

Grant Application



Kristen Larson

Email : director@luckiamutelwc.org

Application ID : A6LK30

Custom Ref. -

Application Start Date: 2021-03-19 00:18:24

Application Completed Date: 2021-04-12 22:41:39

1 Have you ever applied for an OWF grant before?

yes

1.1 What was the name of the project?

Building Resiliency and Connecting Corridors - Maxfield Creek Phase I

2 Have you ever been denied for an OWF grant before?

no

3 Project Title

Beaver Habitat Assessment and Prioritization

4 Name of my Organization

Luckiamute Watershed Council

5 If your organization is not a tax-exempt nonprofit, please list the name of your fiscal sponsor

-

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

N/A

6 Project Manager Full Name

Kristen Larson

7 Project Manager Mailing Address

-

Please enter full address with city, state & zip

165 D St. Independence, OR 97351

8	Project Manager Phone Number
	503-837-0237
9	Project Manager Email Address
	director@luckiamutelwc.org
10	Please provide a brief biographical statement about yourself
	Kristen Larson has been the Executive Director of the Luckiamute Watershed Council since September 2012. Shortly after starting the job, she and her husband became Ash Creek watershed residents, moving from Corvallis to Independence. Kristen has a bachelor's degree with a double major in Biology and Environmental Science from the College of William and Mary. She served as a Peace Corps volunteer in Ecuador, where she met her Oregonian husband who was also in the Peace Corps, and moved to Oregon in 2003. Kristen has worked in science communications, outreach, and management, and after teaching English in Thailand, returned to Oregon to complete a Professional Science Master's degree in Environmental Science with a focus on water resources at Oregon State University. She finished and OSU in June 2012 and joined the LWC a few months later.
11	Provide any social media handles you use - Enter social handles or URLs such as instagram, facebook, twitter, youtube, etc. so that we can use to cross promote on our channels - if you do not have any, please place N/A
	Facebook: https://www.facebook.com/LuckiamuteWC ; Twitter: @LuckiamuteWC or https://www.twitter.com/LuckiamuteWC ; Instagram: @luckiamute_wc or https://www.instagram.com/luckiamute_wc ; YouTube Channel: https://www.youtube.com/channel/UCU3zOagHG1uYuyPId29RIEw
12	Please indicate if you are currently following Oregon Wildlife Foundation on our social media channels
	- Facebook
13	Total estimated project cost
	154289
14	Funding that you are requesting from OWF - If you're request if for more than \$5,000, please contact Tim Greseth - tim@myowf.org before submitting your application.
	5000
15	What type of project are your proposing?
	Wildlife
16	Will your project address an Oregon Conservation Strategy habitat or species?
	yes

16.1	What habitat or species is addressed?	The project will address the Strategy Habitat of flowing water and riparian habitats. The recommended approaches for addressing the limiting factor of passage barriers and channel complexity includes "support and encourage beaver dam-building activity." Supporting and encouraging beaver dam-building activity where appropriate is the goal of this project. The current geography of the Mid-Willamette Beaver Partnership includes Conservation Opportunity Area (COA) 75 (Luckiamute River and Tributaries), COA 78 (Santiam Confluences), and COA 84 (Finley-Muddy Creek Area). Through separate funding, the partnership is expanding to include COA 82 (Calapooia River).
17	Start date of project- Day/Month/Year	01-04-2021
18	End date of project	30-12-2023
19	Location of project	165 D Street, Independence, OR, USA
20	Has a local, state or federal biologist reviewed this project?	yes
20.1	What is their name and contact info?	Brian Bangs, Aquatic Ecologist, U.S. Fish and Wildlife Service. 541-908-1538; brian_bangs@fws.gov (the letter of support from USFWS is provided by Brian's supervisor)
21	Have you already or will you obtain necessary permits from all requisite agencies as applicable to proposed project?	yes
22	What will the requested funds be used for?	The Oregon Wildlife Foundation (OWF) funds will be used to help support the contracted services of the Ecogeomorphology and Topographic Analysis Lab (ETAL) at Utah State University's Department of Watershed Sciences (USU). The contract with ETAL will be to complete the beaver habitat assessment and prioritization project using the Beaver Restoration Assessment Tool. The ETAL is the original developer of the Beaver Restoration Assessment Tool (BRAT). More information about BRAT can be found at their website: http://brat.riverscapes.xyz/ . While the full habitat assessment and prioritization project timeline is from now (April 2021) through the end of 2023, the BRAT modeling and field verification work will occur during the timeframe of the OWF funding. The Mid-Willamette Beaver Partnership (MWBP) is ready to implement, has secured most of the funding, and is requesting OWF funding to meet the total funding need and match to the secured OWEB technical assistance grant.

