmon move through the Upper Klamath Basin during a hypothetical outmigration event. Funding has already been secured to conduct the initial release study which will occur in the spring of 2022. This initial study will help answer multiple questions about the movement behavior and survival of juvenile spring-run Chinook Salmon as they migrate out of upper basin habitat and head for the Pacific Ocean. We are requesting additional funds to continue this program for an additional year with a new batch of juvenile spring-run Chinook Salmon which will be released in late 2022 or early 2023. Building on the previous year's release study will allow biologists to include multiple years in the survival model creating a more robust estimate that includes the year-to-year variability of precipitation and other environmental factors that are known to occur and are becoming more frequent and extreme in the Klamath Basin.

The funds we are requesting will be used to help purchase Passive Integrated Transponder (PIT) tags and telemetry tags, PIT detection antenna equipment, telemetry receivers, and hatchery equipment used to feed an additional cohort of spring-run Chinook Salmon at the ODFW Klamath Hatchery. These tagged fish will be released in tributaries of Upper Klamath Lake in late 2022 or early 2023. The results and analysis of detections of these fish at key locations will help inform how to best reintroduce Chinook Salmon into the Upper Klamath Basin and will help inform where possible restoration may need to occur to help increase survival.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

The goal of this project is to continue a juvenile spring-run Chinook Salmon release with an additional batch of fish to study an additional year of data. Biologists will PIT tag up to 10,000 juvenile spring-run Chinook Salmon, of which, up to 2,000 will be tagged with telemetry tags (acoustic and/or radio). Fish will be released in tributaries to Upper Klamath Lake (Williamson River and Wood River) in late 2022 or early 2023, depending on what is learned during the initial study that will take place in early 2022. The source of the fish will be from spring-run Chinook Salmon collected at Trinity River Hatchery. ODFW has already obtained approval for the egg take request. Juveniles will be hatched and reared at ODFW's Klamath Hatchery up to the time of release.

The objective of this project is to detect tagged fish at key locations throughout the Upper Klamath Basin. We plan on utilizing already in place PIT tag detection arrays operated by the US Geological Survey located on the Williamson River, Wood River, Link River Dam Ladder, and Link River (outlet of Upper Klamath Lake). Ideally, depending on funding, additional telemetry stations would be located at the outlets of the Williamson River, Wood River, Link River, and Klamath River. Data collected from detections will be analyzed to determine movement behavior, outmigration timing, and survival as fish migrate through the Upper Klamath Basin. Results will help inform the best strategy to repopulate the Upper Klamath Basin with spring-run Chinook Salmon to harvestable levels following the removal of the Klamath River Dams.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

The expected outcome of this project will be an additional years' worth of data associated with the movement behavior, outmigration timing, and survival of released juvenile spring-run Chinook Salmon in the Upper Klamath Basin. Results will be published in a graduate student Dissertation, report and/or peer-reviewed article in a scientific journal. The results of this project will inform decisions on how to best move forward with repopulating the upper basin with spring-run Chinook Salmon. Following the removal of the four Klamath River Dams, uncertainties will still exist as to whether or not juvenile spring-run Chinook Salmon can successfully outmigrate from tributaries of Upper Klamath Lake, through the lake itself, and through two dams that will remain in place (Link River Dam; outlet of Upper Klamath Lake, and Keno Dam; a dam on the Klamath River that regulates levels for irrigation diversions).

The success of this project will be measured by how well the results inform the following questions:

1. Following the release of juvenile spring-run Chinook Salmon in tributaries of Upper Klamath Lake, what proportion of individuals successfully migrate through Upper Klamath Lake, through Link River Dam, and through Keno Dam.

2. If released juveniles do not successfully outmigrate through the Upper Klamath Basin, what impediments are preventing them from doing so, and can the impediments be rehabilitated through restoration actions?

3. What is the timing of outmigration from tributaries of Upper Klamath Lake, and what habitats are or are not being utilized by juveniles throughout the system?

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [x] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [x] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [ ] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [ ] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

This project addresses two of the Conservation and Recreation Advisory Committee Program Priorities and is connected to many of the priorities identified in the Oregon Conservation Strategy (Strategy). This project aims to understand how reintroduced spring-run Chinook Salmon navigate the complexities of the Upper Klamath Basin habitat. Doing so, will allow fish managers, habitat restoration practitioners, and others to make decisions on how to best improve habitat and connectivity for the benefit of not only Chinook Salmon, but other Oregon Strategy Species such as Redband Trout, steelhead trout, and suckers and the overall ecosystem as a whole. This project will involve collecting data using a scientific approach to identify key limiting factors relating to aquatic habitat connectivity in the Upper Klamath Basin. The geographic scope of this project aligns with two of the Conservation Opportunity Areas identified in the Strategy, the Upper Klamath Lake Area and the Klamath River Canyon; and involves monitoring of fish movements through two Strategy Habitats (Flowing water and riparian habitats, and Natural Lakes). The Strategy identifies Barriers to Animal Movement as a Key Conservation Issue. The proposed project is directly tied to the removal of four dams on the Klamath River that have blocked fish passage to Oregon for over 100 years. The proposed project is the first step in ensuring a successful repopulation of Chinook Salmon in the Klamath Basin.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [ ] Birds
- [ ] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [x] Fish
- [ ] Plants
- [ ] Invertebrates
- [ ] Not applicable
- [ ] Other: _____

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [ ] Administration
- [ ] Contract services
- [x] Equipment
- [ ] Personnel
- [ ] Supplies/materials/services
- [ ] Travel
- [ ] Other: _____

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

We are requesting funds for the purchase of equipment from the OCRF to help pay for the costs of telemetry and/or PIT tags that will be inserted into released juvenile spring-run Chinook Salmon, and for telemetry receivers that will be placed at key locations throughout the Upper Klamath Basin for the purpose of detecting tagged fish.

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

Oregon Department of Fish and Wildlife

- Coordination, data collection/monitoring, study design, tagging, egg request, juvenile Chinook Salmon rearing, boots on the ground, data analysis, reporting

The Klamath Tribes

- Data collection/monitoring

NOAA Fisheries

- Study design, data analysis, reporting

California Department of Fish and Wildlife

- Collection and fertilization of Chinook Salmon, juvenile Chinook Salmon rearing

Timeline *

Please identify the key milestones towards completing the project and achieving results.

Fall 2021, California Department of Fish and Wildlife (CDFW) collects and spawns adult spring-run Chinook Salmon. Fall 2021 to fall/winter 2022/2023, Juvenile spring-run Chinook Salmon are hatched and reared at ODFW Klamath Hatchery. Summer 2022 to Spring 2023, Deploy and test telemetry receivers. Fall 2022 or spring 2023, Juvenile Spring-run Chinook Salmon tagged and released in tributaries of Upper Klamath Lake (Williamson River, Wood River). Fall 2022 to Summer 2023, Monitor fish movements through Upper Klamath Basin. Summer 2023 to Winter 2024, Analyze data, present findings (presentations, reports, published articles).

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

Staff at the Klamath ODFW District Office have led and completed multiple telemetry projects to assess fish movement. Most recently, staff completed a project, in which adult Redband Trout were tagged with telemetry tags to investigate their habitat use in Upper Klamath Lake and its tributaries. The results of this study indicate that adult Redband Trout are utilizing Upper Klamath Lake for forage when water temperatures are suitable and utilize the tributaries for spawning in the winter months and as cold-water refuge in the summer. The results of this study highlight the importance of cold water refuge for these lake fish in the summer, but also shows the importance of the lake habitat as a food source where they optimize their growth. Current and future habitat restoration efforts will be guided by the results of this study because tagged fish were documented in habitat that was previously not known to be important for these fish. This study demonstrates how the use of telemetry can inform management and restoration decisions and has led us to conclude that telemetry is a viable tool to assess the movement and habitat use of tagged juvenile spring-run Chinook Salmon.

Project 2

1500 maximum characters

Staff at the Klamath ODFW District Office have led and completed a project to assess the movement of juvenile Redband Trout tagged with Passive Integrated Transponder (PIT) tags in tributaries of Upper Klamath Lake. Juvenile Redband Trout were caught in tributaries of Upper Klamath Lake and implanted with PIT tags and released. The question was, would tagged juveniles get detected at stationary PIT tag detection arrays already in place for the detection of adult ESA-listed suckers? The results of this study demonstrate that while the targeted species for detection at the stationary arrays were not juvenile salmonids, tagged juvenile Redband Trout were readily detected. This study concluded that PIT tag detection arrays, which are located throughout the Upper Klamath Basin for the purpose of monitoring ESA-listed suckers can also be utilized to detect juvenile salmonids.

OCRF Project Proposal Form

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Email *

[redacted]

Project Information

Project Title *

2021 - YC Trap Team

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

encouraging youth at Yamhill Carlton and the surrounding areas to get outside, and try something new

Primary Contact Person *

Shavaghn Petraitis

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Yamhill Carlton High Scholl

Mailing address *

120 N Larch Place, Yamhill, Oregon 97148

Lead Organization Federal Tax ID *

93-6001098

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [x] Coast Range
- [ ] Columbia Plateau
- [ ] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Dundee

Project Location (County) *

Yamhill

Project Start Date

MM DD YYYY

09 / 01 / 2021

Project End Date

MM DD YYYY

07 / 31 / 2021

Funding Amount Requested *

The maximum request is $20,000.

2500.00

Total Project Cost *

8400.00

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

Our goal for the trap team, Safe and responsible handling and storage of firearms and ammunition is the first priority.

Everyone should have fun.

Participation is a privilege and not a right.

Sportsmanship needs to have a constant presence.

Students should have an equal opportunity to participate.

Ethical behavior, dignity and respect are expected.

Participants will be chemically free.

Collaborative relationships with schools and students create a positive experience.

Academic priorities must come before participation.

Adults must serve as a positive role model to students.

The success of the team is more important than individual honors.

Gun clubs are critical to the success of the League and are positive business leaders in their community.

Compliance with school, community, gun club and League rules are essential for all participants.

Shooting sports strengthens connections within families and communities for life.

Everything the League does will always be in the best interest of the students.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

to encourage youth to try something new in a safe environment

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

Our team collects weekly progress scores

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [ ] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [ ] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [x] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [ ] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

I don't believe it does

For projects that address a conservation priority, what are the primary taxa that will affected?

- [ ] Birds
- [ ] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [ ] Fish
- [ ] Plants
- [ ] Invertebrates
- [ ] Not applicable
- [ ] Other: .....

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [ ] Administration
- [ ] Contract services
- [x] Equipment
- [ ] Personnel
- [x] Supplies/materials/services
- [ ] Travel
- [ ] Other: .....

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

With the fundraising the team will be able to significantly reduce the cost for each shooter and guarantee our team will have enough ammo to practice and compete all year long

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

NRA, and First Federal Savings

Timeline *

Please identify the key milestones towards completing the project and achieving results.

Purchase a pallet of 12g and 20g.

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

http://orclaytarget.com/, https://www.usaclaytarget.com/

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

This will be Yamhill Carltons 4th year having a competitive team. Our team is combined of Gaston, Sherwood, McMinnville and YC shooters. Each ear we have increased our shooters. from 1st year we had 5 shooters, this season we are looking at 25.

Project 2

1500 maximum characters

Nationals: our goal is to send a team each year. The first year we sent a team was 2019, we sent 5 shooters, and in 2021 we sent 8 shooter. for the 2022 spring season we are expecting to send 10 shooters.

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Bull Gap Jump Line

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

The Bull Gap Jump Line (BGJL) would convert one mile of rutted, rocky, run-off prone Forest Service road into a flowing, fun draw for mountain bikers of all abilities while also improving water quality in the Ashland Watershed A mountain bike "jump line" is a smooth, rolling trail consisting of jumps, berms, whoops and other features. Many mountain bikers seek out these trails for their unique experience.The Ashland Watershed currently has just one such trail: Lizard, and it is by far the most popular trail in Southern Oregon. Adding another jump trail higher up on the mountain would provide mountain bikers an ideal flowing "bookend" experience. The Bull Gap Jump Line would serve a host of trail users, not just mountain bikers. In its current state, uphill hikers, joggers and equestrians must share the rock-strewn, blown out road with downhill mountain bikers. The conversion of the road into two, separated trails would provide uphill hikers, runners and equestrians a safe, enjoyable, ankle-friendly route while providing mountain bikers an improved downhill experience on a separate purpose-built trail. Just as important, this road to trail conversion would be an environmental win. By converting the current wide dirt road into two narrower, sustainable trails, runoff and sediment would be greatly reduced. The Bull Gap Jump line would also draw riders away from less sustainable, user-created trails for additional environmental benefit. The jump line build would be followed by the decommissioning of these unsanctioned “skid trails” to further reduce runoff.

Primary Contact Person *

Martin Stadtmueller

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Rogue Valley Mountain Bike Association

Mailing address *

2305 Ashland Street, Ste. C, PO Box 202

Lead Organization Federal Tax ID *

46-5209569

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [ ] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [x] West Cascades

Project Location (City) *

Ashland

Project Location (County) *

Ashland Watershed

Project Start Date

MM DD YYYY

09 / 01 / 2020

Project End Date

MM DD YYYY

10 / 31 / 2022

Funding Amount Requested *

The maximum request is $20,000.

20000

Total Project Cost *

110000

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

The Bull Gap Jump Line (BGJL) would convert one mile of rutted, rocky, run-off prone Forest Service road into a flowing, fun draw for mountain bikers of all abilities while also improving water quality in the Ashland Watershed

A mountain bike "jump line" is a smooth, rolling trail consisting of jumps, berms, whoops and other features. Many mountain bikers seek out these trails for their unique experience.The Ashland Watershed currently has just one such trail: Lizard, and it is by far the most popular trail in Southern Oregon. Adding another jump trail higher up on the mountain would provide mountain bikers an ideal flowing "bookend" experience.

The project would be completed by a professional trail building company. RVMBA has been working with Trail Labs, Co out of Mt. Shasta, CA to develop a plan for trail construction. Trail Labs, Co is best known regionally for their work in Redding, CA. In partnering with the BLM, they created two iconic trails that now are a tourism draw for an area not normally known for tourism. In fact, the area played host to a NICA race in 2020 (the last before COVID) bringing in an estimated $750,000 to the region over a three day weekend event.

Trail Labs Co would work closely with USFS land managers, geologists, and archaeologists to ensure building specifications were met. Several on-site and office meetings have taken place already, allowing RVMBA and Trail Labs Co to address questions and concerns from land managers. The project would draw on existing resources such as the trail itself, and utilizing soils from the hillside that would be mined in an environmentally conscious way to keep natural resources as the base for the trail, and cut down on the amount of outside resources needed to supplement.

BGJL is a similar project to the Redding examples in that it is a road to trail conversion. The project would employ a simultaneous building of trail and decommissioning of road, restoring over half of the road bed to a natural state. By reducing road footprint, impactful sediment collection in waterways can be mitigated. Creating sustainable trails and protecting the Ashland Watershed with net-positive impacts like road to trail conversions is paramount in keeping Ashland and the Rogue Valley a sustainable mountain bike destination.

Included in the project is the creation of a separate multi-user climb trail that would serve uphill mountain bikers, as well as hikers, runners and even equestrians. This component of the project would allow riders to complete more than one lap on the trail at a time, as well as drive or ride to the Mt. Ashland Ski Area parking lot with the intent of spending more time on the upper mountain. With Mt. Ashland Ski Resort looking into how it can best supply summer recreation, this project would bolster the number of visitors to the area. If Mt. Ashland decided to open their lodge or host summer events, showcasing a brand new trail would be an amazing selling point.

Outdoor recreation in general and mountain biking in particular have experienced a meteoric rise during the COVID-19 pandemic, due to the fact that the outdoors provide a COVID-safe experience. Mountain biking is an inherently socially-distanced activity. Providing people safe places to spread out while enjoying the mental and physical benefits of nature has proven to be an important outlet during these pandemic times. However, this can sometimes come with added traffic and social contacts when users congregate at the same trail heads and ride the same routes. Adding the Bull Gap Jump line would actually draw more

mountain bikers to new experiences in the upper watershed, helping to spread riders out for added COVID safety.

The Bull Gap Jump Line would serve a host of trail users, not just mountain bikers. In its current state, uphill hikers, joggers and equestrians must share the rock-strewn, blown out road with downhill mountain bikers. The conversion of the road into two, separated trails would provide uphill hikers, runners and equestrians a safe, enjoyable, ankle-friendly route while providing mountain bikers an improved downhill experience on a separate purpose-built trail.

Just as important, this road to trail conversion would also be an environmental win. By converting the current wide dirt road into two narrower, sustainable trails, runoff and sediment would be greatly reduced. The Bull Gap Jump line would also draw riders away from less sustainable, user-created trails for additional environmental benefit. The jump line build would be followed by the decommissioning of these unsanctioned “skid trails” to further reduce runoff.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

The Bull Gap Jump Line would have two sets of complementary goals; one recreational, the other environmental.

Recreationally, the Bull Gap Jump Line would deliver an improved user experience for all trail users. Mountain bikers would have a safer, more inclusive and far more enjoyable downhill experience that would appeal to riders of all abilities. And thanks to its separate uphill trail, hikers, runners and equestrians would have their own trail devoid of the ankle twisting rocks strewn throughout the existing trail. What’s more, by providing two separate trails, the Bull Gap Jump Line would also reduce user conflicts and greatly improve safety for all users.

Environmentally, the Bull Gap Jump Line would be a huge win for the Ashland Watershed. Converting the current runoff-prone fire road into two considerably smaller trails with properly managed drainage would greatly reduce the sediment making its way down through the watershed.

In addition, the Bull Gap Jump Line would allow for the successful decommissioning of several user-created skid trails, further reducing sediment runoff. Without an appealing alternative such as the Bull Gap Jump Line, any attempts to decommission these trails would likely be short-lived and futile. By providing a better, more enjoyable alternative trail, the Bull Gap Jump Line would draw mountain bikers away from these skid trails to ensure the long-term sustainability of any trail decommissioning efforts.

These goals all factored into the Rogue Siskiyou National Forest Service District’s recent approval of the Bull Gap Jump Line project.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

The Bull Gap Jump Line will deliver a host of positive results. For trail users of the upper watershed, whether hiker, runner, equestrian or mountain biker, the BGJL will provide a greatly improved user experience.

The current Bull Gap fire road doesn't work well for any of its trail users. For downhill mountain bikers, this one mile stretch of rock strewn fire road is where riders are most likely to suffer wheel & tire damage. It is also where riders, particularly those who are inexperienced, are most likely to be injured by crashing on the uneven rocky, rutted road. The Bull Gap Jump Line will provide a safer, more enjoyable downhill experience for mountain bikers of all abilities.

For hikers, runners and equestrians, the BGJL's separate climb trail will be a huge improvement over the current situation of picking one's way up between the rocks while also dodging downhill mountain bike traffic.

The Bull Gap Jump Line promises to become an area highlight, drawing mountain bikers and other trail users from around the Pacific Northwest to experience the local trail system. This in turn will help boost the local Ashland economy, which is currency reeling from the effects of covid and the closure of the Oregon Shakespeare Festival.

Environmentally, the Bull Gap Jump Line will be a significant win, reducing sediment runoff in two important ways. The first will result from converting the existing runoff-prone rutted fire road into two separate, smaller trails.

Secondarily, creation of the Bull Gap Jump Line will allow for the successful decommissioning of several existing unsanctioned "skid trails" that contribute to sediment runoff.

Metrics for measurement could range from trail counters demonstrating the number of riders NOT using skid trails, to water quality meters demonstrating the reduction in sediment, to local economic data demonstrating the uptick in tourist spending.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [x] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [ ] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
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- [x] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [x] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

The Bull Gap Jump Line will be a win for both recreational trail users, including hikers, runners, equestrians and mountain bikers, as well as the full range of flora and fauna that occupy the Ashland watershed, thanks to reduced sediment runoff and the narrowing of a fire road into two, much smaller trails. This road-to-trail conversion promises to improve habitat through improved water quality and enhance connectivity thanks to the elimination of the current wide fire road.

Recreationally, the creation of a separate hiker/runner/equestrian trail will likely bring more users to the upper watershed to enjoy the spectacular views and old growth forest habitat.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [ ] Birds
- [ ] Mammals
- [x] Reptiles
- [x] Amphibians
- [x] Fish
- [x] Plants
- [x] Invertebrates
- [ ] Not applicable
- [ ] Other: _____

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [ ] Administration
- [x] Contract services
- [ ] Equipment
- [ ] Personnel
- [ ] Supplies/materials/services
- [ ] Travel
- [ ] Other: _____

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

All funds will be used to pay our selected trail building specialist. As a fully volunteer led, 501(c) 3 organization, Rogue Valley Mountain Bike Association will be managing the project, in partnership with the Forest Service, but not drawing any funds.

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

Rogue Valley Mountain Bike is partnering with the Rogue River Siskiyou National Forest Service. The Forest Service completed the NEPA process and will be in charge of ensuring that all construction complies with their NEPA standards and meets agreed upon goals.

Timeline *

Please identify the key milestones towards completing the project and achieving results.