Major declines in beaver populations and dams in the 18th and 19th centuries caused extraordinary damage to watershed ecosystems, including aquatic habitats. This damage has been compounded by a host of other anthropogenic impacts, including development and worsening climate conditions. Restoring beaver populations and habitats where appropriate, implementing mitigation strategies where conflict occurs, and mimicking dam-building activities can help address legacy impacts while providing a cascade of ecosystem benefits to prepare against future disturbance. Overwhelming support exists among researchers, agencies, and restoration/conservation organizations to develop a social-ecological road map for promoting beaver and their dams. In response, Bonneville Environmental Foundation (BEF) and the Luckiamute (LWC), Marys River (MWRC), and North Santiam (NSWC) Watershed Councils formed the Mid-Willamette Beaver Partnership (MWBP) to leverage that support through a paired Habitat Assessment and Prioritization and Stakeholder Engagement process. The MWBP recently secured paired Technical Assistance (TA) and Stakeholder Engagement (SE) grants from the Oregon Watershed Enhancement Board (OWEB). The partnership also recently secured additional funding to expand the partnership to include the Calapooia (CWC) and South Santiam (SSWC) Watershed Councils in the MWBP and expand the habitat assessment geography as well. The MWBP geography covers parts of Marion, Linn, Benton, Lincoln, and Polk counties and is host to ESA-listed Chinook and winter steelhead and a wide array of beaver-dependent fish and wildlife species. The Beaver Habitat Assessment and Prioritization project includes: 1) fine-scale beaver habitat assessment and prioritization of key locations for restoration through the Beaver Restoration Assessment Tool (BRAT) and extensive field verification; 2) development of action plans and restoration and conservation strategies for at least two reaches per watershed council, integrating results from the assessment, SE project, and feedback from regional experts; and 3) sharing results and process with partners, stakeholders and other restoration practitioners to advance beaver-focused restoration efforts across Oregon. Project partners beyond the MWBP include Utah State University (USU), NOAA, ODFW, USFWS, BLM and USFS. Oregon Wildlife Foundation funding, if awarded, will match the OWEB TA grant and contribute to the habitat assessment and prioritization phase of the project by supporting the modeling and field verification activities.

Upload pre-project pictures or a video -

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



1 Document Uploaded

Project Revenue	Cash	In-Kind	Committed / Pending
Oregon Wildlife Foundation Request	5000	0	Pending
City of Salem Watershed Grant	2500	0	Pending
Marion Soil and Water Conservation District Special Projects Grant	2500	0	Pending
Spirit Mountain Community Fund	5000	0	Pending
Oregon Watershed Enhancement Board (OWEB) Technical Assistance (TA) grant	72418	0	Committed
Mid-Willamette Beaver Partnership (MWBP) members	0	2000	Committed
Bonneville Environmental Foundation	25000	1500	Committed
Utah State University	0	8833	Committed
Technical Advisors and Agency Partners	0	29538	Committed
			Committed
Please note that many funding sources are committed as match to the OWEB grant.			
REVENUE	112418.00	41871.00	
		TOTAL PROJECT SUPPORT	154289.00
Project Expenses	Cash	In-Kind	Total
LWC Salaries and Wages	22159	0	22159.00
Contracted Project Manager (BEF)	22877	1500	24377.00
MWBP Parters (time and travel)	15112	2000	17112.00
Utah State University - modeling, analysis, training	42425	8833	51258.00
Technical Advisors and Agency Partners	0	29538	29538.00
LWC Mileage Reimbursement	748	0	748.00
Materials and Supplies: field supplies, landowner outreach materials	1150	0	1150.00
Overhead at 10% de minimis on other grants	7947	0	7947.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
		TOTAL PROJECT EXPENSES	154289.00
Balanced budget? This cell should read "0" ---->		NET	0.00

26 Upload your Project Narrative -
Please make sure your narrative is no more than 7 pages long, single spaced, 12 pt. font (Calibri preferred).