December 2016 - Project idea proposed to USFS by RVMBA 2017 - Project added to list of Rogue River/Siskiyou NF (RR/SNF) projects 2019 - With no progress, RVMBA reignites discussion around the project in meetings with USFS Recreation Manager. Fall 2019 - RVMBA walks project with USFS and Trail Labs, Co 2020 - Project enters RR/SNF steering committee discussion and gains momentum June 2020 - RVMBA walks project with additional USFS personnel and Trail Labs, Co. Project receives green light for NEPA work Fall 2020 - RVMBA receives Bull Gap Planning Package from Trail Labs, CO to support project and USFS inquiries. January 2021 - RVMBA meets with USFS to discuss progress and funding avenues for a targeted spring 2021 build date. March 2021 - RVMBA and USFS discuss Travel Oregon grant as funding source. Meeting takes place with Brian White creating a memo giving USFS full support. Future Timeline: March 2021-June 2022 - Secure funding for project. USFS and RVMBA will contract with a trail building company to begin the building process. June 2022 - Begin construction. Estimated build time is 6-8 weeks.

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

Rogue Valley Mountain Bike Association designed, raised funds for, and built the Jabberwocky II trail in the lower Ashland Watershed. Like the Bull Gap Jump Line, Jabberwocky II was one element of the Forest Service Ashland Trails Project. Jabberwocky II replaced the original Jabberwocky trails due to it being unsustainable (too steep) and passing through Riparian Reserves.

The Jabberwocky II trail has been an undeniable success. It replaced a slide and runoff prone, seldom ridden trail with arguably the most popular trail in Southern Oregon. Much like the Bull Gap Jump Line, Jabberwocky II increased recreational enjoyment while reducing runoff and improving environmental conditions for local flora and fauna. Win. Win.

Project 2

1500 maximum characters

Rogue Valley Mountain Bike Association designed, raised funds for, and built the Lizard jump and flow line in the Ashland Watershed. Another key piece of the Forest Service Ashland Trails Project, Lizard trail was created to separate hiker/runner users from downhill mountain bikers. The goal in separating users is to decrease conflict, improve safety and also improve the trail experience for all users.

The Lizard trail is a clear success on all fronts. Not only is the Lizard trail itself a hit with mountain bikers from all over southern Oregon, by pulling mountain bikers off the old, shared use trail, the hiking and running experience has been greatly improved for those trail users as well.

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Employing community science and photography to study the diets of tufted puffins and other at-risk coastal birds at Haystack Rock, Oregon

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

One of the major hurdles to increasing our ecological knowledge of coastal birds in Oregon is a lack of specific diet information. Understanding the dietary composition of these species has important management ramifications as marine bird populations are linked to the prey that they forage on, but quantifying diets of marine birds is challenging. To address this knowledge gap, we have developed a wide-ranging, inclusive and public-focused community science effort to improve our understanding of the diets of Oregon's tufted puffins (Fratercula cirrhata) and other coastal Oregon birds. Our project is designed to both address an ecological question and provide accessible information, education and engagement opportunities to a diverse group of Oregonians and visitors. To do this, we have built Birds with Fish which is a community science initiative aimed at engaging nature photographers to submit photographs of birds on the Oregon coast carrying fish, crabs or other marine invertebrates in their bills and talons. In 2020 the U.S. Fish and Wildlife Service decided not to list the tufted puffin under the protections of the Endangered Species Act. In doing so, there were a handful of data gaps identified. One of which was what are tufted puffins feeding their chicks during breeding season on the Oregon coast? This question inspired us to develop Birds with Fish. However, building a contextual understanding of what other coastal birds are eating can provide important hints to better interpret the diets of tufted puffins thus we extended this question to what are all coastal Oregon birds eating? By simultaneously engaging the nature photography community, building awareness about avian conservation in coastal communities, and collecting data on bird diets along the coast we can begin to better understand populations of marine birds along the Oregon coast.

Primary Contact Person *

Dr. Rachael Orben

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Oregon Wildlife Foundation

Mailing address *

901 SE Oak Street, Suite 103, Portland, Oregon 97214

Lead Organization Federal Tax ID *

93-0797904

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [x] Coast Range
- [ ] Columbia Plateau
- [ ] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Cannon Beach, Oregon (and rest of Oregon coast)

Project Location (County) *

Clatsop, Tillamook, Lincoln, Lane, Douglas, Coos, Curry

Project Start Date

MM DD YYYY

01 / 01 / 2022

Project End Date

MM DD YYYY

12 / 31 / 2022

Funding Amount Requested *

The maximum request is $20,000.

20000

Total Project Cost *

40000

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

The Oregon coast supports a diverse collection of avian species that rely on marine and estuarine prey such as fish, crabs, squid, clams and more. Populations of tufted puffins, pigeon guillemots, and common murres, among many others, are linked to the forage fishes of coastal Oregon waters. Changing oceanic conditions along the California Current Large Marine Ecosystem, extreme events such as the 'the blob', stress from commercial fishing and reductions in suitable habitat due to coastal erosion and vegetation changes have placed increased pressure on coastal Oregon birds. These shifts in oceanic conditions and extreme events like 'the blob' have had quantifiable impacts on Oregon's coastal ecosystems (Petersen et al. 2017). To better understand impacts on coastal Oregon birds, studying the diet composition of a variety of coastal species is necessary.

However, currently bird diet composition on the Oregon coast is greatly understudied – particularly in species such as the tufted puffin which have seen marked population declines along the Oregon coast of up to 90% (Stephensen 2021). Understanding how the diets of tufted puffins and other bird species may be changing over time can provide us with vital ecological information necessary to make management and conservation recommendations moving forward. However, collecting this information can be a challenging task as many of Oregon's coastal bird species nest on inaccessible offshore islands or difficult to observe headlands. For species like tufted puffins which have unique breeding characteristics, minimizing disturbances while maximizing diet data collection is of the utmost importance.

Community science presents an interesting alternative tool to address questions like diet composition for birds like tufted puffins while minimizing such disturbances. Our project, Birds with Fish, is a coast-wide effort to engage photographers to submit old and new pictures of birds carrying fish, squid, crabs or other marine and estuarine invertebrates along the Oregon coast. In doing so, we hope to collect temporally robust photographic data of a variety of birds along the Oregon coast with prey in their bills or talons.

Birds with Fish ran its pilot season in 2021. In the first season the project proved to be popular among participating coastal communities including Cannon Beach and Bandon. In addition, there were >50 submissions from >12 photographers. The project intern was also able to collect ~8,000 photographs from Haystack Rock of tufted puffins and common murres with fish. These photos are currently being reviewed to identify prey items when possible. The initiative garnered considerable interest from a long list of coastal collaborators and has been a featured lecture topic for Friends of Haystack Rock and Shoreline Education for Awareness. In addition, Birds with Fish will be giving talks to Oregon Shores Conservation Coalition, the Oregon Birding Association and the Cape Perpetua Collaborative. In addition, the project received financial and administrative support from the Oregon Wildlife Foundation and the Oregon Birding Association. More information on the project can be found at the project's website (blogs.oregonstate.edu/coastaloregonbirds). Financial support from the OCRF will allow us to continue Birds with Fish and tufted puffin diet photos into a second summer season.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

To address this question of “what fish and other aquatic invertebrates do our coastal Oregon birds eat?” while protecting the integrity of coastal bird habitats, we have built a coast-wide community science initiative called “Birds with Fish” which is focused on encouraging local and traveling nature photographers to submit pictures of birds carrying fish, crabs, squid or other marine and estuarine invertebrates in their bills and talons. By sourcing photographs from experienced nature photographers along the Oregon coast we are building a data set of what our coastal birds are eating, when and where, while simultaneously engaging coastal communities and Oregon birders in a collective effort to increase our knowledge of Oregon’s coastal birds.

Objective 1: Maintain interest and awareness of Birds with Fish. To do this we will work with the Oregon Wildlife Foundation and other coastal groups to continue to share Birds with Fish. Birds with Fish has already been featured in numerous social media posts, newsletters and fundraisers and is supported by a diverse group of organizations committed to 1) increasing public engagement and opportunities for involvement in coastal conservation and 2) increasing our ecological knowledge of coastal Oregon birds. The future of Birds with Fish could provide more opportunities for involvement, volunteering and diverse cross-demographic engagement in coastal Oregon birding, bird photography and ecological research. Some current supporting and collaborating groups include the U.S. Fish and Wildlife Service, Friends of Haystack Rock, Haystack Rock Awareness Program, Oregon Wildlife Foundation, Shoreline Education for Awareness, Kalmiopsis Audubon Society, Lane County Audubon Society and Portland Audubon, and the Bureau of Land Management.

Objective 2: Continue a targeted effort to photograph tufted puffins with prey at Haystack Rock, Oregon. To do this we will have an intern in Cannon Beach, Oregon for the months of July and August. This intern focuses on capturing photographs of Haystack Rock’s tufted puffins carrying fish back to their burrows. Additionally, we plan to upgrade our current photographic equipment to increase our ability to capture photos where prey can be identified.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

Birds with Fish has four main outcomes:

1. Highlight the value of photography as a method to study the diets of coastal birds in Oregon.
2. Engage coastal Oregon communities to raise awareness about the importance of coastal avian conservation through community science.
3. Increase our ecological understanding of the diets of Oregon's coastal piscivorous birds, particularly the Oregon Conservation Strategy species, the tufted puffin.
4. Contribute to conservation and management recommendations for coastal bird and fish species.

The main measurable outcome desired is to the maximize the collection of photographs of tufted puffins with bill loads on the Oregon coast. This is done through the combination of a project intern focused on photograph collection at Haystack Rock and activation of volunteer photographers during July and August, the prime months for tufted puffins to carry food back to their burrows.

Secondly, the project attempts to engage with the Oregon coast community through a series of public seminars and talks that provide project descriptions, updates and information on how to get involved – including important photographic specs and expectations.

The development of a photographic processing methods and protocol and resulting dataset will be a measurable outcome of this work. This will allow future prey identification and photo processing to be more efficient.

The tufted puffin diet data will form the basis of a scientific publican submitted to the open access journal Marine Ornithology.

The outcomes of this project will be summarized in a blog for the public and in a final report.

Lastly, close collaborations with a variety of coastal conservation groups and the U.S. Fish and Wildlife Service give the results of this project a unique platform to be used in recommendations to coastal wildlife managers.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [ ] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [x] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
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- [ ] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

The tufted puffins in the California Current Large Marine Ecosystem (CCLME) saw large declines in population numbers from the 1980's to 2008. In 1988, the U.S. Fish and Wildlife Service (USFWS) conducted a survey of the Oregon islands and recorded 4,858 birds nesting on 49 distinct islands. In 2008, the next survey found just 142 birds observed on 15 islands (Kocourek et al. 2009). Furthermore, habitat modeling has identified that populations reliant on suitable rocky island habitats in northern California, Oregon and Washington are at risk of complete extirpation by 2050 under climate change scenarios (Hart et al. 2018). In addition to climate change, oil spills, fisheries bycatch, predation, invasive species and anthropogenic disturbances can all negatively contribute to tufted puffin populations (USFWS 2020). Tufted puffins can provide important information about the availability of forage fish in the marine system (Schoen et al. 2018). These indicators, along with diet information about coastal bird species, can illustrate a map of what fish species birds are consuming, when, and where. Understanding the diets of coastal birds can be challenging. The engagement, collaboration and inclusion of coastal communities in this initiative is the underlying principle of the project. Birds with Fish is an Oregon coast community science initiative designed to engage photographers and beachgoers to submit data and coastal communities to raise awareness about avian conservation.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [x] Birds
- [ ] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [x] Fish
- [ ] Plants
- [ ] Invertebrates
- [ ] Not applicable
- [ ] Other: _____

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [x] Administration
- [ ] Contract services
- [x] Equipment
- [x] Personnel
- [x] Supplies/materials/services
- [x] Travel
- [ ] Other: _____

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

Administration – 5% fee to fiscal managers Oregon Wildlife Foundation ($952). Birds with Fish Project Manager ($24/hr, 36hr/month, 10 months, $8640). Tufted Puffin Intern (2 months, $4,400). Local field travel ($300). Intern housing ($1000). Camera and lens ($4500) and associated equipment ($208).

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

Oregon Wildlife Foundation:
Oregon Wildlife Foundation partners as our fiscal and fundraising managers.

U.S. Fish and Wildlife Service:
The U.S. Fish and Wildlife Service has been conducting periodic surveys of coastal birds in Oregon for many decades. The Oregon Coast National Wildlife Refuge Complex has partnered with our project to offer equipment and consultation support for the project.

Friends of Haystack Rock:
Friends of Haystack Rock is a small non-profit based in Cannon Beach with a heavy focus on tufted puffin education and awareness. In the pilot season of the project Friends of Haystack Rock offered housing support for the summer intern.

Timeline *

Please identify the key milestones towards completing the project and achieving results.

January 1, 2022-Dec 30, 2023. January-May 2022, Process photos collected in 2021, identify prey items, and summarize results. April 2022, Hire intern. May 2022, Renew social media campaign to advertise Birds with Fish, including Instagram and blog posts. July-August 2022: Tufted puffin and common murre prey load photography at Haystack Rock. Sept-October 2022: Identify prey items from photos collected in summer 2022 and summarize results. December 2022: Final report and scientific manuscript prepared for submission to Marine Ornithology.

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

The project's updates can currently be found at blogs.oregonstate.edu/coastaloregonbirds

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

The Sturgeon Lake Restoration Project replaced failing culverts under Reeder Road with a bridge and revived the Dairy Creek channel connection between the Columbia River and Sturgeon Lake. The sediment plugging the creek was deposited by the 1996 Columbia River flood. The fully reconstructed channel is designed to provide a tidal connection from the Columbia into Sturgeon Lake long into the low flow summer months; maximizing juvenile salmon access to the lake for rearing through most months of the year and helping reverse the accumulation of sediment. Oregon Wildlife Foundation was the fiscal sponsor for private gifts in support of this project. The Foundation raised just over $500,000 to leverage additional public funding for this $6.5 million dollar initiative.

Project 2

1500 maximum characters

In 2019, ODOT built a dedicated wildlife underpass on HWY 97 near the town of Gilchrist as part of a passing lane project. This portion of 97, in central Oregon, is a red zone for wildlife-vehicle collisions (WVCs) as the highway cuts across historic mule deer migration routes. Unfortunately, ODOT didn't have enough money in their budget for funnel fencing, deer guards (at roads intersecting the project area), or jump-outs; critical elements in all successful wildlife passage projects. The estimated cost for the add-ons was $959,000. Oregon Wildlife Foundation, in partnership with ODFW, ODOT, and other wildlife conservation nonprofits, jumped in to raise the necessary funds. The Foundation and partners have raised $856,000 so far and construction of the fencing and other elements is currently underway. Once fully-built, this project is expected to significantly reduce WVCs in this area of hwy 97. The dedicated wildlife underpasses near Sun River on hwy 97, have reduced WVCs by 86% over the last 10 years.

Google Forms

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

New Monitoring Technique for Yellow Rail in East Cascades Ecoregion

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

Yellow Rails are a species of conservation concern because of their specialized habitat needs within shallow wetland systems. In particular, the core of the western Yellow Rail population resides in Klamath Marsh National Wildlife Refuge and its persistence is reliant on consistent wetland conditions. Little is known about Yellow Rail ecology and distribution outside of the Klamath Marsh and a few surrounding wetlands. To reduce the uncertainty about the species future, considerable work is needed to survey similar wetland habitats across a broader landscape to determine site occupancy and abundance. Such efforts will create a reference point and accurate distribution map from which to begin to understand how global stressors maybe affecting Yellow Rail and its habitat in western North America. Our goal is to design a survey methodology using Automated Recording Units (ARUs) that could be deployed across a broader region in the near future.

Primary Contact Person *

christian hagen

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Oregon State University

Mailing address *

Dept. Fisheries, Wildlife & Conservation Sciences

Lead Organization Federal Tax ID *

61-1730890

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [x] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [x] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Chemult (Klamath Marsh National Wildlife Refuge)

Project Location (County) *

Klamath

Project Start Date

MM DD YYYY

04 / 01 / 2022

Project End Date

MM DD YYYY

12 / 31 / 2022

Funding Amount Requested *

The maximum request is $20,000.

19997

Total Project Cost *

19997

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

Background

The upper Klamath Basin once had an extensive shallow lake and marsh system, but much of that system has been lost due to drainage and conversion to agriculture and changes in land use. These changes have contributed to the complex issues surrounding water use and species conservation in the Basin. The remaining wetlands in the Klamath Basin support one of the largest concentrations of waterfowl in North America, and the area is a critical migratory staging area for 80 percent of all Pacific Flyway waterfowl. The Klamath Basin provides Oregon's primary permanent nesting areas for Yellow Rails (Coturnicops noveboracensis).

Yellow Rails are primarily found breeding in Central and Eastern North America in shallow wetlands during the breeding season from Alberta to Quebec in Canada, and in the adjacent US from northeast Montana through Michigan. A disjunct western population breeds in southcentral Oregon, with smaller numbers of birds found in northeastern California and British Columbia. In Oregon, Yellow Rails were rediscovered in the Wood River Valley near Fort Klamath in the early 1980s, after not being noted since the late 1920s. During the late 1980s and early 1990s, nighttime surveys identified additional breeding areas outside the Wood River Valley, including Sycan Marsh and Klamath Marsh National Wildlife Refuge. In the late 1990s and 2000s, two additional consistently occupied sites outside the Klamath Basin were identified - Big Marsh and Summer Lake SWA.

Coordinated breeding season (June) surveys in 2000-2002 found a total of 184, 199, and 235 male Yellow Rails calling at known sites in Oregon, with 72-74% of those birds located on Klamath Marsh NWR. In 2021, most of the main sites were re-surveyed, with a total of 125 males heard (78% on Klamath Marsh NWR). It is likely that a main reason for the decline in numbers is due to the ongoing drought in the Klamath Basin, although management of some areas including grazing (which decreases senescent nesting cover) and other areas where water is channelized (decreasing shallow wetlands) is of concern.
Yellow Rails are known to utilize shallow marsh and wet meadow habitat averaging 6-7cm in depth at male calling sites, and slightly shallower at nest sites, which were almost always concealed by senescent vegetation. As breeding sites begin to dry up in the late spring and early summer, telemetry work in 1995-1996 showed that males move within a site and sometimes from one site to another to stay in areas with shallow water that also provide vegetative cover. Movements of at least 57 km during the breeding season have been noted during those capture and banding efforts (from Sycan to Klamath Marsh), though the other handful of movements documented between sites were much smaller (4-10 km). Over 10 years of banding information showed that about 11% of the adult males return to the same site in the following year.

Research Needs
With increased drought and fire, gaining a better understanding of the distribution of Yellow Rail in Oregon and the Western US is critical if this disjunct population is to survive ongoing habitat changes. In the Upper Klamath Basin, 85-90% of their original shallow marsh habitat was lost by the 1980s, and while recent restoration projects focused on other species may create or restore wetland habitats, more attention and research is needed on how this species utilizes shallow marsh habitat, as well as their ability to find new breeding areas.
It is possible that some of the Yellow Rails normally breeding in the Klamath Basin are migrating further north, east, or west in search of suitable breeding habitat into other parts of Oregon or adjacent states or

BC. But extensive surveys have not been done outside the Klamath Basin, and efforts to track migrating birds using radio tags have not yet succeeded.
Without a better understanding of how hydrology affects Yellow Rails, and documenting their migration routes and wintering locations future management of the species and their habitat is uncertain.

There is a need to establish a more definitive distribution map to serve as a foundation or reference point for future conservation efforts. Thus, expanding survey effort and monitoring of Yellow Rail occupancy and abundance in known and potential habitat is needed. Current survey methods are time intensive and require substantial human capital to complete even for small areas. The use of automated recording units (ARUs) is becoming more commonplace and recognized as valid tool for determining species occupancy and even abundance, and often with less human resources.

Our goal is to conduct field trials of AudioMoth ARUs to assess their effectiveness in detecting Yellow Rails. Specifically, our objectives are 1) to determine detection distance of Yellow Rail calls by the AudioMoth, 2) using the established detection distance design transects or plots that can be deployed in both occupied and potential habitats, 3) trials comparing ARU transects to human surveys, and 4) from this work provide a protocol for the use ARUs in monitoring occupancy and abundance of Yelllow Rail over much broader landscapes.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

Our goal is to conduct field trials of AudioMoth ARUs to assess their effectiveness in detecting Yellow Rails. Specifically, our objectives are 1) to determine detection distance of Yellow Rail calls by the AudioMoth, 2) using the established detection distance design transects or plots that can be deployed in both occupied and potential habitats, 3) trials comparing ARU transects to human surveys, and 4) from this work provide a protocol for the use ARUs in monitoring occupancy and abundance of Yelllow Rail over much broader landscapes.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

We will provide, in form of a scientific publication, a methodological description on best use of ARUs (Audiomoth in particular) in surveying and monitoring of Yellow Rails across broad landscapes.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [ ] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [x] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [ ] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [ ] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

Wetland habitats of the Klamath Basin are identified as a high priority for conservation in the East Cascades Ecoregion. Moreover, Yellow Rail are a Strategy Species in the OCS. Our work will support the filling in one of the Data Gaps identified for the species in the OCS, "Complete an inventory of potential breeding habitat in south-central Oregon..." Deployment of ARUs across broad landscape both in the Klamath Basin and in portions of the Northern Basin and Range (e.g., Summer Lake, Malheur National Wildlife Refuge) will directly inform a map of Yellow Rail occupancy and potential habitat. First we must develop the methodology and that is what our work aims to accomplish.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [x] Birds
- [ ] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [ ] Fish
- [ ] Plants
- [ ] Invertebrates
- [ ] Not applicable
- [ ] Other: .....