1 Document Uploaded

27 Upload letters of support

3 Documents Uploaded

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

yes

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— Grant Application

Kristen Larson

Application ID: **A6LK30**

1 Are the eligible?

No Answer Provided

Problem Statement

The American Beaver (*Castor canadensis*) is a keystone species of our region's watershed ecosystems. Historically, beavers were widespread and abundant across North America, and their engineering prowess supported an abundance of ecosystem services that benefited not only fish and wildlife but society as well. Before European contact, streams in the Pacific Northwest, and most of the temperate northern hemisphere, were shaped and modified by beavers. Beaver activity created slow, low-gradient, and complex stream networks across connected floodplains that supported diversity hot spots for plants, insects, fish, birds, and other wildlife (Pollock et al. 1995, Castro et al. 2015, Baker and Hill 2003). Beginning in the 1700s, fur trapping decimated beaver populations across the continent (Baker and Hill 2003). The sharp decline caused a deluge of ecosystem and landscape effects later compounded by other anthropogenic impacts such as large-scale land conversion to agriculture, logging of riparian corridors, splash dams and log drives, urban development, and more recently, climate change. Naimen et al. 1988 states that since 1834, "approximately 195,000 - 260,000 km² of U.S. wetlands have been converted to dry land" and that "undoubtedly, a large proportion of these wetlands was beaver habitat." Pollock, Heim and Werner (2003) assert that beaver "dams were very common in most small, low-gradient streams", and that dam densities in these streams ranged from 7.5 per km to as high as 74 per km. The loss of beaver dams and beaver complexes reshaped the landscape so much that modern society's image of the pristine creek babbling through the forest is actually that of a drastically altered ecosystem.

Removing beaver and their dams from the ecosystem triggers a process of channel incision as sediment and organic materials are washed downstream. Water tables drop as a result, exposing surrounding and downstream vegetation, including agricultural crops, to severe drought stress. Due to this process and other land management impacts, many watersheds in Oregon are interlaced with a simplified network of single-threaded and/or entrenched channels that are disconnected from floodplains, have poor gravel recruitment, and sustain both elevated peak flows and low summer base flows, often with high summer temperature extremes. Furthermore, climate change is expected to worsen these conditions with flashier flows during the rainy season and more extensive drought during the dry season. Tributaries of the mid-Willamette and their associated aquatic habitats are no exception, displaying many of these degraded characteristics, which, in turn, have negative impacts on native fish populations, such as Chinook salmon, steelhead and cutthroat trout, and Pacific lamprey. Agricultural and drinking water supplies are also impacted.

Salmonids in Oregon evolved in the presence of beaver; declines in beaver habitat have contributed to declines in salmonids (Burchsted et al. 2010; Castro et al. 2015; Bouwes et al. 2018; Dittbrenner 2018). Indeed, the alterations described above due to the loss of beavers and beaver complexes are also hindering our ability to recover healthy populations of salmonids. The lack of beaver dams has resulted in the downstream flushing of gravels and substrate, which reduces spawning and rearing habitat. The loss of rich invertebrate communities associated with beaver ponds diminishes the food resources available for fish. Additionally, the

Project Narrative: Beaver Habitat Assessment and Prioritization

Luckiamute Watershed Council, on behalf of the Mid-Willamette Beaver Partnership (MWBP)

absence of beaver ponds in the upper reaches of watersheds has meant fewer sources of cold-water release during summer months, impacting water quality and aquatic species downstream.

While beavers have rebounded in recent years, their populations are still only a fraction of historical levels and many threats to beaver recovery persist. Human intervention is needed to improve the capacity of these watersheds to support beaver and their dam-building success. The Mid-Willamette Beaver Partnership (MWBP) recognizes beavers and beaver dams as integral to stream ecosystems in this region, and the role they play in the health of our watersheds and communities. Activities such as non-lethal beaver mitigation, beaver-centric revegetation, beaver dam analogs (BDAs), post-assisted log structures (PALS), and, as a last resort, beaver translocation can be used to encourage and mimic beaver activity in areas in need of an ecological boost. However, data is lacking to identify and prioritize opportunity areas where there is a high likelihood of success. Robust stakeholder engagement is needed to understand barriers and opportunities to encourage landowners to coexist with beaver and promote them and their dams across the landscape.

The MWBP recently secured Technical Assistance (TA) and Stakeholder Engagement (SE) funding from the Oregon Watershed Enhancement Board (OWEB). The requested Oregon Wildlife Foundation funding would be utilized as match and help support the TA habitat assessment and prioritization project. All together, the MWBP is working to catalyze the growing momentum and lessons learned around beaver conservation across Oregon and take the initial steps necessary to implement beaver-based restoration strategies in the Mid-Willamette.

Project Goals, Objectives, and Activities

Goal Statement

The project goals are to 1) improve conditions suitable for beavers to build dams, 2) improve aquatic habitat conditions for salmonids and other native fish, and 3) improve hydrologic conditions. By identifying opportunity areas with the highest intrinsic potential to support beavers and their dam complexes and by meaningfully engaging stakeholders to encourage coexistence with and promotion of beavers, the MWBP will establish the foundational elements necessary to achieve these goals.

Objectives

The first objective is to identify and prioritize specific areas in each of the five MWBP watersheds to promote and implement beaver-based conservation and restoration strategies through fine-scale habitat assessment. The Oregon Wildlife Foundation (OWF) funding would contribute to the activities in support of this objective. The assessment will identify beaver management zones that include:

1. Locations where conditions are unsuitable for beaver to build dams;

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Luckiamute Watershed Council, on behalf of the Mid-Willamette Beaver Partnership (MWBP)

2. Areas where living-with-beaver strategies can be promoted through conflict management; and
3. Restoration and conservation zones where beavers can build dams now, or where human intervention can provide the conditions suitable for beavers to build dams through activities such as vegetation management or installation of beaver dam analogs.

The MWBP's second objective is for each watershed council to develop action plans for at least two priority stream reaches based on model results and partner input. The plans will outline specific strategies for each reach. Priority geography will inform targeted stakeholder engagement (supported by the OWEB SE grant). The activities in support of this objective will occur after the timeframe of the OWF funding and are supported by the OWEB TA grant.

Finally, throughout the project, the MWBP's third objective is to work with regional efforts and local experts to share results and lessons learned to facilitate collaboration among others with shared objectives and to grow the current body of knowledge in this field.

Activities in Support of Objective #1

The MWBP will contract the Ecogeomorphology and Topographic Analysis Lab (ETAL) at Utah State University's Department of Watershed Sciences (USU), original developers of BRAT (<http://brat.riverscapes.xyz/>). The USU lab will conduct a GIS-based assessment of the Luckiamute, Ash Creek, Marys River, and North and Lower Santiam watersheds. The OWF funding would be dedicated to supporting this assessment. Partners are also working to secure additional funding to expand the analysis to include the South Santiam and Calapooia watersheds. USU will utilize an enhanced version of BRAT developed by North Arrow Research, LTD. North Arrow Research has enhanced the original version of the model into a dynamic format called sqlBRAT that easily integrates multiple datasets, allows in-the-field calibration through a cloud-based SQL database and desktop or mobile application, makes results and data publicly accessible, and facilitates application over a broad region to conduct general assessments. The USU team will integrate NetMap stream network datasets, publicly available data, and GIS data provided by the MWBP. This assessment will identify specific locations throughout the perennial drainage network where encouraging beavers may be appropriate as a restoration or conservation tool, and areas that have higher potential for beaver-human conflict. The initial sqlBRAT model will first assess beaver dam capacity using seven lines of evidence:

1. Is there a reliable water source?
2. Is stream bank vegetation conducive to foraging and dam building?
3. Can vegetation within 100 m of edge of stream support expansion of dam complexes and maintain large beaver colonies?
4. What's the likelihood that dams could be built across the channel during low flows?
5. What's the likelihood that a beaver dam on a river or stream is capable of withstanding typical floods?

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Luckiamute Watershed Council, on behalf of the Mid-Willamette Beaver Partnership (MWBP)

6. Is the stream gradient suitable?
7. Is the river too large to allow dams to be built and to persist?

Model outputs will then be calibrated and verified through an extensive field effort coordinated by the MWBP. The USU team will work with the MWBP to develop field protocols to collect survey data on vegetation and beaver dams. Data will then be collected by a MWBP field team composed of the Project Manager, field tech, and at least one trained volunteer and/or intern. Those data will be sent back to the USU team to calibrate BRAT and field verify results. In addition, the MWBP will be trained on a BRAT Capacity Inference System (BRAT-cIS) that will allow model calibration in the field on a desktop or mobile application using additional field observations. BRAT will then categorize all perennial streams in the MWBP watersheds as having the following beaver dam capacity:

- None – 0 dams: segments deemed not capable of supporting dam building activity
- Rare – > 0-1 dam/km: segments barely capable of supporting dam building activity; likely used by dispersing beaver
- Occasional – > 1-4 dams/km: segments that are not ideal, but can support an occasional dam or small colony
- Frequent – > 4-15 dams/km: segments that can support multiple colonies and dam complexes, but may be slightly resource limited
- Pervasive – > 15-40 dams/km: segments that can support extensive dam complexes and several colonies.