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [x] Administration
- [x] Contract services
- [ ] Equipment
- [x] Personnel
- [x] Supplies/materials/services
- [ ] Travel
- [ ] Other: .....

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

OCRF funds will be used primarily ($11,700) to hire a technician to conduct the field trial and experiment. Seasonal technicians are typically hired through Bluesun Employment services and falls under "contract" services per OSUs budgeting. Principal investigator (C. Hagen) is requesting 1 week of salary ($2548) + OPE ($1027) towards managing the technician over the course of the field season. We are requesting $595 towards miscellaneous supplies, which might include playback speakers, posts to hold ARUs, waders, memory cards, batteries. OSU requires 26% ($4126) of direct costs ($15,871) to go towards administration of the grant.

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

Klamath Marsh National Wildlife Refuge, housing vehicles, volunteer time

Timeline *

Please identify the key milestones towards completing the project and achieving results.

Apr-May – field trials (Obj 1,2) May-June transect comparisons (Obj 3), July-Dec Analyze data write manuscript (Obj 4)

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

We view this small grant opportunity as a way to fund a pilot year, as we seek full funding for a graduate student to complete 2 more years (2023-24) of field research and development of a rangewide distribution map (i.e., occupancy model).

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

I have recently completed the evaluation of juniper removal on greater sage-grouse demography and space use in the Warner Mountains of Lake County, Oregon. The study began in 2009, and used a Before and After Control Impact (BACI) design. Academically, this project successfully graduated 2 Ph.D. students and currently has 2 Masters students in final stages of their theses. There have been roughly a dozen scientific publications resulting from this work, which has lead directly to management agencies in understanding how best to implement juniper removal projects such that they minimize disturbance to the landscape and maximize habitat benefit to sage-grouse and other sagebrush obligate species. Please see https://www.sagegrouseinitiative.com/category/events/conifer/ for excellent examples of outreach and extension materials derived from this work that have supported field staff and informed the public at large.

Project 2

1500 maximum characters

I am currently engaged in a research project on the effects of mega-wildfire (187,000 ha/ 722 square miles) and greater sage-grouse space use and demography that began in 2012. We anticipate field work completion in 2023 and final analyses written up by early 2024. However, along the way we have successfully graduated 1 masters student and a Ph.D. student, currently we have a postdoctoral scholar managing the project and beginning to analyze some of the longer term data. So far we have generated 6 scientific publications on this work, that have directly related to management recommendations of the species in a post megafire landscape. Our final products we hope to be able to inform land managers of specific landscape configurations of sagebrush that are most beneficial to the species after fire. However, a few more years of research are needed. Please see my website for more information on these projects and others, https://agsci-labs.oregonstate.edu/hagen/.

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Colonial waterbird predation on the salmonids and suckers of the Upper Klamath Basin

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

The recovery of endangered fish can be impaired by predation impactions. In the Klamath Basin, large nesting colonies of piscivorous waterbirds such as American white pelicans, Caspian terns, and double-crested cormorants are known to consume endangered Lost River and shortnose suckers, redband trout, bull trout, and could consume newly released Chinook salmon. Many of these fish are PIT tagged and the consumption of birds can be quantified by scanning bird colonies for these tags. We propose to continue a long-term dataset that was started in 2009, whereby colonies are scanned annually and the PIT tag information is archived. The information gathered will help researchers in future years to understand how avian predation changes in differing climactic (e.g., temperature and water levels) and biological regimes (e.g., new species) in the Klamath Basin.

Primary Contact Person *

Dr. Jacob Krause

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

United States Geological Survey (USGS)

Mailing address *

USGS
Klamath Falls Field Station
2795 Anderson Ave, Suite 106
Klamath Falls, OR 97603-9572

Lead Organization Federal Tax ID *

140001849

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [x] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Klamath Falls

Project Location (County) *

Klamath County

Project Start Date

MM DD YYYY

06 / 01 / 2022

Project End Date

MM DD YYYY

12 / 31 / 2022

Funding Amount Requested *

The maximum request is $20,000.

20000

Total Project Cost *

20000

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

The Klamath Basin is home to many Oregon Strategy fish species including the federally endangered Lost River Suckers and Shortnose Suckers, one of the most southerly extant populations of Bull Trout (i.e., Klamath Lake SMU), Great Basin Redband Trout (i.e., Upper Klamath Basin SMU), and soon to be spring-run Chinook salmon with the prospective removal of dams on the lower Klamath River. The recovery and expansion of these populations can be impaired by avian predation. The Klamath Basin has large breeding colonies of American white pelicans (largest on the U.S. west coast) and double-crested cormorants, both piscivorous species. The Oregon Strategy species of Caspian terns is also present in the Basin. In 2009, nesting ground habitat was constructed on the Lower Klamath National Wildlife Refuge to help disperse growing populations of Caspian terns and their negative impacts on salmonid recovery on the mid-Columbia River.

Many of the Oregon Strategy fish species have been tagged with Passive Integrated Transponder (PIT) tags to track their movement and survival. The recovery of PIT tags from colonial waterbird breeding grounds can quantify the impact of predation on these sensitive fish species. The PIT tags found on bird colonies can also measure the relative susceptibility of different fish species, spawning populations, and life histories to bird predation; as well as which bird colonies pose the greatest threat. In the Klamath Basin, multiple nesting colonies are located on islands in Upper Klamath Lake in Oregon, and Sheepy Lake, Tule Lake, and Clear Lake Reservoir in California. Birds commute around the entire Basin and beyond to feed, as suckers tagged in Upper Klamath Lake were found deposited on Clear Lake breeding colonies, as well as salmonids from the Columbia River Basin and the Lower Klamath.

Predation rates on fish are dynamic and require a long-term datasets to understand biological, climactic, and anthropogenic effects. Annual predation is dependent on bird colony size and may be reduced when previously established colonies are not utilized or colony failure occurs mid-way through the breeding season. Predation rates also depend on the abundance and availability of different fish species as well as their size and condition (e.g., disease, injury, and stress levels). Environmental conditions such as turbidity and water level can affect predation success of birds. Anthropogenic effects such as the proposed dam removals on the lower Klamath River, may change the current predator and prey dynamics in the Basin with the addition of Chinook Salmon. In addition, this dataset has the ability to answer how climate change manifested by droughts, extreme rainfall events, and high-water temperatures may affect bird predation on Oregon Strategy fish species.

In 2009, Real Time Research, Inc. and the United State Geological Survey (USGS) started scanning bird colonies and building a long-term dataset with the ability to quantify annual bird predation in the Klamath Basin. Although the work has been funded for many years in the time-series, other years such as 2021 do not have directed funding and are only possible with researchers volunteering time and equipment to cover these gap years in funding. We propose to continue the long-term dataset and use the grant award to cover expenses and equipment for the 2022 field season.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

Our goal is to recover PIT tags on bird colonies in 2022 so researchers can quantify avian predation on Oregon Strategy Fish Species in future years. Our first objective is to analyze aerial imagery to identify utilized nesting habitat (i.e., colonies) by bird species in 2022. Secondly, field crews will be sent to various colonies to scan the area for PIT tags. In addition, the crews sow PIT tags and scan for these tags to quantify the probability that a deposited PIT tag is detected by researchers following the nesting season, a key number to robustly estimating predation rates. Thirdly, recovered PIT tags will be archived into the USGS PIT tag database. Fourthly, all the information associated with a recovered PIT tag will be shared with the researchers (e.g., Klamath Tribes, U. S. Fish and Wildlife Service, Bureau of Reclamation, USGS, Oregon State University, Oregon Department of Fish and Wildlife) that released the tagged fish. If no record of the PIT tag exists in our database, we will contact researchers that work in the Basin and surrounding watersheds to find the owners of the PIT tag.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

The outcome of this project will be to have 2022 data available for researchers in future years to quantify avian predation on Oregon Strategy fish species.

Success will be measured when researchers understand the fate of their released fish and can use that information to better manage Oregon Strategy Fish Species.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [ ] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [x] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [ ] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [ ] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
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- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

Our project advances many of the priorities laid out in the Oregon conservation strategy. The long-term dataset can help inform mangers on how Key Conservation Issues affect the interaction between birds and fish. Climate Change may change predation rates based on water temperatures and levels caused by extreme rainfall events and droughts. Invasive species or even re-introductions of native fish may alter predator-prey dynamics. The removal of Barriers to Animal Movement, in the form of dam removals may also change food chain dynamics. The study encompasses a key Strategy Habitat of Wetlands in the Ecoregion of the East Cascades. The project provides information on 7 Strategy Species across multiple fauna. This includes Lost River Suckers, Shortnose Suckers, Bull Trout (i.e., Klamath Lake SMU), Great Basin Redband Trout (i.e., Upper Klamath Basin SMU); as well as, American white pelicans and Caspian terns. Although the project is geared at quantifying predation, it also provides important information on identifying important breeding grounds for migratory birds such as American white pelicans and the success and failure of colonies based on annual climactic and hydrological conditions.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [x] Birds
- [ ] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [x] Fish
- [ ] Plants
- [ ] Invertebrates
- [ ] Not applicable
- [ ] Other: _____

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [x] Administration
- [ ] Contract services
- [x] Equipment
- [x] Personnel
- [ ] Supplies/materials/services
- [ ] Travel
- [ ] Other: _____

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

For Equipment, we will use ~$4,000 to purchase a Biomark PIT tag reader and antenna for exclusive use on this project, as well as PIT tags to sow on the colonies. We will use ~$7,750 to cover the salaries of field crew and our IT specialist who will archive the data and share the information with fellow researchers. The remaining ~7,250 will be for Administration (i.e., maintenance of trucks, computers, and sampling equipment).

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

Real Time Researchers, Inc. have provided equipment and expertise to continue the long-term monitoring. Upper Klamath National Wildlife Refuge have provided transportation and personnel to reach remote colonies in Upper Klamath Lake Marsh.

Timeline *

Please identify the key milestones towards completing the project and achieving results.

June 2022: Buy equipment (tag reader, antenna, PIT tags). August 2022: Analyze aerial imagery to target colonies with breeding birds and plan upcoming field season. September- November 2022: Scan colonies for PIT tags after breeding birds have left for the season. December 2022: Archive recovered PIT tags and share information with fellow researchers.

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

If we are awarded the grant, the money will help to fund data collection for 2022. To show the potential of this data, the paper by Evans et al. 2016 (https://afspubs.onlinelibrary.wiley.com/doi/10.1080/02755947.2016.1208123) illustrates how a collaboration between Real Time Research, Inc. and USGS quantified the impact of colonial waterbird predation on Lost River and Shortnose Suckers using the long-term dataset from 2009-2014. Unfortunately, the current funding level of this grant does not provide sufficient funds to analyze the data to estimate predation rates for more recent years. We believe our currently proposed project strongly aligns with the Oregon Conservation Strategy, and an expansion of the project to include the data analysis would be a great benefit to multiple Oregon Strategy Species. We are unsure if the committee has the ability to increase the funding limit in this cycle, but we are willing to provide additional details on the cost and effort needed to produce predation estimates across the time-series.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

The USGS Klamath Falls Field Station has experience collecting long-term datasets that inform species management. Since 1999, we have monitored the populations of Lost River and Shortnose Suckers in Upper Klamath Lake. Fish are PIT tagged as they migrate to or reside on spawning grounds. Fish that are tagged can then be redetected on multiple PIT tag arrays that are maintained by USGS across the Klamath Basin. The detection data is then archived into a database that stores the unique detection histories from tagged fish dating back to 1999. From this information, we can estimate the abundance, survival, and recruitment for these endangered fish. Peer-reviewed reports of our findings are regularly published and are used by U.S. Fish and Wildlife Service and the Bureau of Reclamation to help in the recovery of these species (e.g., https://pubs.usgs.gov/of/2018/1064/ofr20181064.pdf).

Project 2

1500 maximum characters

The USGS Klamath Falls Field Station conducts rigorous scientific experiments. The recovery of Lost River Suckers and Shortnose Suckers may be dependent on the release of hatchery reared fish. Maximizing their survival depends on finding suitable release or in-lake rearing sites. We constructed multiple mesocosms or underwater experimental net pens to hold fish in Upper Klamath Lake. Water quality parameters such as dissolved-oxygen, temperature, and pH were tracked hourly. Fish were deemed dead after their movement stopped (determined by passive detection of PIT tagged fish on remote antennas). At one site, all the fish died from a hypoxia event, whereas the remaining sites showed high survival. Our results informed the U. S. Fish and Wildlife Service Sucker Assisted Rearing Program (SARP) on the suitability of potential release sites. The findings of this experiment were peer-reviewed and published (i.e., https://pubs.er.usgs.gov/publication/ofr20211036).

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

"EFM Road Retirement in Ponderosa Pine Woodland and Terrestrial Animal Movement Habitats."

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

The following proposal is submitted by Oregon Hunters Association (OHA). The project, titled “EFM Road Retirement in Ponderosa Pine Woodland and Terrestrial Animal Movement Habitats,” goal is to enhance ponderosa pine forest within and adjacent to an Oregon Department of Fish and Wildlife (ODFW) identified high use mule deer migration corridor. The project is in the East Cascade ecoregion on Ecotrust Forest Management (EFM) land just Northwest of Fort Rock, and Northeast of Chemult, and lies between U.S. Hwy 97 and OR Route 31. The project proposal is to close 36 miles of roads by falling all tree species ≤10” DBH 25 feet from center line (50 feet total) into the roadbed along the entire length of the roads. The project will reduce road densities from 13.33 miles/sq mile to 4.5 miles/sq mile across the 2590-acres. The project will provide habitat connectivity between U.S. Hwy 97 and OR Route 31 within an ODFW identified high use mule deer migration corridor. By reducing road densities and discontinuing motorized traffic wildlife will benefit from increased habitat security. Reducing closed canopy conditions along roads will create 220 acres of forest openings within ponderosa pine forests improving health and fire resilience. Reduced canopy closure will increase quality and quantity of understory vegetation of grasses, forbs, and shrubs particularly bitterbrush, an important habitat component that provides forage, cover, and nesting habitat for a variety of wildlife and is an important forage component for migrating mule deer. Discontinuing motorized travel on vegetated roads will reduce the risk of unintentional fire starts, the spread of invasive plants, soil compaction, and surface erosion. The proposal will improve the quality of hunting and other recreation opportunity on the Fort Rock property while reducing the negative impact of recreational activity on wildlife and their habitat.

Primary Contact Person *

Mary Jo Hedrick, Oregon Hunters Association, State Secretary

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Oregon Hunters Association

Mailing address *

P. O. Box 1706 Medford, Oregon 97501

Lead Organization Federal Tax ID *

93-0834195

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [x] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Northwest of Fort Rock, Oregon

Project Location (County) *

Lake County, Oregon

Project Start Date

MM DD YYYY

04 / 01 / 2022

Project End Date

MM DD YYYY

06 / 30 / 2023

Funding Amount Requested *

The maximum request is $20,000.

20000

Total Project Cost *

100000

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

Wildlife migration corridors are receiving increasing awareness with new research suggesting that factors associated with migration corridors may be limiting fitness of several species, including mule deer, for which many populations have been declining since the mid to late 1990s. Oregon Department of Transportation (ODOT) completed the Lava Butte underpass on US Hwy 97 south of Bend in 2012. OHA Bend Chapter has inspected and maintained the directional fencing since completion of the passage structure. ODOT has completed the Gilchrist wildlife underpass but did not have funding to complete the directional fencing. The Gilchrist Underpass Wildlife Directional Fencing project has received immense support from wildlife advocacy and hunter conservation groups to allow wildlife to safely pass under US Hwy 97. The EFM proposed project area is Northwest of Fort Rock and Northeast of Chemult between US Hwy 97 and OR Route 31 connecting the East Cascade and Northern Basin and Range ecoregions. The property contains numerous ODFW identified mule deer migration corridors with the project area encompassing a high use mule deer migration corridor.

The EFM Fort Rock 25,680-acre property is located within the ODFW OCS East Cascade Ecoregion and has numerous volcanic buttes and ash and pumice surface soils derived from the 77,000-year-old Mt Mazama eruption. These topsoil layers are thin and poorly developed and extremely susceptible to displacement by motor vehicles. While we have not surveyed the project area for the rare plant pumice moonwort (Botrychium pumicola) (BOPU) there are several documented populations immediately to the north on Forest Service lands. The project area contains habitat types, landforms and soils that may support BOPU populations. Historical timber harvest practices, grazing and fire suppression has altered the structure of the ponderosa pine forests throughout the property. Dense mixed species stands with high canopy closure have increased the risk of high intensity fires, disease and damage by insects and has negatively impacting ponderosa pine woodland habitat. Dense conifer stands with high canopy closure have reduced the quality and quantity of the understory vegetation of grasses, forbs, and shrubs particularly bitterbrush, an important habitat component that provides forage, cover, and nesting habitat for a variety of wildlife and an important forage component for migratory mule deer. Conifer encroachment and canopy closure has negatively impacted meadow, riparian and spring vegetation reducing habitat diversity. Recent drought conditions have increased these negative effects on vegetation quantity and quality and water availability.

The property has a long history of timber and chip removal and is heavily roaded. Most of the current road system was built in the early 1960's. Recent operations have created skid trails during mechanical removal. There are currently ~351 miles of roads (9 miles of road/sq mile) on the property. EFM has identified approximately 204 miles of roads to be closed. Increased use of off highway vehicles (OHV) has increased the negative effects of OHV use on wildlife and their habitats. The potential impact of disturbance to wildlife caused by motorized vehicle travel, and negative effects to wildlife habitat are well documented.

EFM received an ODFW Access & Habitat Open Fields grant to provide "welcome to hunt" on the Fort Rock property, inventory the road network in advance of closing approximately half of the existing roads and create a map identifying roads open to the public. The EFM Fort Rock Access Area map is currently available on ODFW's website.

EFM is a cooperator in ODFW's Cabin Lake/Silver Lake Road Closure to protect wintering wildlife from disturbance and reduce negative impacts to wildlife habitat. The property is closed to motor vehicles access annually from Dec 1st to March 31st.

EFM is a cooperator in the Bear Wallow Timber Stand and Wildlife Habitat Improvement Good Neighbor Authority all lands project on the Fremont-Winema NF Silver Lake RD and DOF Gilchrist State Forest. Thereby supporting community-based forest health collaborative to increase the pace and scale of forest restoration. EFM and OHA will continue to improve cooperative relationships with multiple partners to

create landscape level wildlife habitat improvement projects and contribute to landscape restoration of forest health and fire resilience.
EFM has received ODFW Mule Deer Initiative, OHA, USFWS Partners for Fish & Wildlife Program and Oregon Watershed Enhancement Board grant funds to complete habitat improvement projects on the Fort Rock property. EFM has removed encroaching conifers from ~52.5 acres of meadow, aspen, spring, and riparian habitats associated with Mush, Smoke, Road and Pothole springs and Smoke Creek enhancing the quality and quantity of meadow, aspen, riparian, and spring habitats. EFM has had ~3 miles of buck and pole wildlife friendly fence constructed at Mush, Smoke, Road and Pothole springs and Smoke Creek protecting ~50.8 acres of meadow, aspen, riparian, and spring habitats. OHA volunteers constructed ~ 0.8 miles of the buck and pole fencing at Pothole Spring and along Smoke Creek.
With OHA and Mule Deer Foundation grant funding EFM will close by obstruction ~60 roads impacting meadow, aspen, riparian, and spring habitats at Smoke, Mush and Road springs and along Smoke Creek this fall. Protecting these habitats from OHV use will enhance their quality and quantity and improve wildlife habitat. By reducing motorized traffic wildlife will benefit from increased habitat security. By discontinuing motorized travel on vegetated roads, the risk of unintentional fire starts, soil compaction and erosion will be reduced. The proposal will improve the quality of hunting and other recreational opportunity on the Fort Rock property while reducing the impact of recreational and OHV activity on wildlife and their habitat.
EFM is proposing to close 36 miles of roads by falling all tree species ≤10” DBH 25 feet from center line (50 feet total) into the roadbed along the entire length of the roads of ponderosa pine forest habitat within and adjacent to an ODFW identified high use migration corridor improving habitat connectivity on EFM Fort Rock property (T25S R12E Secs: SW 1/4 of 20, S 1/2 of 21, 28, 29, 30).
The proposal will reduce road densities from 13.33 miles/sq mile to 4.5 miles/sq mile within the project area. By reducing road densities and motorized traffic on 2590 acres wildlife will benefit from increased habitat security. The proposal will improve the quality of hunting and other recreational opportunity on the Fort Rock property while reducing the impact of recreational activity on wildlife. See emailed maps: MuleDeerMigrationCorridor.png and FortRockRoadRetirement.pdf
The proposal will create 220 acres of forest openings within ponderosa pine woodland habitat and create edge habitat. Reducing closed canopy forest conditions will improve the quality and quantity of understory vegetation of grasses, forbs, and shrubs particularly bitterbrush, an important habitat component that provides forage, cover, and nesting habitat for a variety of wildlife and is an important forage component for migrating mule deer improving wildlife habitat. Reducing closed canopy forest conditions along 36 miles of road across 2590 acres will reduce the spread of disease and insect infections and reduce contiguous fuels decreasing fire risk and spread. Dropping trees into the roadbed will increase deficient down wood and reduce surface erosion. Discontinuing motorized travel on vegetated roads will reduce the risk of unintentional fire starts, the spread of invasive plants, soil compaction, and surface erosion.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

Goal 1: Enhancement of ponderosa pine woodland strategy habitat:
Create 220 acres of forest openings within 2590 acres of ponderosa pine woodland habitat.
Improve ponderosa pine understory vegetation of grasses, forbs, and shrubs particularly bitterbrush, an important habitat component that provides forage, cover, and nesting habitat for a variety of wildlife.
Reduce fire risk and spread by reducing contiguous fuels along 36 miles of road across 2590 acres of ponderosa pine forest improving fire resilience.
Reduce risk of unintentional fire starts by discontinuing vehicle travel on 36 miles of vegetated roads.
Reduce the spread of disease and insect infections by creating 220 acres of forest openings along 36 miles of roads across 2590 acres improving forest health.
Reduce soil compaction and surface erosion of fragile ash and pumice soils by discontinuing motorized vehicle access on 36 miles of roads.
Increase deficient small to mid-size down wood component on 220 acres across 2590 acres.
Reduce the spread of invasive plant species by discontinuing motorized vehicle access on 36 miles of roads.
Continue cooperative relationships with multiple partners to create landscape level wildlife habitat improvement projects reducing habitat fragmentation.