In addition, to transform these results from a capacity model to an assessment tool, BRAT analysis will also provide the following results that can be used to develop beaver management zones:

1. Potential risk areas due to infrastructure or points of diversion.
2. Unsuitable or limited dam-building opportunities because vegetation or morphological attributes are unsuitable.
3. Conservation and restoration opportunities. As such, the BRAT model identifies stream locations relative to human infrastructure and high intensity land use, and conservatively shows how that aligns with where beaver could build dams.

This process will produce fine-scale BRAT model results customized to MWBP watersheds. Deliverables for this objective include GIS datasets of the results, maps of the results and a web-based and updatable beaver dam inventory.

Expected Outcomes and Watershed Benefits

Beavers play a critical role in stream ecosystems, and as ecosystem engineers, beavers have the potential to produce a wide array of ecosystem services to society. However, promoting beaver across the landscape also brings challenges. Researchers, agencies,

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Luckiamute Watershed Council, on behalf of the Mid-Willamette Beaver Partnership (MWBP)

restoration/conservation organizations and others recognize the need to develop a social-ecological road map for increasing acceptance of beaver and improving the capacity of our watersheds to support their dam-building across the Willamette Basin and throughout Oregon, the Beaver State. The Mid-Willamette Beaver Partnership was formed to leverage that support and develop a shared path towards beaver restoration and conservation through paired Stakeholder Engagement and Habitat Assessment and Prioritization projects. Fine-scale beaver habitat assessment and restoration prioritization and coordination with multiple partners and stakeholders will lead to implementation of process-based restoration that addresses key limiting factors to watershed recovery while facilitating the development of frameworks that broaden beaver-based restoration efforts throughout Oregon.

Beaver complexes were once prevalent throughout the Pacific Northwest. Stream ecosystems and the species that depend on beavers and their dams are experiencing unprecedented anthropogenic stresses. Re-integrating beaver into the landscape where appropriate can be a boon to the recovery of threatened and endangered species and better prepare society for climate change. The trapping of sediment behind dams raises the level of the stream bed, reconnects floodplains, recharges groundwater and improves hyporheic exchange. The ponds, wetlands, and canals created by beaver dams are biodiversity hotspots with a greater abundance of invertebrates and diversity of amphibians, increased production of fish, and more habitat for wildlife (Castro et al. 2015). The sediment that drops out of the water column behind dams improves water quality and reduces strain on drinking water systems. The increased ground-surface water connections of beaver habitats improve temperature conditions downstream, raise summer base flows and dampen peak flows (Weber et al. 2017). The impacts of climate change to aquatic habitats, wetlands, agriculture, drinking water systems, stormwater systems and other human-managed systems can be buffered through significant increases in beaver dam activity.

The burgeoning body of research described in this application shows the intertwined and positive relationship between beaver and native fish. Previous misconceptions of the negative impacts of beaver and beaver complexes on water temperature and fish passage have been debunked (Castro et al. 2015). Impaired habitat complexity is identified as a key limiting factor for the recovery of Upper Willamette spring Chinook salmon and winter steelhead. The complex habitat created by beaver-modified stream reaches – including pools, channels, and floodplains – is a primary reason to promote beaver-based restoration as a strategy to recover these fish. Dr. Chris Jordan is a Research Fisheries Biologist with NOAA/NMFS's Northwest Fisheries Science Center with the professional responsibility to support rebuilding salmon and steelhead populations. He testified in support of a petition to ban beaver trapping on federal land, stating "from my work, it is clear to me that salmon and steelhead recovery in Oregon will arrive on the backs of beaver." Similarly, Chris Allen of the U.S. Fish and Wildlife Service, states in a letter of support for this project that "I can't state enough the importance of beaver in creating and retaining high quality habitat, increasing floodplain connectivity, enhancing

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Luckiamute Watershed Council, on behalf of the Mid-Willamette Beaver Partnership (MWBP)

ecological function, retaining water through dry periods, and bolstering natural channel processes.”

Although beaver currently exist in mid-Willamette watersheds and across Oregon, human intervention is needed to create suitable conditions that allow beaver to build dams, expand their habitat and improve the capacity of our watersheds to support more beavers. Habitat assessment and prioritization is a first step towards this goal by identifying high priority areas where beaver restoration and conservation strategies have the best chance of success. Stakeholder engagement is another necessary step to address concerns of potential conflicts with increasing beaver and beaver dams, promote coexistence with beaver, navigate regulatory hurdles and identify opportunity areas with landowners. These are careful and deliberate steps towards realizing critical watershed benefits.

The MWBP recognizes beavers and beaver dams as integral to stream ecosystems in this region, and the role they play in the health of our watersheds and communities. It is clear that beaver-based conservation and restoration strategies can provide a significant ecological boost to watersheds. Currently, frameworks and data are lacking to identify and prioritize opportunity areas while concurrently addressing barriers to promoting beavers and beaver dams across the landscape. Along with a paired stakeholder engagement process the MWBP’s habitat assessment and prioritization project, with the support of OWEB and hopefully joined by OWF, will catalyze the growing momentum and lessons learned around beaver conservation across Oregon and takes the initial steps necessary to promote beaver and beaver dams in the Mid-Willamette region.

Alignment with Oregon Wildlife Foundation Priorities

The MWBP’s habitat assessment and prioritization process aligns with two of OWF’s funding areas. It is a study that will support improved fish and wildlife management. Model and field verification results will identify both conflict zones to avoid and priority areas appropriate for targeted outreach. The resulting landowner engagement and beaver-based restoration efforts will support fish and wildlife habitat restoration and water quality benefits. Encouraging beaver dam building where appropriate is also an excellent opportunity to recover wetlands.

Large portions of the MBWP’s geography are included in Conservation Opportunity Areas identified in the Oregon Conservation Strategy (OSC). In addition, flowing water and riparian habitats is one of the Strategy Habitats in OCS. Supporting and encouraging beaver dam-building activity is specifically recommended as an approach to addressing limiting factors associated with this Strategy Habitat.

Regional Context

Partnership

The MWBP formed as a core set of partners with a long history of collaboration, including Bonneville Environmental Foundation (BEF) and the Luckiamute (LWC), Marys River, (MRWC), and North Santiam Watershed Councils (NSWC). In addition to the core partners, the MWBP is partnering with several local, state, and federal entities. In 2021, the MWBP was awarded

Project Narrative: Beaver Habitat Assessment and Prioritization

Luckiamute Watershed Council, on behalf of the Mid-Willamette Beaver Partnership (MWBP)

additional funding to expand the partnership to include the South Santiam and Calapooia Watershed Councils and is in conversations with the Confederated Tribes of Grand Ronde and Confederated Tribes of Siletz Indians to further expand the partnership if the Tribes wish to be involved.

Plans and Assessments

In addition to the OCS, several regional and watershed-specific plans and assessments call for encouraging beaver and their dam-building. On a regional or state level, the Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead (ODFW and NOAA 2011) and Northwest Power and Conservation Council Willamette Subbasin Plan (NWCC 2004) encourage working with landowners to promote beaver because of the ecosystem benefits. Each watershed council has identified beaver-based restoration in its relevant action plans.

Project Timeline

The overarching Habitat Assessment and Prioritization project began in April 2021 and will continue until the end of 2023. The OWF funds, if awarded, will help support the initial phase of the modeling work, beginning in 2021, and extending into 2022 (Figure 1). The project is already launched and the OWF funds can easily be invested into the project within the required 12-month timeframe. The Oregon Watershed Enhancement Board has a \$75,000 cap on their Technical Assistance grants, so the OWF grant would provide critical funding to complete the full budget need and help support the full project scope.