Goal 2: Protection and enhancement of terrestrial wildlife movement strategy habitat:
Maintain habitat connectivity for wildlife between the East Cascades and the Northern Basin and Range ecoregions between US Hwy 97 and OR Route 31.
Reduce road densities from 13.33 miles/sq mile to 4.5 miles/sq mile across 2590 acres increasing habitat security reducing the impact of recreation and OHV activities on wildlife and their habitats.
Discontinue motorized traffic on 36 miles of road across 2590 acres of wildlife habitat including a high use migration corridor reducing the negative impacts of OHV use on wildlife and their habitats.
Create 220 acres of forest openings and edge habitat along 36 miles of road across 2590 acres.
Improve forage quality and quantity of grasses, forbs, and shrubs particularly bitterbrush, an important forage component for migratory mule deer on 220 acres within and adjacent to a high use mule deer migration corridor.
Reduce the spread of invasive plant species by discontinuing motorized vehicle access on 36 miles of roads.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

Goal 1: Enhancement of ponderosa pine woodland strategy habitat:
The project will create 220 acres of forest openings within 2590 acres of ponderosa pine woodland habitat. The project will increase small to mid-size down wood component on 220 acres. Photo plots will be established to monitor ponderosa pine understory vegetation of grasses, forbs, and shrubs particularly bitterbrush response to reduced canopy closure.
Reducing contiguous fuels across 2590 acres of ponderosa pine will reduce fire risk and spread improving the forests fire resilience. Reducing closed canopy conditions along 36 miles of roads across 2590 of ponderosa pine woodland habitat will decrease the potential spread of disease and insect infections improving forest health.
Patrols and monitoring will be conducted to assess the success of discontinued motorized vehicle access on 36 miles of closed roads. Site observation of soil compaction, surface erosion and the spread of invasive plant species will be checked during patrols of the project area. The risk of unintentional fire starts will be reduced by discontinuing motorized travel on 36 miles of vegetated roads. Examine the project area habitat types, landforms and soils that may support BOPU populations with Forest Service personnel.
OHA and EFM will continue to foster cooperative relationships with multiple partners to create landscape level wildlife habitat improvement projects reducing habitat fragmentation.
Goal 2: Protection and enhancement of terrestrial wildlife movement strategy habitat:
The project will protect and maintain habitat connectivity for wildlife between the East Cascades and the Northern Basin and Range ecoregions between US Hwy 97 and OR Route 31. Patrols and monitoring will be conducted to assess the success of discontinued motorized vehicle access on 36 miles of closed roads. Reducing road densities from 13.33 miles/sq mile to 4.5 miles/sq mile across 2590 acres will increase habitat security reducing the impact of recreation and OHV activities on wildlife and their habitats.
Photo plots will be established to monitor response of ponderosa pine woodland understory vegetation of grasses, forbs, and shrubs particularly bitterbrush, an important forage component for migratory mule deer on the 220 acres of forest openings within and adjacent to the high use mule deer migration corridor.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [x] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [ ] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [ ] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [ ] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

The project will enhance and protect ponderosa pine woodland habitat within the East Cascade ecoregion. The project will create forest openings that will decrease fire risk and spread, disease and insect damage improving forest health and fire resilience. Reduced canopy closure will improve the quality and quantity of grass, forbs, and shrubs particularly bitterbrush, an important habitat component that provides forage, cover, and nesting habitat for a variety of wildlife and an important forage component for migratory mule deer. By falling trees into the roadbeds small to mid-size down wood habitat will be created. Reduced vehicle access will decrease the spread of invasive plants. Reduced canopy closure will improve the quality and quantity of grass, forb, and shrub diversity and will enhance songbird and small mammal habitats. Discontinued vehicle access will reduce soil compaction and surface erosion protecting the fragile ash and pumice soils.

The project will enhance and protect terrestrial animal movement habitat within and adjacent to a high use mule deer migration corridor. The project will maintain habitat connectivity for wildlife between the East Cascades and the Northern Basin and Range ecoregions between US Hwy 97 and OR Route 31. Reduced road densities will increase habitat security. Discontinue motorized traffic and decreased road densities will reduce the negative impacts of recreation activities and OHV use on wildlife and their habitats.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [x] Birds
- [x] Mammals
- [x] Reptiles
- [ ] Amphibians
- [ ] Fish
- [x] Plants
- [x] Invertebrates
- [ ] Not applicable
- [ ] Other:

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [ ] Administration
- [x] Contract services
- [ ] Equipment
- [ ] Personnel
- [ ] Supplies/materials/services
- [ ] Travel
- [ ] Other:

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

The proposed project to close 36 miles of roads is estimated to cost $100,000.00. EFM has received $25,000.00 USFWS PR funding through the ODFW Mule Deer Initiative program which will close approximately 9 miles of roads within the proposed project area. OHA is requesting $20,000.00 OCRF funding to close an additional 9 miles of roads. The final project scope will be determined by the success of acquiring additional funding sources for the additional 18 miles of proposed road closure.

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

Oregon Hunters Association - Funding
Ecotrust Forest Management - landowner project administration, implementation and monitoring.
ODFW - Funding and monitoring of hunter activity and wildlife population monitoring.
Partners for Fish and Wildlife - Funding pending
Rocky Mountain Elk Foundation - Funding pending

Timeline *

Please identify the key milestones towards completing the project and achieving results.

EFM has received $25,000.00 in funding to close approximately 9 miles of road within the proposed project area from ODFW through the Mule Deer Initiative with funding available fall 2021. The OCRF funding request of $20,0000.00 will enable an additional 9 miles of roads to be closed. Partners for Fish and Wildlife and Rocky Mountain Elk Foundation funding will be applied for as funding cycles and funds become available. The project will be implemented in the spring of 2022 when weather and fire conditions allow with the final project scope determined by the success of acquiring additional funding sources.

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

OHA volunteers from the Bend chapter have completed regular patrols and maintenance of the directional fencing at the Lava Butte underpass south of Bend on highway 97 since the ODOT completion of the passage structure in 2012.

Project 2

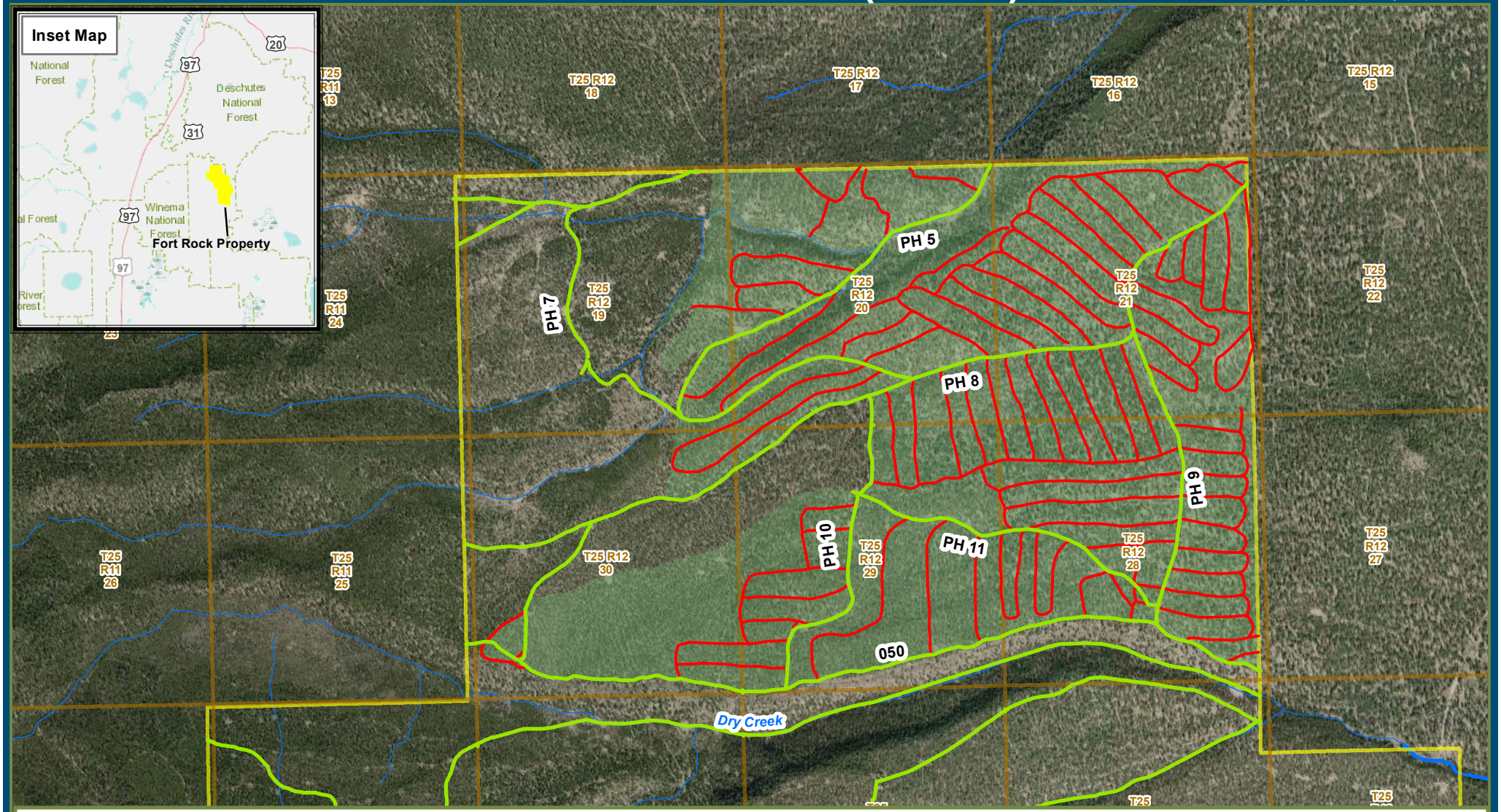
1500 maximum characters

In the fall of 2019 OHA and Oregon Youth Challenge Program cadets provided of 531.5 volunteer hours to construct 1,600 feet (~0.30 miles) of wildlife friendly buck and pole fence around the 1.3-acre meadow below Pothole Spring on EFM Fort Rock property. The fence maintains wildlife access to the meadow while excluding livestock and OHV use improving the quality and quantity of grasses, forbs and shrubs over time which will further benefit a variety of wildlife species. In addition, in the spring of 2021, 21 OHA volunteers put in a total of 393 hours and 3,681 miles to build 2,978 feet (~0.56 miles) of wildlife friendly buck and pole fence along the zone of influence of Smoke Creek. A total of 30.8 acres of Smoke Creek riparian zone of influence was fenced on EFM Fort Rock property. The fence maintains wildlife access to the riparian zone of influence while excluding livestock and OHV use improving aspen and riparian vegetation quality and quantity over time which will further benefit many species.

Fort Rock Property
Road Retirement (PHZ 1)

EFM

Map Updated 9/16/21 by A. Geritz for EFMI



Target Retirement Roads (36.8 Mi)

A&H Open Roads

Project Area (2,590 Acres)

Fort Rock Property Boundary

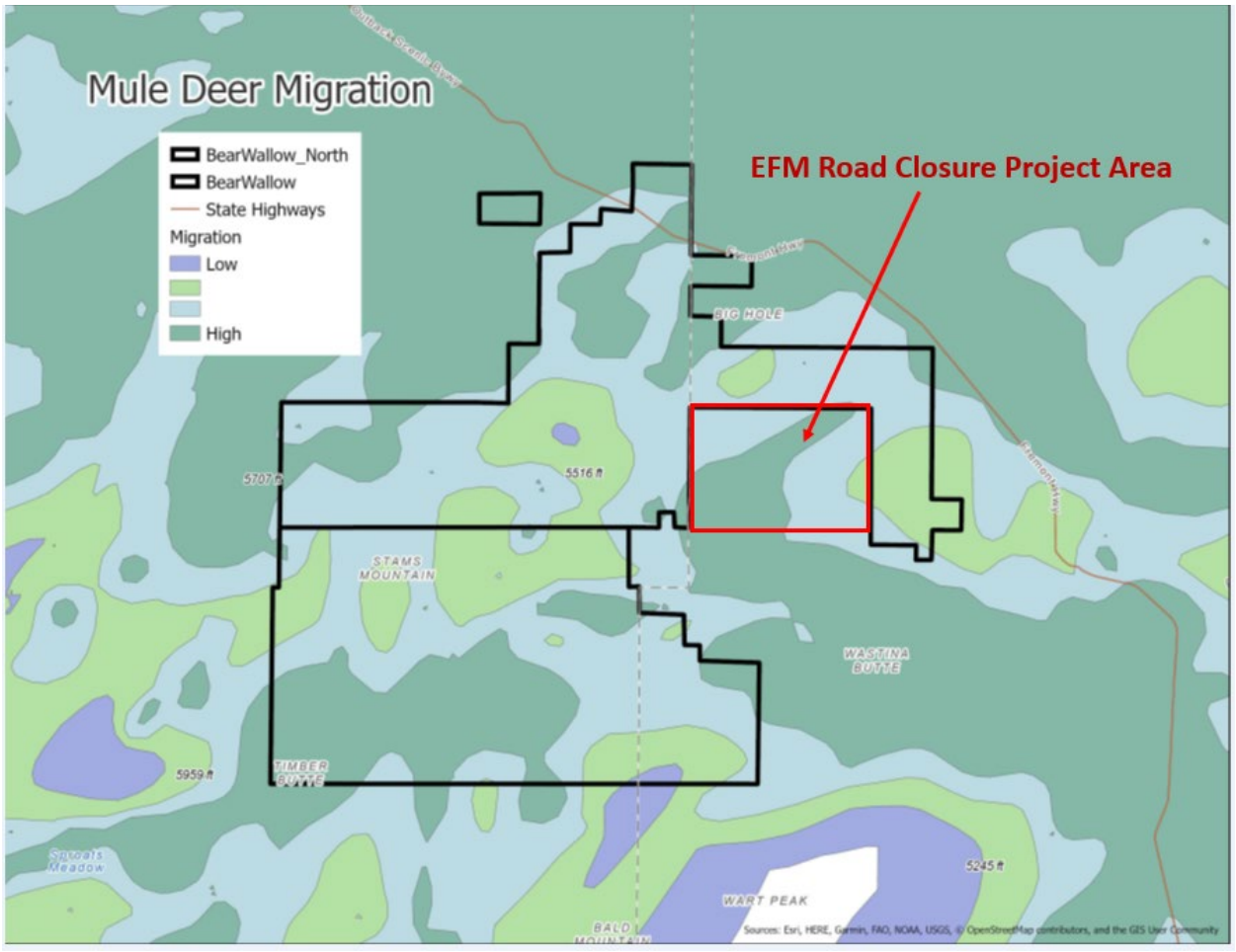
Sections

Assuming 1 mile of road treated will encompass 6 acres of area:

36.8 mi of road identified for retirement = 220 ac available for treatment

1:33,637

0 800 1,600 3,200 Feet


Mule Deer Migration
BearWallow_North
BearWallow
State Highways
Migration
Low
High
EFM Road Closure Project Area
BIG HOLE
5707 ft
5516 ft
STAMS MOUNTAIN
WASTINA BUTTE
TIMBER BUTTE
5959 ft
Sweats Meadow
WART PEAK
5245 ft
BALD MOUNTAIN
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Update the Beaver Restoration Guidebook

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

The Beaver Restoration Guidebook is a free, open-source guide to the best available science, restoration techniques, and management practices for partnering with beavers in stream restoration. This guidebook was first developed in 2015 with funding from Great Northern Landscape Conservation Collaborative, and housed by the Oregon office of US Fish and Wildlife Service. Since that time, new science has emerged, on beaver and wildfire for example, and interest in coexistence solutions like pond levelers and culvert protection systems has ballooned across Oregon. This project is a timely revision that will provide an updated summery of the science, while also working to empower Oregonians—from landowners to municipalities and public works departments—with a robust beaver coexistence toolkit. The Beaver Coalition has partnered with the original authors to facilitate this update, and will work closely with relevant state and federal agencies to publish this update. This project is motivated by the need to share the benefits that beaver provide to the full suite of riparian associated terrestrial species and complex floodplain aquatic species. Through this update, The Beaver Coalition is working to empower humans with the best available tools for partnering with beaver—either to simply protect human infrastructure or to help facilitate restoration of an ecologically resilient and more water-rich Oregon. New material has been strategically targeted with this goal in mind, and will include a set of standard designs and best management practices for coexistence solutions, and a clarified regulatory framework around beaver and beaver-based restoration and coexistence in Oregon.

Primary Contact Person *

Jakob Shockey

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

The Beaver Coalition

Mailing address *

PO Box 193
Jacksonville OR, 97530

Lead Organization Federal Tax ID *

84-5076273

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [x] Blue Mountains
- [x] Coast Range
- [x] Columbia Plateau
- [x] East Cascades
- [x] Klamath Mountains
- [ ] Nearshore
- [x] Northern Basin & Range
- [x] Willamette Valley
- [x] West Cascades

Project Location (City) *

Statewide

Project Location (County) *

Statewide

Project Start Date

MM DD YYYY

01 / 01 / 2022

Project End Date

MM DD YYYY

10 / 31 / 2022

Funding Amount Requested *

The maximum request is $20,000.

19880

Total Project Cost *

62898.25

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

For millions of years, the North American Beaver has actively shaped the form and function of aquatic ecosystems in North America. More than glaciers or plate tectonics, beavers have shaped our landscape. Through their predictable construction of dams, ponds, burrows, and channels, beavers have slowed water and sediment, pushing it up and out, building the valley floors that are the floodplains we, and a myriad other species, call home. Beavers have provided a stable habitat niche within which the rest of our aquatic ecosystems have evolved "since time immemorial." It shouldn't be surprising then, that as we have removed these ecosystem engineers from the system they built and maintained, the structure of our streams, rivers, wetlands, and floodplains has started to crumble.

Beavers are the quintessential "keystone species" for our landscape. They have formed the riverscapes that our fish and wildlife resources depend on, and these riverscapes naturally clean and cool streams, recharge aquifers, and buffer forests and grasslands into a fire resilient landscape. Beavers will actively maintain all of these functions in a robust and dynamic fashion, but quite obviously, only if they are present. Only when beavers are living and working in all of the streams and rivers and floodplains of North America will these riverscapes deliver the "ecosystem services" we have come to depend upon.
When beaver are removed from streams and rivers, or prevented from becoming re-established in watersheds, the maintenance contract is broken and the system falls into disrepair. Down-cut, incised streams disconnect from their floodplain and become trapped within the walls of a trench, more like a ditch constrained between tight walls than a free-flowing, meandering, beautifully complex stream. Sediment and carbon are exported from long-term storage, water warms and becomes eutrophic, the landscape dries out, and fires run for miles across a uniform expanse of fuel. Little is left in terms of healthy habitat for fish and wildlife. Beaver-managed floodplains are salmon, trout, and lamprey habitat. Beaver ponds and wetlands are sinks for carbon and processing domains for nitrogen and phosphorus. Beaver floodplains are water-cooling, water-storing, and flood-dissipating places we would all benefit from fostering.
The North American Beaver was once abundant and wide-spread across the continent, but it is now struggling. It is struggling to recover from trapping to near extinction for its fur, from continued lethal removal for its perceived threat to the human built environment, and from the pervasive human-driven degradation to the stream and river habitats that are its home. If we are serious about restoring the underlying natural processes that lead to functional and resilient habitat, we must partner with beavers. While beavers can be seen as a "tool" for restoration, or an "indicator" of ecological health—they are more than these too. Beavers are the foundation ecological process behind the form and function of habitat in the waterways of North America. In order to have robust water security and habitat resiliency, we must return the control of our riverine systems to the professionals.

Does the population status of the North American Beaver warrant protection? No, not in the sense of it being a threatened species. There are robust populations scattered across the continent and at least some beaver in most of its historic range. However, we can act to amplify the natural landscape engineering that beavers do through planning, regulation and practices that support persistent populations. We must push past the people problems, and partner with beaver for the real heavy lifting—bringing our water tables back up, reconnecting our floodplains, restoring the natural process that results in habitat. In areas that are initially too degraded for beaver, we must start the restoration process—often simply through the low-tech, process-based, human emulation of beaver activity. We can then magnify and protect our investment in stream restoration actions by entering into partnerships with beaver. We need to take these actions for the health and resilience of our aquatic resources.

This connection between beaver activity and the function of habitat was recognized by the planners behind the Oregon Conservation Strategy. Partnering with beaver was highlighted as a recommended approach for multiple limiting factors in both the Wetlands, and Flowing Water and Riparian Habitats ecoregions. For example, under the recommended approach to habitat loss in wetlands, the Oregon Conservation Strategy states “Manage beaver populations to contribute to wetland creation and maintenance, when compatible with existing land uses.” This is exactly the type of action we will help facilitate with this project to update the Beaver Restoration Guidebook. While at first blush, updating an open-source guidebook may not seem as impactful as say, an on-the-ground restoration action; however we feel that it is a critical step for humans to coexist and partner with beaver in our state as the Oregon Conservation Strategy suggests.

The Beaver Restoration Guidebook is a free, open-source guide to the best available science, restoration techniques, and management practices for partnering with beavers in stream restoration. A project initially funded by the North Pacific Landscape Conservation Cooperative, and housed since release with the Oregon office of US Fish and Wildlife, the BRG was envisioned as a living document. The original authors, Janine Castro, Michael Pollock, Chris Jordan, Gregory Lewallen and Kent Woodruff, have agreed to partner with The Beaver Coalition (TBC) to maintain the guidebook as a reliable, up-to-date, credible source of information on beaver-based restoration, with TBC serving as the lead entity for this project. The Beaver Restoration Guidebook was originally published in June 2015, it was last revised in 2017.

Since that time, new science has emerged, such as on beaver and wildfire, for example, and interest in coexistence solutions like pond levelers and culvert protection systems has ballooned across Oregon. This resource must continue to be updated must as the collective knowledge base evolves and grows. This timely revision will update the science, while also working to empower Oregonians—from landowners to municipalities and public works departments—with a robust beaver coexistence toolkit. In addition to the original authors, will also work closely with relevant state and federal agencies to publish this update so that these actions are in alignment with state and federal regulations (like fish passage laws) and the permitting process is clear.

This project is motivated by the benefits that beaver provide to the full suite of riparian associated terrestrial species and complex floodplain aquatic species. Through this update, The Beaver Coalition is working with Oregon Department of Fish and Wildlife, National Oceanic and Atmospheric Administration, the US Fish and Wildlife Service, and others to empower humans with the best available tools for partnering with beaver—whether to simply protect human infrastructure, or to help facilitate restoration of an ecologically resilient and a more water-rich Oregon. New material has been strategically targeted with this goal in mind, and will include a set of standard designs and best management practices for coexistence solutions, and a clarified regulatory framework around beaver and beaver-based restoration and coexistence in Oregon.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

It is in our interest to maintain The Beaver Restoration Guidebook (BRG) as a relevant, up-to-date and scientifically robust guidebook for those engaging in beaver management and beaver-based restoration. Guiding objectives of this project include:

A. Ensure the BRG continues to be an accessible, useful resource for those involved in using beaver to restore streams, floodplains, wetlands, and riparian ecosystems

B. Establish a transparent, periodic process for BRG revision and the solicitation of academic and practitioner input.

C. Maintain high standards for data inclusion in the BRG through review by TBC's Science and Technical Information Committee and the original authors.

D. Partner with federal and state agencies to maintain agency support and buy-in.

In the short-term, we plan to revise the document to a version 3.0 and our specific objectives for this project phase are as follows:

1. Update the Beaver Restoration Guidebook for release by Fall 2022 (pending funding timelines).
2. Add a section on the regulatory framework for beaver management by state statute in the PNW (Oregon, Washington, Idaho), ideally expanding to the entire Mountain West (California, Montana, Wyoming, Colorado, and Utah).
3. Add new best management practices (BMPs) for flow devices and culvert protection for Oregon, approved by ODFW, for use in streams with protected, migratory fishes.
4. Add new content to address relationships between beaver and wildfire behavior.
5. Update the BRG library of references to include new literature, with in-text citation within the BRG as applicable
6. Publish the guidebook free online (Via the TBC website) and provide easy print-order solution for those wishing to receive a hard copy for a nominal fee. Facilitate expedited permitting process in Oregon in collaboration with state and federal agencies

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

Our success will be measured by progress on our objectives as stated above. Did we achieve these results?
1. Establish a transparent, periodic process for BRG revision, and the collection and solicitation of academic and practitioner input
2. Clarify regulatory framework for beaver management and beaver-based restoration in Mountain West
3. Generate best management practices (BMPs) in the form of detailed site evaluation, design options and considerations, and construction details for two forms of beaver/human conflict mitigation devices – pond levelers and culvert protection. Work with ODFW and federal agencies to evaluate concerns and workshop design alternatives. Publish BMPs standards with support from ODFW, NOAA and USFWS.
4. Update specific topics, including developing new content where necessary to address relationship between beaver and wildfire resilience
5. Update the BRG library of references to include new literature, with in-text citation within the BRG as applicable
6. Publish revision 3.0
7. Facilitate expedited permitting process in Oregon in collaboration with state and federal agencies

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [x] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [ ] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [ ] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [ ] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

Our project advances conservation through empowering Oregonians (from rural landowners to municipalities) to partner with beaver for habitat restoration and improved habitat connectivity in our state's aquatic systems. This project directly communicates, and makes accessible, the evolving science. It also facilitates beaver-based restoration and coexistence through directly addressing the limiting factors for this work in Oregon; a lack of best management practices (BMPs) for coexistence solutions, and an ambiguous regulatory framework. The connection between beaver activity and habitat function was recognized by the planners behind the Oregon Conservation Strategy, and our project works to empower people with the toolkit to directly advance those recommendations.

Partnering with beaver was highlighted as a recommended approach for multiple limiting factors in both the Wetlands, and Flowing Water and Riparian Habitats ecoregions. For example, under the recommended approach to habitat loss in wetlands, the Oregon Conservation Strategy states "Manage beaver populations to contribute to wetland creation and maintenance, when compatible with existing land uses." This is exactly the type of action we will help facilitate with this project to update the Beaver Restoration Guidebook (BRG).

For projects that address a conservation priority, what are the primary taxa that will affected?

- [x] Birds
- [x] Mammals
- [x] Reptiles
- [x] Amphibians
- [x] Fish
- [x] Plants
- [x] Invertebrates
- [ ] Not applicable
- [ ] Other:

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [x] Administration
- [x] Contract services
- [ ] Equipment
- [x] Personnel
- [ ] Supplies/materials/services
- [ ] Travel
- [ ] Other:

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

Personnel time: $14,000
$4,800 — Project management of revision process (task 1.1)
$2,800 — Coexistence BMPs development for pond levelers (task 3.1)
$2,800 — Coexistence BMPs development for culvert protection (task 3.2)
$3,600 — Facilitating permitting process collaboration (tasks 7.1, 7.2 & 7.3)
Contracted Services: $4,600
$700 — Confirmation and archiving (task 2.2)
$1,500 — Tech writer (task 6.1)
$2,400 — Document layout for publishing (task 6.2)
Administration: $1,280
$1,280 — Fiscal administration

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

ODFW — $5,018.25 in-kind staff time toward tasks 2 and 3.
NOAA — $8,000.00 in-kind staff time toward tasks 1, 4, and 5.
City of Portland — $3,000.00 in-kind staff time toward tasks 2 and 3.
Clean Water Services — $20,000.00 toward tasks 2, 3, 6, and 7.
The Beaver Coalition is also contributing $15,000 cash to this project from a private donor donation.

Timeline *

Please identify the key milestones towards completing the project and achieving results.

Long term BRG Update/Maintain Plan — 4/30/2022 Dataset for Mountain West beaver management regulatory framework — 4/30/2022 New wildland fire and Beaver and updated relocation content — 6/30/2022 BMPs for pond levelers and culvert protection — 4/30/2022 Updated beaver science literature bibliography — 8/30/2022 Updated BRG v3.0 — 10/31/2022 Facilitating permitting process — 8/30/2022

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

Beaver provide an accessible connection to the outdoors and its wildlife. Unlike many charismatic wild mammals, beaver live in a diversity of environments—from our most remote wilderness to loud urban centers. Further, beaver create the same functional wetlands teeming with birds, other mammals, reptiles and amphibians, and fish—as they would in a landscape with less human habitat. These beaver-maintained wetlands, like Errol Heights Park in Portland, provide accessible opportunities for Oregonians to engage with watchable wildlife, and introduce school children to the ecology of wetlands and riparian systems. These natural spaces can only exist with beaver as a functional element if the municipal ecologists and park managers charged also with protecting human infrastructure have access to the beaver coexistence toolkit and best available science.

There is precedent for the BRG as a reference point for BMPs that facilitate an expedited permitting process through ODFW for those who would like to implement low-tech, process-based restoration. Link: https://www.dfw.state.or.us/fish/passage/docs/Instream%20Restoration%20ODFW%20Fish%20Passage%20Policy%20Bulletin.pdf

Here's the link to the current Beaver Restoration Guidebook: https://www.beavercoalition.org/guidebook

The Beaver Coalition is a new Oregon nonprofit organization, formed in April 2020 formed in April 2020. As we are in our first year of operations, we have many in-progress projects, several of which are slated for completion in spring to summer of 2022. The projects highlighted in 28 and 29 are two of our oldest ongoing projects.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

Cascade-Siskiyou National Monument, Restoring Riparian Habitat for Aquatic Resource Biodiversity in collaboration with the Bureau of Land Management.

As the western U.S. struggles with changing rain and snow patterns, seasonal droughts, and catastrophic wildfire, there is a clear need for restoration work that will build ecological resiliency and restore natural processes in riparian and aquatic ecosystems. As documented by the US Fish and Wildlife Service, over 80% of listed special concern species (plants and animals) are wetland-dependent at some point in their life cycle.

This project is developing a beaver-based restoration plan to implement identified activities to restore riparian and aquatic habitat within the Cascade-Siskiyou National Monument (CSNM)—an area with a history of exploitation that has been specifically set aside for protecting plant and animal species, ecosystems, and biodiversity.

This project began with a strategic framework for planning beaver-based restoration, and specifically employs proven low-tech, process-based restoration techniques. These techniques include improving habitat through tools like Post Assisted Log Structures (PALS) and Beaver Dam Analogues (BDAs), planting native vegetation, and eventually translocating beavers to areas in the monument where they have been extirpated.

Project 2

1500 maximum characters

Empowering Nonlethal Solutions to Human/Beaver Conflicts through Case Study Vignettes with support from Natural Resource Conservation Service.

In spite of their ecological benefits, beavers and their damming can cause a multitude of headaches and financial woes for human property, crops, and infrastructure. However, many of these problems can be solved with long-term, cost-effective beaver coexistence solutions. This project facilitates the transfer of knowledge of these tools by producing high quality, story-driven outreach materials which will highlight the firsthand experiences of our partnering landowners and their authentic journeys of transitioning from beaver conflict to beaver co-existence.

We are midway through producing these two case-study vignettes, emphasizing coexistence on working agricultural lands in both Forest Grove and Lake Oswego. These vignettes are the first two in what will be an ongoing series of a dozen or so 2-3 minute documentary-style short films that collectively will highlight a diversity of scenarios where humans opt to partner with, rather than battle, their beaver neighbors. Our producer is the filmmaker behind the award winning film The Beaver Believers. We will also be building out an online “co-existence hub” within our website through which to showcase our films, testimonials, character vignettes, photos, and essays, such that it will grow to be recognized as a trusted resource of value to cross-section of Oregonians.

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Boulder Creek Wilderness Trails Project

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

Source One Serenity, a local grassroots non-profit, creates opportunities for veterans to be introduced to the healing power of nature in a meaningful way by performing trail work and other volunteer projects. The proposed project will complete logout and tread work to reopen 10.6 miles of the Boulder Creek Trail (#1552) in the Boulder Creek Wilderness on the Umpqua National Forest. This project will expand recreational opportunities to local residents and visitors despite recent disturbance events that damaged 43% of the most popular trail in the Umpqua National Forest, the 79-mile North Umpqua Trail (NUT). The Boulder Creek Wilderness is unique because of its prominent ridge-top rock features. After the 2008 Rattle Fire, this area beautifully showcases the successional renewal of habitat including wildflowers and early seral species, providing rich habitat for deer and other game species. In 2021, veterans together with community members have accomplished phase 1 of the Boulder Creek Trail by clearing more than 5 miles of the southern section of the trail. The remaining 5 miles (phase 2) are expected to be even harder due to steepness and higher elevation. Although the trail is not cleared completely, it already provides renewed access to recreation. These trails were not accessible due to downed trees from the 2008 Rattle Fire and a backlog of deferred maintenance. After the completion of phase 1 in 2021, Source One Serenity is excited to finish the remaining trail work next year and be able to open not only the trail but also create opportunities in future years to reopen other feeder trails. Source One Serenity will also host educational camping for community members led by a biologist to educate them on natural fauna, forest rehabilitation, and conservation goals for such areas. This educational outing will cultivate stewardship among local residents to carry it over in the future years to maintain and preserve this area in conformity with Wilderness Act.

Primary Contact Person *

Elena Lininger

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Source One Serenity

Mailing address *

PO Box 274, Roseburg, OR 97470

Lead Organization Federal Tax ID *

81-2293906

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [ ] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [x] West Cascades

Project Location (City) *

Idleyld Park, OR

Project Location (County) *

Douglas County

Project Start Date

MM DD YYYY

04 / 01 / 2022

Project End Date

MM DD YYYY

10 / 30 / 2022

Funding Amount Requested *

The maximum request is $20,000.

5018

Total Project Cost *

22388

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

Source One Serenity is a grassroots 501(c)(3) non-profit organization that was formed with a mandate to empower veterans to reclaim their sense of purpose through outdoor activities and land stewardship. Source One Serenity is proud to have served more than 400 veterans since 2016 through outdoor retreats, fly fishing, hiking, and equine-assisted activities. Source One Serenity has also seen an immense impact on the lives of veterans by implementing stewardship projects on public lands. Land stewardship is mission-driven, and veterans are more likely to respond by serving the community rather than asking for help. This is how this work provides struggling veterans with an opportunity to reclaim their sense of purpose and to find a supportive community while being out in nature. In partnerships with the Umpqua National Forest, the Roseburg Bureau of Land Management, and Roseburg Field Office of the U.S. Fish & Wildlife Service, Source One Serenity has already accomplished several volunteer projects including trail work, renovating info-kiosks, clearing the fish ladder and trapping salmon for the fish hatchery.

In 2021, Source One Serenity started a collaborative effort with the Umpqua National Forest to eliminate the deferred maintenance backlog on the 10.6 miles of Boulder Creek Trail #1552 in the Boulder Creek Wilderness. The Boulder Creek Wilderness is a 19,886-acre wilderness area with numerous small waterfalls and rapids that connect the series of quiet pools that make up Boulder Creek, a tributary of the North Umpqua River. The wilderness is unique because of its prominent ridge-top rock features, some of which are off-the-beaten-path climbing areas. Boulder Creek is popular in the summer with backpackers and in the fall with hunters. However, due to a series of wildfires over the past 25 years, many trails have not been maintained in the Boulder Creek Wilderness, making safe travel difficult and in some areas impossible. For example, in July 2018, a hiker was lost in Boulder Creek for nine days, and then ultimately rescued by helicopter.

This work is of importance because the most popular trail in the Umpqua National Forest, the 79-mile North Umpqua Trail (NUT), has sustained major damage over 43% of it caused by the massive wildfires in 2020 and 2021. A severe winter snowstorm in 2019 also greatly affected many trails in the area. The lower part of the Umpqua National Forest will remain hazardous in the next several years, and many trails may not reopen for some time. These events have diminished recreational opportunities in Douglas County for local residents and visitors to this rural community. The wildfires and 2019 winter storm have required an unexpectedly heavy volume of work for the Umpqua National Forest, and so providing additional capacity through volunteers was necessary. This meaningful community work became important for veterans as an opportunity to heal outdoors, continue service to their country and connect with the community.

In June-October 2021, the veterans from Source One Serenity with community volunteers have cleared more than 8 miles of trail in the Boulder Creek Wilderness: Bradley Trail #1491 (2.4 mi), Soda Springs Trail #1493 (0.4 mi), and Boulder Creek Trail #1552 (more than 5 mi). They have cut 45 fallen trees and opened Bradley Trail and Soda Springs Trail that intersect Boulder Creek Trail at Pine Bench. The work in this area is arduous due to steepness, big, downed trees, and no mechanized equipment allowed. A great amount of effort is expended to hike in and use cross-cut saws to clear downed trees. Although the Boulder Creek Trail is not cleared completely, it already provides renewed access to the Boulder Creek Wilderness for hikers and equestrians.

Source One Serenity intends to fully clear and reopen the Boulder Creek Trail in 2022 (approximately 5 more miles from 2,000-5,000 feet elevation). This will also allow for reopening connector trails in future years, and

thus creating loop opportunities in the wilderness for hikers, backpackers, and equestrians. We are focused on reducing the deferred maintenance in the Boulder Creek Wilderness to help shift use and offer recreational opportunities to visitors despite recent disturbance events. Source One Serenity performs this trail work according to the Forest Service's trail development scale and under supervision of the Umpqua National Forest Recreation Program. The trails are intended to preserve the Boulder Creek Wilderness and its wildlife habitat as near as possible to the primitive environment, and "where man himself is a visitor who does not remain."

After finishing the trail work in Boulder Creek, Source One Serenity will host educational camping of a small group of community members with a biologist to educate them on natural fauna, forest rehabilitation, and conservational goals for such areas. This educational outing will cultivate stewardship among local residents to carry it over in the future years to maintain and preserve this area in conformity with Wilderness Act which is necessary because higher traffic in this area is expected after it is cleared and open to the public.

As Source One Serenity serves veterans, it is meaningful for the non-profit to work on publicly owned and federally managed land to create a sense of ownership of public lands among our volunteers. In the proposed project, Source One Serenity also addresses the issues and struggles our veterans experience during the difficult transitional period from their military careers into civilian life. Peer support among veterans plays a crucial role in easing these difficulties. The work during this project creates a haven for social camaraderie and breaks the bonds of isolation. We also introduce them to our local abundant ecosystem and world-renowned gem, the North Umpqua Wild and Scenic River which runs along the southern edge of the Boulder Creek Wilderness. This project will show veterans the importance of stewardship of our natural resources. What a great opportunity to reclaim their sense of purpose, which is the desire of every military veteran who has honorably served their country!

Ben H., a post-9/11 combat veteran who spent a weekend in the Boulder Creek Wilderness said: "Trail work in the wilderness with fellow veterans […] can refresh the soul and rekindle a sense of meaning. For me contributing to trails work allows veterans and other members of our society to get out and experience the healing power of nature in ways that might not be possible if these trails did not exist. I find meaning in sweating and straining in manual labor across from other veterans who find purpose in hard work that ultimately benefits the greater good of our community."

To be able to complete the trail work, we plan four to six camping stays in 2022. Due to a minimum 5-mile hike to start the trail work, it is more efficient for volunteers to camp overnight in that area during the work. Volunteers from Oregon Equestrian Trails will assist Source One Serenity's crew in packing in hand tools due to a longer hike. The Project Lead for trail maintenance in the proposed trail work in the Boulder Creek Wilderness is Rusty Lininger, who is also the Co-Founder of Source One Serenity. He was trained by the International Mountain Bicycling Association to build sustainable multi-use single track, and since 2009 he has been building single-track trails in Germany. Since 2016, he has continued working on trails in the Umpqua National Forest. He also worked with volunteers from the Oregon Equestrian Trails on trail clearance in the county parks.

In addition to trail maintenance, Source One Serenity will install new trail signs throughout the wilderness area. Many trail signs have been damaged or destroyed in past fires, which is a safety risk for wilderness users. The Umpqua National Forest will provide Source One Serenity with the signs.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

The main project goals include:
1. Provide healing opportunities for veterans in wilderness areas with a meaningful purpose and introduce them to the recreational opportunities in the Umpqua National Forest.

2. Expand recreational opportunities in the Umpqua National Forest despite the massive damage of existing trails due to the recent fires and the 2019 winter storm.
Source One Serenity will achieve both goals by scheduling dates for volunteers in coordination with the Umpqua National Forest, outreach efforts to recruit veterans, and by organizing camping stays and trail work (providing dehydrated food, camping gear, equipment, and tools for trail work).

3. Cultivate stewardship in the local community and increase understanding of rules of conduct in wilderness areas, as well as natural fauna, forest rehabilitation, and conservation goals. We will do this by hosting an educational camping event in the Boulder Creek Wilderness led by a biologist and social media outreach.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

1. Our first expected outcome is to clear and reopen the complete Boulder Creek Trail in 2022, and thus expand recreational opportunities by a total of 13.4 miles of trails in the Umpqua National Forest. Success will be measured in miles of trail reopened.

2. Our second expected outcome is to reach more than 2,000 local residents through social media outreach and educational camping on inspiring stewardship and educating on the rules of conduct in wilderness areas. Success will be measured by implementing the educational event and through the number of community members engaged on social media.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [ ] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [ ] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [x] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [x] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [x] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [x] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

Source One Serenity's trail work and educational event in the Boulder Creek Wilderness create an opportunity for veterans to be introduced to the outdoors in a meaningful way and to tap into the healing power of nature. Source One Serenity connects veterans with the community and educates them on land stewardship and ownership of public lands with an opportunity to continue serving their country. It expands the diversity of Oregon's recreational users through community service. By reopening the trails in the Boulder Creek Wilderness, it provides recreational access to Oregonians for hunting, scenic hiking and wildlife viewing in a safe manner. Moderate development of the trail according to Trail Class 2 standards and hosting an educational event led by a biologist fall under the conservation action of the Oregon Conservation Strategy to manage for recreational impact in this wilderness area.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [ ] Birds
- [ ] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [ ] Fish
- [ ] Plants
- [ ] Invertebrates
- [ ] Not applicable
- [ ] Other: _____

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [ ] Administration
- [ ] Contract services
- [x] Equipment
- [x] Personnel
- [x] Supplies/materials/services
- [x] Travel
- [ ] Other: _____

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

Personnel ($2,800):
- Allowance for three veterans in the total amount of $2,400 (40hrs x $20/hr x 3 veterans)
- Allowance for marketing staff (outreach) in the total amount of $400 (20hrs x $20)

Equipment ($300):
- Tools (crosscut saw and saw sharpening) in total amount of $300

Supplies/materials/services ($1,170):
- Food (mostly dehydrated) in the total amount of $1,050
- Food for horses in the total amount of $120 (estimated 6 days x $20/day)

Travel expenditures ($748)
- Gas mileage from Roseburg in the total amount of $605 (2 cars x 5 trips x 108 miles x $0.56/mile)
- Gas mileage from Oakland, 2 trips with horses in the total amount of $143 (2 x 128 miles x $0.56)

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

1. Collaboration with the Umpqua National Forest:
- Supervision, coordination on scope of work, and regular communication on the progress:
USFS Trail Lead (2 days)
USFS 2 Trail Crew Workers (3 days)
USFS Recreation Manager (1 day)

- In-kind contributions (USFS provides the following tools for trail work):
Bucking/undercut saw (2*$300)
Axes (3*$100)
Limb trimmer (2*$40)
Machetes (2*$30)

2. National Forest Foundation Coordinator will assist Source One Serenity's crew with coordinating trail work and outreach efforts on stewardship.

3. Volunteers from Oregon Equestrian Trail will assist Source One Serenity's crew in packing in hand tools due to a longer hike.

4. Roseburg office of ODFW will assist Source One Serenity with outreach efforts concerning education on natural fauna and forest rehabilitation.

Timeline *

Please identify the key milestones towards completing the project and achieving results.

Source One Serenity will plan four to six camping stays from April till August 2022. it is estimated that in September or October 2022, Source One Serenity will implement an educational event during one weekend.

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

Two Letters of Support written by the Roseburg Office of ODFW and Douglas County's Sheriff John Hanlin will be sent per email to odfw.ocrf@odfw.oregon.gov to accompany the current proposal.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

In August 2020, Source One Serenity's volunteers completed the work of renovating five wooden interpretive kiosks along the Wild & Scenic North Umpqua River. This was a rewarding project as these information kiosks supply information to thousands of visitors from all over the world for many years to come. It was also a great opportunity for veterans in our community to be able to connect. But the 2020 Archie Creek Fire brought fiery destruction upon the land, leaving behind a devastating landscape that has affected many of us in this community. We were saddened that one of the kiosks we renovated was destroyed by the fire. The area around the Bogus Creek Campground and Boat Launch was burnt beyond recognition. But thankfully, the others remained intact and untouched by the fiery wrath that raged through. As we enjoy our time along the Wild & Scenic North Umpqua River, we remember life is as fleeting as the water that flows bringing life into this valley, and that we must all do our part to preserve nature's bounty.

Project 2

1500 maximum characters

During Source One Serenity's fly fishing schools in 2017-2019, veterans implemented four surveys of electro-fish sampling at Lemolo Reservoir under the supervision of the Roseburg office of the Oregon Department of Fish and Wildlife. The goal of the surveys included catching, measuring, weighing, and recording the number of fish in a region of the North Umpqua River. A concern for the past few years was the absence of spawning kokanee (land-locked sockeye). Capturing one and spotting many others spawning brought comfort, and it promised a bright future for this fishery. They also monitored tui chub populations. It was an inspiring opportunity for the participants to successfully implement these surveys and deliver results to the local office of ODFW.

From the desk of

SHERIFF JOHN W. HANLIN

DOUGLAS COUNTY, OREGON

Justice Building
Roseburg, Oregon 97470
(541) 957-8140
www.dcso.com

October 21, 2021

RE: Oregon Conservation and Recreation Fund

Dear Grant Committee Members,

I am writing this letter in support of the grant proposal submitted to you from Source One Serenity for trail maintenance and improvement in the Boulder Creek Wilderness area of the Umpqua National Forest. Residents and visitors of Douglas County visit this area to hunt, day hike, birdwatch, backpack, camp, horseback ride, and rock climb. Amateur photographers are also drawn to this area for the rocky monoliths, spring wildflowers, and wildlife who make their home in the successional forest growth since the 2008 Rattle Fire.

Unfortunately, the area has been affected by fire on numerous occasions. The Spring Fire in 1996 and the Rattle Fire in 2008 burned most of this wilderness area. These fires have resulted in rapid brush growth and persistent blowdown of timber on trails such as the Bradley Trail #1491, the Boulder Creek Trail #1552, and the Soda Springs Trail #1493. Trees, thick brush, and washouts on these trails restrict access and make certain activities nearly impossible. Portions of these trails that have been wiped out and unmaintained trail junctions can become very confusing. People recreating in these areas can easily get lost resulting in the need for the Douglas County Sheriff's Office Search and Rescue to respond and locate or assist them. The work offered by Source One Serenity to clear and improve these trails would likely reduce the probability that people recreating would become lost or injured while out in the Boulder Creek Wilderness.

I believe this labor intensive work of hand sawing downed trees blocking the trails, manually clearing brush, and restoring trail surfaces by Source One Serenity to be a great service to the citizens and visitors of Douglas County.

Please give serious consideration and approval for this much needed service and repair to our public use trails and forest lands.

Respectfully,

John Hanlin

John Hanlin
Douglas County Sheriff

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Assessing Effects of Habitat Restoration on Grassland Birds at Powell Butte Nature Park

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

Our scientific research project examines the impacts on bird populations of habitat restoration at Powell Butte Nature Park located in Portland, OR. We initiated this research project in 2019 and have already collected three years of pre-restoration data on breeding and migratory birds using the site in anticipation of a major construction and grassland habitat restoration project that began in 2021. Our goal is to continue our monitoring of bird populations at the site post-restoration to provide valuable information that can inform agencies and land managers about the response of bird populations to restoration actions and also conduct monitoring that can help assess the overall success of habitat restoration projects. Our scientific research project has two main components: 1) demographic monitoring of breeding grassland birds found at the site and 2) Community Science surveys to collect data on the overall landbird community using the site. The demographic monitoring component will allow us to monitor changes in site usage by breeding grassland birds and changes in demographic rates (e.g., nest success, survivorship) following habitat restoration. The Community Science component will allow us to examine changes in landbird diversity and abundance following restoration, while also having the added benefit of engaging the community in scientific research and helping them understand the benefits of such restoration projects.

Primary Contact Person *

Dr. Thomas Virzi, Executive Director and Research Ecologist, Conservation InSight

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Conservation InSight

Mailing address *

13946 SE Taralon Drive, Happy Valley, OR 97015

Lead Organization Federal Tax ID *

82-2385234

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [ ] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [x] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Portland

Project Location (County) *

Multnomah

Project Start Date

MM DD YYYY

03 / 01 / 2022

Project End Date

MM DD YYYY

12 / 31 / 2022

Funding Amount Requested *

The maximum request is $20,000.

16000

Total Project Cost *

48000

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

Our scientific research project will examine the impacts on bird populations of grassland habitat restoration following a construction project currently being conducted by Portland Water Bureau on an underground reservoir located at Powell Butte Nature Park. Powell Butte Nature Park is a former homestead and dairy farm purchased by the City of Portland in 1925 and later converted into a nature park by Portland Parks & Recreation in 1987. Sitting atop two 50-million-gallon underground reservoirs managed by the Portland Water Bureau, the 611-acre nature park includes a variety of upland forest and grassland habitats. One of the underground reservoirs at the site is currently being excavated to replace the roof on the reservoir; excavation began in summer 2021 and construction is planned to be completed in 2022. Upon completion of construction, Portland Water Bureau and Portland Parks & Recreation intend to plant native grasses to restore the site to open prairie habitat. The second underground reservoir was installed in 2015, and at this time Portland Parks began to conduct significant habitat improvements in the Nature Park including the creation and/or restoration of approximately 210 acres of open prairie and oak-savannah habitat. The current restoration project will approximately double the amount of restored prairie habitat at the Nature Park. Our research will focus on grassland bird populations in restored prairie habitat and thus will provide valuable information on the success of past and current restoration efforts over time and their impact on this guild of threatened birds.

Many grassland bird species are of high conservation concern due to the extensive loss and/or degradation of prairie habitat in the United States and worldwide. Of 46 grassland-breeding birds found in the United States, almost half are of conservation concern and report significantly declining populations. In the Willamette Valley it is estimated that less than one percent of the original prairie habitat extent remains with most converted for farming or development. Most of the remaining prairie habitat in the Willamette Valley occurs in small, fragmented patches such as the restored prairie at Powell Butte Nature Park, and such isolated patches are known to be important for the persistence of many grassland bird communities (along with many grassland-dependent plants and invertebrates).

Long-term monitoring of the impacts of restoration projects on wildlife populations is often not included in habitat restoration plans. However, monitoring of physical and biological response variables to restoration treatments is important to: 1) document and measure the effects of restoration actions, 2) evaluate responses with respect to expected outcomes, and 3) contribute to the science and practice of restoration ecology. Our research will focus on the response of grassland bird populations; however, we will also collect data on the overall landbird community at Powell Butte in order to provide additional information regarding the overall success of restoration efforts. To achieve our goals, we will conduct demographic monitoring of grassland birds breeding at Powell Butte and coordinate Community Science surveys for all landbirds utilizing the site – continuing our research studies initiated in 2019 and continued in 2020 and 2021.

As a single restoration site, experimental design options for Powell Butte may be limited because the site may not be large enough to allow spatially replicated treatment sites or randomized controls. However, over the previous three years we have worked with Portland Parks to select study plots in other areas at the Nature Park where future restoration actions are planned to allow for eventual replication, and establishment of control sites. During 2019, we conducted bird surveys over most of the then available prairie habitat at Powell Butte using several methods (as described below) and more intensive demographic monitoring of focal species at the main areas of existing prairie located above the reservoirs. As more prairie restoration projects are initiated at Powell Butte, options for a more rigorous study design will

improve. Presently, we can adopt a time-series approach, which can evaluate changes over time through repeated observations before and after treatments (i.e., restoration).

Bird monitoring methods suited for restoration monitoring include area surveys, line transects, and point counts. One important issue to consider with bird monitoring is estimating species detection probability during survey efforts. Bird detectability can vary for variety of reasons, in particular changing habitat structure and composition as would be expected to occur with habitat restoration or habitat succession. Without correcting for detectability, comparisons of species abundance or density among sites (or over time) are likely to be inappropriate. For analyses of breeding and migratory bird populations using Powell Butte Nature Park we will restrict our analysis to distance sampling. We will also conduct concurrent Community Science surveys (see below); however, detection probability will not be estimated during these volunteer surveys to reduce barriers for participation by less-experienced individuals.

Demographic monitoring is often not included as part of post-restoration monitoring because it requires an intensive amount of effort to collect such data. During 2019, we initiated a demographic monitoring program at Powell Butte collecting data on grassland birds breeding at the Nature Park. At present, the only grassland species breeding at Powell Butte is the Savannah sparrow. Our demographic monitoring included locating and monitoring Savannah sparrow nest attempts and color-banding sparrows to enable identification of individuals, which is necessary to track their movements on territories during the breeding season, gain an understanding breeding site fidelity and estimate annual survivorship. Between 2019 and 2021, we color-banded 100 Savannah sparrows at Powel Butte Nature Park and conducted band resight surveys each year for returning individuals. We have observed strong breeding site fidelity, and thus, we expect to have a substantial marked population at Powell Butte available for future research studies. This will enable us to study the impacts of current restoration efforts on individuals; for example, we will be able to document changes in individual’s breeding site selection and fitness over time in response to habitat improvements.

The second major component of our research project at Powell Butte Nature Park is a Community Science project that engages the Portland metro area community in local wildlife conservation and habitat restoration projects. In 2019, we developed a study protocol to be used by volunteer surveyors collecting count data on breeding and migrating landbirds using the site. We wanted to include a Community Science component to our study plan to engage the community and help individuals understand the importance of habitat restoration projects for the health of local wildlife populations living in the Portland metro area. Volunteer surveyors walked pre-determined line transects and counted all birds encountered during fixed-time surveys. Volunteers were organized by our project partner, Johnson Creek Watershed Council, and all training and data management was conducted by Conservation InSight. During our initial year of surveys in 2019, 24 volunteers conducted 92 surveys, detected 77 species, and counted over 4,000 birds. Surveys were continued in 2020 (COVID-19 limited effort) and 2021 (data currently being analyzed). Our goal is to increase survey effort in 2022 and expand our reach to try to engage local underserved communities which were not adequately represented in the first three years of the Community Science project.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

This proposal includes three main monitoring objectives to measure the response of grassland birds and other landbird communities to habitat restoration actions at Powell Butte Nature Park. The three objectives include: 1) quantify the numerical response in species abundance by breeding landbirds (passerines and raptors); 2) quantify changes in demographic rates of focal grassland bird species breeding in restored prairie habitat over time as restoration advances; and 3) develop a species list and characterize bird community composition and abundance at Powell Butte using Community Science. We expect that the grassland bird community should become more diverse over time as restoration advances, and that the abundance of grassland obligate species should increase. We also expect that demographic rates for grassland birds already breeding at Powell Butte (e.g., Savannah sparrows) should increase as prairie habitat is expanded and improved further via removal of woody vegetation and control of invasive plants. Finally, we expect that the overall landbird community at the Powell Butte should become more diverse and that the Nature Park should support a greater abundance of many landbird species.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

All demographic data collected will be recorded in a Microsoft Access database which will be shared with Portland Parks & Recreation and Portland Water Bureau upon completion of the study. Conservation InSight will also share all geospatial data collected, including nest locations, banding locations, and territory points with Portland Parks and Portland Water Bureau in the form of an ArcGIS geodatabase upon completion of the study. Community Science data will be available to all project partners and volunteer participants on eBird, and a consolidated species list will be made publicly available on our website. We anticipate that this study will be conducted annually, and all data will be updated and made available upon completion of our annual reports. Thus, our proposed research will provide long-term data for project partners to enable them to assess future habitat restoration actions at this site and inform other similar restoration projects in Oregon.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [x] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [x] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [x] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [x] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

Our project focuses on scientific research and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy. Through our research, we will provide valuable information that can be used by agencies and land managers to address key conservation issues including land use issues, habitat fragmentation and habitat restoration in urban areas. We will continue our established monitoring program studying the impacts of Willamette Valley prairie habitat restoration on breeding grassland birds. We are currently surveying for Savannah sparrows and other obligate, threatened grassland bird species (e.g., Western meadowlarks, Oregon vesper sparrows) and hope to provide information about these strategy species at this restoration site that could inform other habitat restoration projects in the Willamette Valley.

Our scientific research project already includes a strong education and outreach element through our Community Science component of the project. Part of our non-profit's mission statement is to inform the public about scientific research and find relatable ways to encourage community involvement.
We plan to build on our existing efforts to engage a broader representation of the Portland metro area community. Specifically, we are currently exploring ways to reach underserved youth in the area by providing opportunities to work on our project, either as volunteers or as paid field technicians to assist in data collection.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [x] Birds
- [ ] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [ ] Fish
- [ ] Plants
- [ ] Invertebrates
- [ ] Not applicable
- [ ] Other:

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [ ] Administration
- [ ] Contract services
- [ ] Equipment
- [x] Personnel
- [x] Supplies/materials/services
- [x] Travel
- [ ] Other: _____

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

Funds will be used primarily to pay personnel to conduct fieldwork associated with the project; personnel time (for principal investigator and one field technician) = $15,000. Additional funds will be used for travel (mileage reimbursement to field site) = $700, and field supplies = $300. No overhead will be taken on funds provided. All overhead costs and any additional principal investigator salary will be funded with matching funds from private donations (anticipated) and/or out of Conservation InSight overhead (2:1 match expected).

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

Portland Parks & Recreation (PPR) will be our main partner on this project. PPR will provide the necessary permits to access the site, and we will coordinate all monitoring with them. PPR staff will participate in bird surveys and provide vegetation monitoring data collected at the site to be included in data analyses. Portland Water Bureau will also allow access to the site and contribute information pertaining to the ongoing construction project on the underground reservoirs and eventual restoration of grassland habitat above the reservoirs. We will also be partnering with Johnson Creek Watershed Council (JCWC) on the Community Science component of the research project. JCWC will organize all volunteers needed for the project; Conservation InSight will provide training for volunteers to conduct surveys following our established protocols and manage all data.

Timeline *

Please identify the key milestones towards completing the project and achieving results.

Fieldwork for the 2021 breeding season will begin in March 2022. During the initial month of fieldwork, we will hire and train field technicians who will collect data for the demographic monitoring component of the project, and we will offer training to volunteers participating in the Community Science component. Community Science surveys will begin on or about April 01 and continue until June 30, 2022. Demographic monitoring will continue until all grassland birds at the site complete their annual breeding cycle, which is expected to by sometime in July or August. Data will be made available to partners by September 30 and summarized in an annual report by the end of the year.

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

Conservation InSight is a nonprofit scientific research organization focused on providing sound solutions to avian conservation issues. Our mission is to provide evidence-based scientific findings that may be used by federal and state agencies, conservation managers, and communities to inform decision making. Our work is divided into two main programs: 1) scientific research and 2) education outreach. If funded, this project will help us fulfill our mission while providing invaluable information about restoration success at Powell Butte Nature Park that may also benefit similar grassland restoration projects in the Willamette Valley. We have already engaged the community and collected three years of pre-restoration data on grassland birds breeding at the Nature Park; this funding will allow us to continue our monitoring into the post-restoration period. Please visit our website (https://conservationinsight.org/research-program) to see the results from our first year of demographic monitoring and Community Science surveys at Powell Butte. Results from our monitoring through 2021 are being analyzed and written up at this time and will be available on our website in the near future.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

We have already completed three years of pre-restoration monitoring at Powell Butte Nature Park as part of our continuing project examining the impacts of a major habitat restoration project on birds using the site during the spring migration and breeding periods. Our research focus has been studying breeding grassland passerines using the site, however we have also collected data on the overall landbird community using the site during these periods by developing and coordinating a community science bird monitoring project conducted in partnership with Portland Parks & Recreation and Johnson Creek Watershed Council. We have already shared our monitoring data with our partners and have conducted several talks at public events to share our results with the community at large. Perhaps most importantly, data collected from 2019-2021 helped inform Portland Water Bureau on their construction project initiated at the site in summer 2021 to reduce negative impacts on bird populations at the site – specifically breeding grassland birds found in the construction impact zone.

Project 2

1500 maximum characters

Since the inception of our non-profit organization in 2017, we have been conducting demographic research on the federally-endangered Cape Sable seaside sparrow (CSSS) in the Florida Everglades. We have worked closely with local partners including Everglades National Park, U.S. Fish & Wildlife Service, and the South Florida Water Management Service to provide annual monitoring data on the CSSS to help inform land managers on the impacts of large-scale habitat restoration currently being conducted in the Everglades ecosystem. Our findings and recommendations (as provided in our annual reports and regular presentations for partners) have aided our partners in their adaptive management of the system to minimize impacts to the CSSS, which is an important indicator species for marl prairie habitat found only in the Everglades ecosystem.

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Diverse Stakeholder Engagement for Skyline Forest

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

Deschutes Land Trust has been working for years to conserve a 33,000 acre block of land near Bend and Sisters, Oregon called Skyline Forest. Surrounded by state and federal lands, Skyline Forest contains important wildlife corridors and habitat, provides tremendous recreation opportunities, is a critical wildfire safety buffer for local communities, and protects the scenic green foothills that set off the Central Oregon Cascades. This area is currently on the market for $127 million and being advertised as a prime location for a destination resort or cluster development. The current price prevents immediate acquisition of the property for conservation. Deschutes Land Trust is seeking to lead a Stakeholder Engagement process beginning in 2022 to develop a new community vision for Skyline Forest. Our goal will be a robust, community-wide effort that engages local organizations, leaders and community members around creating a shared vision for Skyline's future conservation and management. Once completed this vision will serve as an essential tool as we continue down the path toward acquisition and permanent conservation of Skyline Forest. We are asking for support from OCRF to help us realize our commitment to Diverse Stakeholder Engagement. If funded, we will work with a DEI professional to host special engagement sessions focused on how we can approach conservation in Skyline Forest using an equity lens. Our goal will be to adopt a set of DEI principles that will underly and inform all future management decisions in Skyline Forest. We want to ask the questions: What does an equitable outdoor experience look like? How can we avoid the pitfalls of the past in recreation and conservation? We have a blank slate, what do we want to create? Using these as our guiding questions, we believe that Skyline Forest can serve as a model and a catalyst to apply this thinking to all our managed lands.

Primary Contact Person *

Rika Ayotte

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Deschutes Land Trust

Mailing address *

210 Irving Avenue, Suite 102 Bend, OR 97703

Lead Organization Federal Tax ID *

93-1186407

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [x] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Bend

Project Location (County) *

OR

Project Start Date

MM DD YYYY

02 / 01 / 2022

Project End Date

MM DD YYYY

06 / 30 / 2022

Funding Amount Requested *

The maximum request is $20,000.

8000

Total Project Cost *

60000

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

Deschutes Land Trust has been working for years to conserve a massive block of land near Bend and Sisters, Oregon called Skyline Forest. This 33,000 acre tree farm has historically been known as the Bull Springs Tree Farm, and is one of several commercial timberlands in central Oregon at risk of conversion to residential development. Surrounded by state and federal lands, Skyline Forest contains important wildlife corridors and habitat for mule deer and other species, provides tremendous recreation opportunities including hiking, trail running, camping, cycling, mushroom foraging and wildlife viewing, is a critical wildfire safety buffer for local communities, and protects the scenic green foothills that set off the Central Oregon Cascades.

Over the years, residents, businesses, and elected officials have strongly and consistently supported the protection of Skyline. Recent fires only underscore the risk of putting homes in Skyline Forest. If protected, Skyline Forest would support sustainable production of forest products, jobs, wildlife, scenic views, and recreation. This area is currently on the market for $127 million and being advertised as a prime location for a destination resort or cluster development. The current price prevents immediate acquisition of the property for conservation.
However, with Central Oregon's real estate market booming and impacts of climate change driven fire and drought mounting, we recognize that we must take action now to ensure that Skyline Forest continues to offer refuge and access for wildlife and the Central Oregon Community.
In this vein, Deschutes Land Trust will lead a Stakeholder Engagement process beginning in 2022 to develop a new community vision for Skyline Forest. Our goal will be a robust, community-wide effort that engages local organizations, leaders and community members around creating a shared vision for Skyline's future conservation and management. Within this effort we are committed to creating a process that is welcoming and inclusive and we are focused on ensure that voices from marginalized communities are represented and centered in our process.
Once completed this vision will serve as an essential tool as we continue down the path toward acquisition and permanent conservation of Skyline Forest.
Our Stakeholder Engagement Process will comprise the following strategies:
1. Facilitated Stakeholder Dialogues: We will work with a professional facilitator to host a series of working sessions attended by stakeholders including recreationists, local non-profit and conservation groups, tribal members, land managers, county/city/state government officials, neighbors, fire managers and others. These sessions will be designed to identify and map current community priorities on Skyline Forest and also to solicit input for a vision for future management.
2. Skyline Open House Tours: These events will invite stakeholders, community members and leaders to guided tours on Skyline Forest as a means to familiarize them with the current and future value of Skyline to the Central Oregon Community.
3. Community Input Survey: This survey tool will be used to measure community support for conservation of Skyline Forest. In addition, the survey will allow for broader community commentary on future management and use.
4. Diverse Stakeholder Engagement: We will work with a DEI professional to host separate engagement sessions focused on how we can approach conservation in Skyline Forest using an equity lens. Rather than soliciting specific input on future uses and management of Skyline Forest, which will be accomplished via the stakeholder diaglogue, this session will focus on the development of broad strategies for equity and inclusion that will serve as a tool to inform all future decisions. Our objective will be to adopt a set of DEI principles that will underly and inform all future management decisions in Skyline Forest. It is our hope that

these same principles can later be applied broadly to all current and future Land Trust properties.
We have been able to secure some funding and anticipate additional funds for strategies 1-3. We are asking for support from the Oregon Conservation and Recreation Fund to help us achieve strategy number 4.
We believe that Deschutes Land Trust is well positioned to pursue a Diverse Stakeholder Engagement Strategy. Over the past 3 years, the Land Trust has worked both internally and externally to build our DEI capacity, strengthen our community partnerships and prioritize Diversity, Equity and Inclusion across our organization. In doing so, we have realized several accomplishments and milestones:
1. Adopting public statements and practices to communicate our commitment to DEI (Equity statement, Statement on Racism, Land Acknowledgements in all programs and communications)
2. Establishing an Equity Council within our organization focused on organizational policy development, messaging, staff professional developments and workplace culture.
3. Strengthening our relationships and understanding of tribal communities through land visits, learning sessions and participation in the Land Justice Project through the coalition of Oregon Land Trusts.
4. Listening Sessions with Latinx communities in Prineville and Madras.
5. Preserve Inclusivity Assessments of Land Trust properties conducted by Latinx Community Members paid for their time with future assessments planned in partnership with People with Disabilities and LGBTQIA+ community members.
Our Diverse Stakeholder Engagement process would represent a new approach for us. Our previous approaches focused on gathering baseline information from underserved communities about their perception of the Land Trust and of current levels of engagement with outdoor recreation and conservation. We have also focused on soliciting information specific to Land Trust preserves and how to make them more inclusive. For this project, we would like to work with diverse stakeholders to develop principles related to Equity and Inclusion using Skyline Forest as a backdrop. We want to ask the question: What does an equitable outdoor experience look like? How can we avoid the pitfalls of the past in recreation and conservation? We have a blank slate, what do we want to create? Using these as our guiding questions, we believe that Skyline Forest can serve as a model and a catalyst to apply this thinking to all of our managed lands.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

Goal: A robust, community-wide effort that engages local organizations, leaders and community members around creating a shared vision for Skyline's future conservation and management.

Strategy 1. Facilitated Stakeholder Dialogues: We will work with a professional facilitator to host a series of working sessions attended by stakeholders including recreationists, local non-profit and conservation groups, tribal members, land managers, county/city/state government officials, neighbors, fire managers and others.
OBJECTIVE: Identify and map current community priorities on Skyline Forest and also to solicit input for a vision for future management.
Strategy 2. Skyline Open House Tours: These events will invite stakeholders, community members and leaders to guided tours on Skyline Forest
OBJECTIVE: familiarize community with the current and future value of Skyline to the Central Oregon Community.
Strategy 3. Community Input Survey: We are hoping to utilize a community survey to both raise community awareness about Skyline Forest as well as to allow for broader community commentary on future management and use.
OBJECTIVE: conduct a statistically valid survey to track awareness, perceptions, and priorities of Bend & Sisters residents regarding Skyline Forest.
Strategy 4. Diverse Stakeholder Engagement: We will work with a DEI professional to host separate engagement sessions focused on how we can approach conservation in Skyline Forest using an equity lens. Rather than soliciting specific input on future uses and management of Skyline Forest, which will be accomplished via the stakeholder diaglogue, this session will focus on the development of broad strategies for equity and inclusion that will serve as a tool to inform all future decisions.
OBJECTIVE: Adopt a set of DEI principles that will underly and inform all future management decisions in Skyline Forest. It is our hope that these same principles can later be applied broadly to all current and future Land Trust properties.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

Outcomes and Measuring Success For Diverse Stakeholder Engagement:

Outcome 1: Retaining services of DEI consultant to engagement process
Measurement: Scope of work developed, Consulting proposals solicited, contracted deliverables completed and products created through process are received.

Outcome 2: Significant participation from people with marginalized identities
Measurement: At least one participant from Latinx, BIPOC, LGBTQIA+ and differently abled communities participating in each session. Survey tools will measure participant experience and engagement.

Outcome 3: Adoption of DEI principles that will guide and inform all future management decisions in Skyline Forest
Measurement: DEI principles are drafted and approved by diverse stakeholder participants. DEI Principles are shared with larger stakeholder group. DEI principles are shared with Land Trust staff and board.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [ ] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [ ] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [x] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [ ] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

Our Diverse Stakeholder Engagement process will further the priority development of opportunities to engage and expand the number and diversity of Oregon's outdoor users. We will be engaging people from marginalized identities in conversation about how we can approach our conservation work and learn new ways of working, listening and communicating. By starting with these conversations, we believe that our future management plans will maximize access and benefits for all communities and create authentic connections between people and the lands we manage. This project will also introduce new audiences to the recreation opportunities in Skyline Forest. Through field trips, hikes and snow days, we will provide opportunities for participants to explore Skyline Forest and provide them materials to share within their communities.

For projects that address a conservation priority, what are the primary taxa that will affected?

- [ ] Birds
- [ ] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [ ] Fish
- [ ] Plants
- [ ] Invertebrates
- [ ] Not applicable
- [ ] Other: _____

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [x] Administration
- [x] Contract services
- [ ] Equipment
- [ ] Personnel
- [x] Supplies/materials/services
- [ ] Travel
- [ ] Other: _____

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

OCRF Funds will be used to hire a DEI consultant to assist with scheduling and facilitation of the Diverse Stakeholder Engagement process. OCRF Funds will also be used for administrative costs and supplies and materials related to engagement sessions, field trips (eg refreshments, meeting materials, etc). OCRF funds will also be used to pay stipends to participants in the Diverse Stakeholder Engagement process.

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

Central Oregon Land Watch: Central Oregon Land Watch will be leading the development of the Community Input Survey. They will also act as a stakeholder during Stakeholder Dialogues.

Deschutes Trails Coalition: Will act as a stakeholder and recruit additional stakeholders during Stakeholder Dialogues.

US Forest Service: Will act as a stakeholder during Stakeholder Dialogues.

Vamanos Outside: Will assist with recruitment of Latinx participants for Diverse Stakeholder Engagement.

Oregon Adaptive Sports: Will assist with recruitment of participants with disabilities for Diverse Stakeholder Engagement.

Timeline *

Please identify the key milestones towards completing the project and achieving results.

TIMELINE: December 2021: Community Survey Conducted January 2022: DEI Consultant Scope of Work Completed February 2022: Stakeholder Dialogues and Diverse Stakeholder Engagement Sessions Begin March 2022: Field Trips/Site Visits conducted April 2022: Stakeholder Dialogues and Diverse Stakeholder Engagement Sessions Continue May 2022: Final Stakeholder Dialogues and Diverse Stakeholder Engagement Sessions June/July 2022: Final community vision and DEI principles documents for Skyline Forest complete.

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

The Land Trust and Western Monarch Advocates joined forces in 2021 to boost habitat for the imperiled Western monarch butterfly in Oregon. The Land Trust kicked off the project in Central Oregon in September by partnering with a variety of community groups to plant milkweed. Highlights include:

Bend: partnered with Bend Pollinator Pathway to plant more milkweed in new pollinator gardens they are growing in the city. We also partnered with Vámonos Outside to distribute milkweed to students and families in the Juntos Aprendemos program and the Silver Rails Elementary English Language Development program. The Environmental Center also helped distribute some via their Garden Educator Network.

La Pine: we partnered with South County Gardening to give milkweed to local gardeners and plant in the Victory Garden in La Pine.

Prineville: we partnered with Crook County schools to provide plants for new pollinator gardens at Steins Pillar Elementary, Crooked River Elementary, and Crook County High School. We also partnered with Mosaic Medical to distribute milkweed to senior citizens who love gardening.

Warm Springs: we are partnering with Warm Springs Community Action Team to distribute milkweed in the Warm Springs community.

Together we planted more than 1,500 new native plants in our communities.

Project 2

1500 maximum characters

The Land Trust and our restoration partners began the first phase of a six-mile restoration of Central Oregon's Whychus Creek in 2016. The first phase focused on approximately 1.5 miles of Whychus Creek in the northernmost part of Whychus Canyon Preserve.

The second phase began in 2021 and focused on the southernmost portion of the creek that runs through Rimrock Ranch. Much of the work was similar to the 2016 restoration project at Whychus Canyon Preserve. Video here: https://www.deschuteslandtrust.org/protected-lands/whychus-canyon-preserve/wc-creek-restoration

The Land Trust has partnered with the Upper Deschutes Watershed Council and the Deschutes National Forest on this restoration project. Additionally, a project advisory committee has provided design review and specific scientific expertise where needed. Members of this group include representatives from Oregon Department of Fish & Wildlife, U.S. Fish & Wildlife Service, U.S. Forest Service, Confederated Tribes of Warm Springs Reservation, Portland General Electric, and Bureau of Land Management.

Google Forms

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Restoring Fire to Remote, At-Risk, and Fire-Dependent Landscapes of Strategy Habitats and Strategy Species on the Sisters Ranger District

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

The Sisters Ranger District of the Deschutes National Forest aims to increase the pace, scale, innovation and growth based on adaptive management (as in , of its prescribed fire program, with a primary focus on restoration of Strategy Habitats, including ponderosa pine woodlands, aspen woodlands, late successional mixed conifer forests, and grasslands. Acquisition of a portable Remote Automated Weather Station (RAWS), and OCRF funding would help the district achieve this goal that will only become increasingly important as the climate continues to warm and dry on the public lands of central Oregon.

Primary Contact Person *

John DeLuca

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

Sisters Ranger Station, Deschutes National Forest, US Forest Service

Mailing address *

PO Box 249, Sisters, OR 97759

Lead Organization Federal Tax ID *

N/A; Federal Government

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [ ] Coast Range
- [ ] Columbia Plateau
- [x] East Cascades
- [ ] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Sisters, Oregon

Project Location (County) *

Sisters Ranger District, especially all landscapes outside of the southern pine area around the town of Sisters.

Project Start Date

MM DD YYYY

03 / 01 / 2021

Project End Date

MM DD YYYY

12 / 31 / 2070

Funding Amount Requested *

The maximum request is $20,000.

19728.85

Total Project Cost *

19728.85

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

This proposal would pay for the acquisition of a portable Remote Automated Weather Station (RAWS). The OCRF would help the Sisters Ranger District expand on its legacy of restoring prescribed fire to treasured landscape, where high levels of species richness, densities of restricted-range species, and exemplary and far-reaching relicts of legacy Strategy Habitats abound. It would help the Sisters Ranger District immediately achieve a larger acreage and higher quality of prescribed fire across a wider geographic and in a more biodiverse manner.

Prescribed fire managers use RAWS to monitor vegetation (fuels) characteristics and assess opportunities to responsibly reintroduce fire to Strategy Habitats. RAWS record information such as temperature, relative humidity, precipitation, solar radiation, wind speed/direction, fuel temperature, and fuel moisture. They relay this data in real time to the web and make it available to wildland fire managers and the public.

Strategy Habitats and Species on the Sisters Ranger District remain at an ever-increasing risk of stand-replacing wildfire, a type of fire to which they have not adapted to and evolved at the current trend of rising extent and severity. More prescribed fire – when conditions of fire weather and fuels align to produce ideal results on the ground – would help.

Many landscapes of the Sisters Ranger District lie outside the range of data collection for the Colgate RAWS station in the ponderosa pine woodlands around the town of Sisters and to the south. It requires much time and distance to access the many, secluded, and rugged watersheds of the Sisters Ranger District. Examples include the Green Ridge, the treasured and famed Wildernesses and foothills from Jefferson to Broken Top, much of the Metolius, and the large stretches of mule deer winter range to the south, southwest, and northeast of Garrison Butte.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

RAWS allows prescribed fire specialists to discover narrow but suitable windows of opportunity with just the right weather conditions to apply fire to the landscape. By learning when these “goldilocks” conditions occur in real time, the district will accelerate the pace and scale of Strategy Habitat restoration and protection, especially in remote portions of the district such as the Green Ridge landscape.More prescribed fire will result increase restoration of Strategy Habitats such as ponderosa pine woodlands, aspen woodlands, and grasslands. Restoring fire to these Strategy Habitats will also indirectly benefit adjacent late successional mixed conifer forests (another Strategy Habitat) by creating landscape-scale treatments that allow fire managers to contain stand-replacing wildfires.

Strategy species to benefit include: mammals (American pika, American marten, Sierra Nevada red fox, hoary bat, fringed myotis, pallid bat, spotted bat, Townsend’s big-eared bat); amphibians (Cascades frog, Rocky Mountain tailed frog, western toad); and birds (northern spotted owl, great gray owl, flammulated owl, northern goshawk, mountain quail, Lewis’s woodpecker, white-headed woodpecker, pileated woodpecker, western bluebird, white-breasted nuthatch, chipping sparrow, olive-sided flycatcher, willow flycatcher, yellow-breasted chat).

Other than improving conditions for Strategy Habitats and Strategy Species, other benefits include enhancement of hunting opportunities (by improving game habitat) and protection of domestic water supplies and recreational trail systems.

This project also incorporates conservation education. The Deschutes National Forest actively collaborates with the non-profit Discover Your Forest and plans to use RAWS information to produce a fire weather education component available to local area schools, including schools of the Confederated Tribes of Warm Springs. This will provide students with applied knowledge on fire ecology. For example, it will help students understand the relationship between fire weather and fire effects on Strategy Habitats and Strategy Species.

Signage will also be installed to explain the use of OCRF-funded RAWS - including the implementation of real-world examples of adaptive management monitoring and predictive services and the outcomes for water quality and quantity, Strategy Habitats and Strategy Species, and other natural and cultural values.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

In FY2022, 2392 acres are planned without a RAWS. Approximately 10%-30% more planned - at a higher level of conformance with well-known and typical quantitative metrics of "Burn Plans" (e.g., canopy cover, % consumption of down logs and snags, creation of snags and down logs, consumption of different types and size classes of vegetation) and qualitative
assessment of measures of excellence in a framework that welcomes partnerships - with a RAWS.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [x] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [x] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [x] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [x] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [x] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [x] Recreation - Research or planning that supports responsible recreational opportunities
- [x] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

More prescribed fire will result increase restoration of Strategy Habitats such as ponderosa pine woodlands, aspen woodlands, and grasslands. Restoring fire to these Strategy Habitats will also indirectly benefit adjacent late successional mixed conifer forests (another Strategy Habitat) by creating landscape-scale treatments that allow fire managers to contain stand-replacing wildfires.

Strategy species to benefit include: mammals (American pika, American marten, Sierra Nevada red fox, hoary bat, fringed myotis, pallid bat, spotted bat, Townsend's big-eared bat); amphibians (Cascades frog, Rocky Mountain tailed frog, western toad); and birds (northern spotted owl, great gray owl, flammulated owl, northern goshawk, mountain quail, Lewis's woodpecker, white-headed woodpecker, pileated woodpecker, western bluebird, white-breasted nuthatch, chipping sparrow, olive-sided flycatcher, willow flycatcher, yellow-breasted chat).

For projects that address a conservation priority, what are the primary taxa that will affected?

- [x] Birds
- [x] Mammals
- [x] Reptiles
- [x] Amphibians
- [x] Fish
- [x] Plants
- [x] Invertebrates
- [ ] Not applicable
- [ ] Other: .....

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [ ] Administration
- [ ] Contract services
- [x] Equipment
- [ ] Personnel
- [ ] Supplies/materials/services
- [ ] Travel
- [ ] Other: .....

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

The proposal would fund the acquisition of materials for a Quick Deploy RAWS:

$17,815 for
- King radio
- F6 Datalogger w/G6 & RVT2 QD Version
- Voice Transmitter QDInternal ConnCustomer King R
- Quick Deploy Enclosure with Tripod Legs
- Quick Deploy Power Supply Solar Panel Batteries
- Wind Speed & Direction Sensor QD Mount Cable
- Quick Deploy Mast Height Extender 30"
- Temp Humidity Sensor Solar Shield QD Mount 6ft
- Rain Gauge QD Mount 20 ft Armoured Cable
- Fuelstick Moisture Sensor 12 ft Armoured Cable
- Fuel Stick Mount Quick Deploy Station
- Solar Radiation Sensor QD Mount and Cable
- Quick Deploy Station Shipping Cases (2)
- Cable AC Adapter to Solar Panel Port
- FTS Manual

$594 for
-Soil moisture probe

$270 for
-cable and misc. equipment

A estimated breakdown from the equipment vendor is available upon request. The estimate lumps these into three amounts.

$800 for interpretative signage

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

The Confederated Tribes of Warm Springs; ODFW; USFWS; Discover Your Forest; Friends of the Metolius; The Children's Forest; Sisters School District; Black Butte School; Oregon State University (Corvallis and Bend campuses).

Timeline *

Please identify the key milestones towards completing the project and achieving results.

This OCRF proposal, if funded, would help the immediate increase of accomplishments on the Sisters Ranger District, as measured by a larger acreage and higher quality of prescribed fire across a wider geographic and in a more biodiverse landscape. Conservation education with a focus on interpretative signage, school outreach, and other methods would occur in FY22 and beyond..

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

Other than improving conditions for Strategy Habitats and Strategy Species, other benefits include enhancement of hunting opportunities (by improving game habitat) and protection of domestic water supplies and recreational trail systems.

Adaptive management, as in the USGS official guidelines for adaptive management, increasingly informs efforts on the Sisters Ranger District, and this RAWS station would contribute to that trend.

The USGS publication is available at:

https://www.doi.gov/sites/doi.gov/files/migrated/ppa/upload/TechGuide.pdf

Additional Context: The effects of stand-replacement fire were acutely shown in 2020 during the Green Ridge Wildfire. The fire began with a lightning strike and required 17 days for firefighters to contain, cost 11.2 million dollars, and resulted in 4,338 acres of primarily stand replacement fire on federal and private lands. Frequent application of low-intensity fire to this specific ponderosa-dominated landscape will drastically reduce the likelihood of high-severity fire occurring and spreading through the greater Green Ridge landscape and other landscapes with tens of thousands of acres of Strategy Habitats at risk. RAWS will allow fire managers to fine-tune the implementation of under-burning with weather and fuels conditions that support precise habitat restoration outcomes, help control high-severity fires, and reduce smoke impacts to our local communities.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

From 2008 to 2017, average of 680 acres underburned per year.
In 2018, 1,576 acres were completed (131% increase) and
1,981 acres were completed in 2019 (191% increase).

Project 2

1500 maximum characters

In 2020 only 114 acres were burned to due COVID-19 restrictions.
2021 Spring only (no Fall RX due to COVID) 1090 acres

OCRF Project Proposal Form

Thanks for your interest in applying for a grant from the Oregon Conservation & Recreation Fund. More information, including information on the Conservation & Recreation Advisory Committee's program priorities, available funds, and guidelines for preparing your application are available online here: https://www.dfw.state.or.us/conservationstrategy/OCRF/committee.asp. Questions can be referred to the Department of Fish and Wildlife via email: odfw.ocrf@odfw.oregon.gov or by phone: 971-719-1192.

Email *

[redacted]

Project Information

Project Title *

Coastal Marten Genetics: Creating tools for population level monitoring and addressing information gaps

Project Overview *

Please provide a short summary that could be used to describe your project on the OCRF website. (2000 character max)

Marten are a strategy species in the Oregon Conservation Strategy with important data gaps on population densities, habitat requirements, distribution, general ecology, and connectivity of populations. Humboldt or coastal martens (Martes caurina humboldtensis) are a unique subspecies of the Pacific marten found on Oregon and California coasts. Coastal martens were recently designated as federally threatened and persist only in fragmented subpopulations. Much of the information on coastal martens in Oregon comes from ongoing scat detection dog surveys, with information gained from these scats currently limited to species identification and diet due to methodological limitations. We propose to develop a novel genetic tool for reliably and affordably genotyping marten scats to identify individuals and sex. By providing for individual identification of scats, our tool will allow researchers and managers to estimate population density, gene flow, and inbreeding depression using current survey methods. We will apply this new tool to hundreds of banked coastal marten scat samples to estimate population genetics and preliminary landscape genetics, as well as make the tool publicly available for other researchers and managers to access. As additional samples and populations are analyzed, we will be able to gain more information not only on population genetics and connectivity of populations, but also on relationships between habitat and marten density and possibly even survival and fecundity estimates if multi-year samples become available.

Primary Contact Person *

Margaret Hallerud

Primary Contact Email Address *

[redacted]

Primary Contact Phone number *

[redacted]

Lead Organization *

The Levi Lab at Oregon State University

Mailing address *

Nash Hall 104
2820 SW Campus Way
Corvallis, OR 97331

Lead Organization Federal Tax ID *

61-1730890

Geography/Ecoregion *

Consult the Oregon Conservation Strategy Ecoregions: https://oregonconservationstrategy.com/ecoregions/. Check all that apply.

- [ ] Blue Mountains
- [x] Coast Range
- [ ] Columbia Plateau
- [ ] East Cascades
- [x] Klamath Mountains
- [ ] Nearshore
- [ ] Northern Basin & Range
- [ ] Willamette Valley
- [ ] West Cascades

Project Location (City) *

Corvallis, OR

Project Location (County) *

Lincoln, Lane, Douglas, Coos, Curry, Josephine

Project Start Date

MM DD YYYY

02 / 01 / 2021

Project End Date

MM DD YYYY

09 / 15 / 2021

Funding Amount Requested *

The maximum request is $20,000.

19948

Total Project Cost *

19948

Project Description

Tell us about your project.

Project Narrative *

Please describe your project in full. (8000 character max)

Understanding the conservation status and population viability of rare forest carnivores such as martens necessarily requires information on population density and genetic health, including inbreeding and gene flow. Humboldt or coastal martens (Martes caurina humboldtensis) are a Distinct Population Segment of the Pacific marten and were recently designated as federally threatened (USFWS 2021). They were characterized almost a century ago as “rapidly disappearing” (Grinnell and Dixon 1926) and no verifiable records of coastal martens existed from 1942–1996, when it was assumed that they were extirpated (Zielinski et al. 2001). Since their rediscovery in 1996, four small subpopulations have been identified where coastal marten persist, including the Central Coast Oregon, South Coast Oregon, Oregon/California border, and northern California subpopulations. Existing research suggests that existing subpopulations are small and presumably fragmented (e.g., Linnell et al. 2018), but data on demographic information (e.g., population density, age structure, survival, and fecundity) and connectivity are lacking. Additionally, detections of coastal martens have occurred in areas outside of these subpopulations, but whether these detections represent new subpopulations or individual animals is unknown due to knowledge gaps and limitations in existing survey methods.

Ongoing surveys to map the distribution of coastal martens are employing scat-detection dogs and genetic confirmation of species identity. An additional step of identifying individual animals by genotyping these scats would allow for density estimation using spatial capture-recapture techniques. Unfortunately, current genotyping methods relying on microsatellites have proven ineffective for identifying unique individuals, leaving a bank of hundreds of coastal marten DNA extracts unused. Developing accurate and affordable genotyping methods would unlock the potential of these scats to provide information on population density, as well as habitat selection, population genetics, and information on the connectivity of subpopulations.

Microsatellites are repeating patterns of two, three, or four nucleotides. For example, the sequence “TATATATATATA” or “GCAGCAGCAGCA” may repeat a variable number of times within a population, and due to the heritability of DNA from both parents, individuals may possess different alleles, each with a different number of repeats. The distribution of microsatellite lengths can be used to identify unique individuals or population genetics. There are 14 known microsatellites that are used to identify non-invasive samples (e.g., hair, scat) from martens to individual and sex. Amplification of scats has proven problematic in multiple genetic laboratories with only ~17% of scats successfully genotyped, likely due to poorly developed microsatellite markers. Microsatellites have several notable disadvantages. First, longer repeats require amplification of larger fragments of DNA, which reduces the amplification success from degraded DNA sources such as scats. Second, microsatellites are measured using a technique called capillary electrophoresis, which produces a visual output that a human must spend time to classify at a given length. Third, these classifications are not readily transferable among labs, which limits the long-term utility and verifiability of DNA identification.

Due to the development of high-throughput sequencing, which allows us to actually read large amounts of genetic material, we can now recover actual DNA sequences rather than measuring the length of DNA fragments. Rather than rely on microsatellites, we can now easily use single-nucleotide polymorphisms (SNPs), which are variants at individual DNA basepairs, to identify individuals and attain population genetics information. Over the last several years, high-throughput sequencing has opened the door to affordable genotyping of large numbers of individuals using SNPs with a technique called GTseq (Campbell et al. 2015). This method, now being implemented in the Levi Lab at Oregon State University for other carnivores (Eriksson et al. 2020), leads to much higher success rates by amplifying very short DNA fragments, which are retained even in degraded samples such as scats. In addition, the method is cost effective because

large numbers of samples can be multiplexed on a single sequencing run and because genotyping can be easily automated.

The first step to implementing affordable SNP genotyping with high-throughput sequencing is the development of a single nucleotide polymorphism panel for the marten genome, which has recently been completed (Colella et al. 2021). We propose to integrate these published SNPs into a genotyping by amplicon sequencing panel (Eriksson et al. 2020) to allow for highly affordable genotyping of fecal DNA. This requires substantial primer optimization and testing. Such optimization requires, for instance, determining primers that can be pooled together in the same PCR reactions (e.g., they must share melting temperatures and not interact). We will use primer optimization software and laboratory tests to optimize a coastal marten genotyping protocol based on these SNPs. We will then demonstrate the efficacy of the approach on already extracted marten scats. Both the development of SNPs and genotyping will require substantial bioinformatics expertise. The Levi Lab has now published successful SNP genotyping assays for coyotes, bobcats, pumas and black bears (Ruprecht et al. 2020), and has recently completed assays for brown bears and wolves. All bioinformatics products will be made public and open source.

This project will immediately produce a reliable and affordable method to estimate marten densities using already available genetic samples that are currently unanalyzed due to the low success rate with microsatellites. As we analyze additional samples, we will be able to both estimate marten densities and population size, as well as population connectivity and inbreeding depression, and potentially estimate values such as survival and fecundity with multi-year samples. This will facilitate understanding of the viability of coastal marten subpopulations, as well as provide information on coastal marten detections outside of the known subpopulations.

Campbell, NR, SA Harmon, and SR Narum. 2015. Genotyping-in-Thousands by sequencing (GT-seq): A cost effective SNP genotyping method based on custom amplicon sequencing.

Colella, JP, T Lan, SL Talbot, C Lindqvist, and JA Cook. 2021. Whole-genome resequencing reveals persistence of forest-associated mammals in Late Pleistocene refugia along North America's North Pacific Coast. Journal of Biogeography 48:1153-1169.

Eriksson, CE, J Ruprecht, and T Levi. 2020. More affordable and effective noninvasive single nucleotide polymorphism genotyping using high-throughput amplicon sequencing. Molecular Ecology Resources 20:1505-1516.

Grinnell, J, and JS Dixon. 1926. Two new races of the pine marten from the Pacific coast of North America. University of California Publications in Zoology 21:411-417.

Linnell, MA, K Moriarty, DS Green, and T Levi. 2018. Density and population viability of coastal marten: a rare and geographically isolated small carnivore. PeerJ 6:e4530 - 4521 pg.

Ruprecht, JS, CE Eriksson, TD Forrester, DA Clark, MJ Wisdom, MM Rowland, BK Johnson, and T Levi. 2021. Evaluating and integrating spatial capture-recapture models with data of variable individual identifiability. Ecological Applications 31(7):e024505.

USFWS. 2021. Recovery outline: Coastal marten, Distinct Population Segment of the Pacific marten (signed 21 Jan 2021).

Zielinski, WJ, KM Slauson, CR Carroll, CJ Kent, and DG Kudrna. 2001. Status of American martens in coastal forests of the Pacific states. Journal of Mammalogy 82:478-490.

Project goals and objectives *

Please describe the project goals and objectives. (2500 character max)

Our primary goal will be to develop molecular tools to identify individual coastal martens and their population genetics from fecal samples, and to make these tools publicly available so that researchers and land managers may apply them.

Objective 1: Create novel genetic tools to make it possible to identify the sex and individual from non-invasive samples (scats, hair) of martens, which is currently infeasible.

Objective 2: Assess population genetics of coastal martens (i.e., population size, sex ratios) by genotyping ~300 currently banked scat samples and make this information available to managers.

Objective 3: Conduct preliminary analysis of coastal marten gene flow (e.g., connectivity and inbreeding metrics) using landscape genetics on previously collected scats.

Outcomes and Measuring Success *

Please describe the expected outcomes of your project and how success will be measured. (2500 character max)

The main expected outcome of this project is a successful assay of SNPs that can identify closely related individual martens using degraded DNA from scat samples. We will consider our assay highly successful if, under these conditions, we achieve a genotyping success rate of 70% or higher and moderately successful if the genotyping success rate is between 50% and 70%.

Other project outcomes will include results from population genetics and preliminary landscape genetics analyses on coastal marten populations pertaining to the ~300 marten scats available, which will include at minimum the Central Coast Oregon population and the southern Oregon population. Success for population genetics calculations will be measured by the uncertainty associated with population density estimates, as quantified by the standard deviation. Defining success for the preliminary landscape genetics analysis will similarly rely on the uncertainty around estimates.

Conservation & Recreation Advisory Committee Program Priorities *

Which of the Program Priorities does your project address?

- [ ] Conservation - Habitat restoration and improving habitat connectivity related to implementing the recommendations in the Oregon Conservation Strategy and evolving science recommendations in the Oregon Conservation Strategy and evolving science
- [x] Conservation - Science, research, and monitoring directly related to implementing the recommendations in the Oregon Conservation Strategy, especially through community science activities.
- [ ] Recreation - Opportunities to engage and expand the number and diversity of Oregon's outdoor users.
- [ ] Recreation - Opportunities to introduce Oregonians to wildlife-associated recreation
- [ ] Recreation - Educational materials and opportunities related to responsible recreation, ecology, and wildlife conservation for kids and adults in multiple languages.
- [ ] Recreation - Research or planning that supports responsible recreational opportunities
- [ ] Recreation - Enhancement or restoration of trails and access to waterways in a way that preserves or enhances sensitive habitat or that resolves impacts related to informal or dispersed recreation in sensitive habitat

Program Priorities Narrative *

Please describe how your project advances the above priorities, including any connections you see to the Oregon Conservation Strategy. (1500 character max)

Martens are listed as a "strategy species" by the Oregon Conservation Strategy. Our project will advance marten conservation and research by providing a molecular tool that will leverage data from existing and future scat detection dog monitoring efforts to gain knowledge on population density, habitat needs, and connectivity of martens. We will directly fill important data gaps listed listed by the OCS by assessing population densities and functional connectivity of coastal marten subpopulations. By providing a tool to measure marten population density and connectivity across different habitats, this project contributes to the key conservation issues of land use change and barriers to animal movement. In particular, we will increase access to science that supports land use planning efforts (land use change action 1.1) and provide tools to identify animal movement corridors and barriers (animal movement action 2.2).

For projects that address a conservation priority, what are the primary taxa that will affected?

- [ ] Birds
- [x] Mammals
- [ ] Reptiles
- [ ] Amphibians
- [ ] Fish
- [ ] Plants
- [ ] Invertebrates
- [ ] Not applicable
- [ ] Other: .....

OCRF Funds *

Please select the categories of work that will be supported by the OCRF funds requested in this proposal.

- [ ] Administration
- [ ] Contract services
- [ ] Equipment
- [x] Personnel
- [x] Supplies/materials/services
- [ ] Travel
- [ ] Other: .....

OCRF Funds *

Describe the specific expenditures for your project that will be supported by the OCRF funds requested in this proposal. Expenses must be identified either as administration, contract services, equipment, personnel, supplies/materials/services, or travel expenditures. (1000 character max.)

$15,448 – Sequencing lanes (service) – The majority of the ORCF funding will be used on service fees for 4 next generation sequencing lanes at OSU's Center for Quantitative Life Sciences. These lanes will be used for DNA sequencing of samples for SNP assay testing and final SNP assay application to banked scats. Each lane costs $3,862.

$2,250 – Library preparation (personnel) – To reduce costs, all library preparation for sequencing will be done in-house. Personnel time for preparation of sequencing libraries will include two PCR steps, DNA quantification, normalization, and pooling of genetic samples.

$2,250 – General lab consumables (supplies) – Library preparation will require equipment such as PCR reagents, disposable pipette tips, PCR plates, disposable gloves, etc.

Partners *

Identify partner organizations that will be actively involved in the project and describe their roles

The Levi Lab at Oregon State University will develop and share molecular tools, sequence available marten DNA extracts, and run analyses on sequencing results. The National Council for Air and Stream Improvement, Inc. (NCASI) has collaborated on sample collection and may provide high quality DNA via tissue samples. The U.S. Forest Service – PNW Region has been a collaborator on sample collection and will be an end user of sequence results.

Timeline *

Please identify the key milestones towards completing the project and achieving results.

Milestone 1: Optimize primers for a marten genotyping by amplicon sequencing SNP panel (April 15, 2021). This will require an iterative process of identifying SNPs with high variability to include in the panel, designing primers to amplify DNA regions containing the chosen SNPs, checking that primers do not amplify prey DNA, testing compatibility of all primers using primer optimization software, and finally testing compatibility of all primers and genotyping success of the panel. Milestone 2: Illumina sequencing library preparation of available marten samples (June 15, 2021). This will include PCR amplification of marten DNA based on the SNP panels, post-PCR cleanup of amplified DNA using magnetic beads, a second round of PCR to attach a unique index primer to each sample, and DNA quantification and normalization of each sample. With all samples uniquely tagged and normalized, all samples within a PCR plate will then be pooled into a single Eppendorf tube. These pools will then be cleaned, DNA quantified, and normalized again so that each pool is evenly represented, before pooling into a final Eppendorf tube that will be submitted for sequencing at OSU. Milestone 3: Run bioinformatics pipeline for marten sequencing results (July 15, 2021). Unix and PERL scripts will need to be designed to identify sex and genotype for each sample. Blank controls (i.e., samples with no DNA) included in the extraction process will be assessed for contamination. Milestone 4: Calculate population genetics from sequencing results, including running a genetic spatial capture-recapture model to estimate subpopulation densities and calculating sex ratios (August 15, 2021) Milestone 5: Finish preliminary analysis of coastal marten connectivity and inbreeding using landscape genetics (September 15, 2021)

Other information

Please provide any additional information you'd like the Committee consider, including links to project website or other media.

Past Projects/Experience

Describe two projects completed by the Lead Organization in the last 5 years and the results achieved

Project 1

1500 maximum characters

The Levi Lab has successfully processed more than 1000 samples collected via NCASI's scat detection dog surveys, including identifying each scat to species and metabarcoding each scat to understand coastal marten diet. Species identification of scats has provided important data for modeling coastal marten distribution and habitat associations (Moriarty et al. 2021). Metabarcoding scats for diet analysis, coupled with camera-trap surveys, has helped understand the role of prey items in broad-scale habitat use by coastal martens (Erikkson et al. 2019). These efforts have resulted in the following two open source publications:

Erikkson, C. E., K. M. Moriarty, M. A. Linnell, and T. Levi. 2019. Biotic factors influencing the unexpected distribution of a Humboldt marten (Martes caurina humboldtensis) population in a young coastal forest. PLoS ONE 14(5): e0214653.

Moriarty, K. M., J. Thompson, M. Delheimer, B. R. Barry, M. Linnell, T. Levi, K. Hamm, D. Early, H. Gamblin, M. S. Gunther, J. Ellison, J. S. Prevey, J. Hartman, and R. Davis. 2021. Predicted distribution of a rare and understudied forest carnivore: Humboldt marten (Martes caurina humboldtensis). PeerJ: 11670.

Project 2

1500 maximum characters

The Levi Lab wrote the protocol for genotyping by amplicon sequencing using single nucleotide polymorphisms (SNPs) (Erikkson et al. 2020) and developed SNP panels for individual identification of cougar, black bear, coyote, and bobcat scats. These panels were then applied to 72 bear scats, 95 bobcat scats, 17 cougar scats, and 201 coyote scats with respective genotyping success rates of 60%, 91%, 88%, and 93%. Genotyping results were then used to calculate population density for each species using genetic spatial capture-recapture models. These efforts resulted in the following publications:

Eriksson, C. E., J. Ruprecht, and T. Levi. 2020. More affordable and effective noninvasive single nucleotide polymorphism genotyping using high-throughput amplicon sequencing. Molecular Ecology Resources 20:1505-1516.

Ruprecht, J. S., C. E. Eriksson, T. D. Forrester, D. A. Clark, M. J. Wisdom, M. M. Rowland, B. K. Johnson, and T. Levi. 2021. Evaluating and integrating spatial capture-recapture models with data of variable individual identifiability. Ecological Applications 31(7): e024505