Element	2020				2021				2022				2023			
	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul-Sep)	Q4 (Oct-Dec)	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul-Sep)	Q4 (Oct-Dec)	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul-Sep)	Q4 (Oct-Dec)	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul-Sep)	Q4 (Oct-Dec)
						Timeframe of Oregon Wildlife Foundation Grant										
North Arrow Research (NAR), with guidance from NOAA and Utah State University researchers, develops sql BRAT																
Kick-off Meeting																
LWC contracts with USU Watershed Sciences Lab																
USU integrates uncalibrated sqlBRAT run (NAR) of MWBP watersheds.																
USU Calibrate sqlBRAT run																
USU refines vegetation inputs with WCs assistance																
Develop field / virtual beaver inventory protocol																
Collect virtual beaver dam census																
Secure landowner permissions for field verification																
Field-visit based BRAT model calibration and validation for development of protocol																
Workshop with stakeholders																
Watershed councils collect field-based beaver dam data and validate model in the field																
Finalize BRAT outputs																
Finalize deliverables																
Select two target reaches to develop beaver conservation and restoration strategies and follow up projects																
MWBP finalize beaver management plans																
MWBP shares results																

Figure 1: Habitat Assessment and Prioritization Timeline



Oregon

Kate Brown, Governor

Department of Fish and Wildlife

South Willamette Watershed District Office

7118 NE Vandenberg Ave

Corvallis, 97330

(541) 757-4186

(541) 757-4252

April 12, 2021

Oregon Wildlife Foundation
901 SE Oak Street, #103
Portland, OR 97214



To the Oregon Wildlife Foundation Grant Review Team

I am writing in support of the Luckiamute Watershed Council's grant application for funds to support the Mid-Willamette Beaver Partnership. While the Luckiamute Watershed Council is the applicant for this grant, the project will also include the Marys River, Calapooia, North Santiam, and South Santiam Watershed Councils.

The project funds will support efforts to conduct fine scale beaver habitat assessments and find key location for encouraging beaver activity. The Councils will be using the Beaver Restoration Assessment Tool (BRAT) to prioritize outreach and restoration projects. Using BRAT, a respected and tested model, to prioritize beaver projects will direct the Councils to target outreach where there are the best opportunities for success. By encompassing these large watersheds, the project will have the size and scope to have a significant impact and ecological uplift from increasing beaver activity over a broad area.

As the Assistant District Fish Biologist for the area, I have worked with the Luckiamute and other Councils for 15 years. The Councils are well regarded in their communities. As a member of the Oregon Watershed Enhancement Boards Region 3 Review Team, I can attest to the Luckiamute Watershed Councils excellent reputation for administering and completing projects successfully. I have every confidence the Councils have the reputation, capacity, and expertise to be successful with this proposal.

Please contact me if you have any question.

Sincerely

A handwritten signature in black ink, appearing to read "Karen M Hans".

Karen M Hans
Assistant District Fish Biologist



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Oregon Fish and Wildlife Office

2600 SE 98th Avenue, Suite 100

Portland, Oregon 97266

Phone: (503) 231-6179 FAX: (503) 231-6195

File Name: MWBP LOS 4-9-21
TS Number: 21-281
TAILS: 01EOFW00-2021-TA-0297

April 9, 2021

Oregon Wildlife Foundation
901 SE Oak Street, #103
Portland, OR 97214

Subject: Letter of support for the Mid-Willamette Beaver Partnership grant proposal

Dear Oregon Wildlife Foundation Project Committee,

The Oregon Fish and Wildlife Office is submitting this letter in support of the Mid-Willamette Beaver Partnership (MWBP) grant proposal submitted by the Luckiamute Watershed Council.

My staff have worked closely with the watershed councils that make up the MWBP to conserve and recover Oregon Chub, and have successfully completed numerous projects together. Although easily overlooked, beaver are often present in the sloughs, backwater channels, and ponds that support Oregon Chub, along with a number of species that require off-channel ponds and wetlands. The ecological contribution of beaver is tremendous, and I can't state enough the importance of beaver in creating and retaining high quality habitat, increasing floodplain connectivity, enhancing ecological function, retaining water through dry periods, and bolstering natural channel processes, as described by the MWBP in their proposals.

The US Fish and Wildlife Service is actively engaged in working with our partners to enhance and promote collaborative, nonlethal beaver management in Oregon. As a keystone species, beaver play a critical role for many other species and habitats across the state. The management of beaver is integral to many of the efforts going on across the state to recover federally listed species, support the conservation of native species and habitat, to conserve water, and maintain natural processes. We've seen the positive benefits beaver can have on a landscape, and we're excited to see what targeted restoration, informed by the refined modeling tools paired with the community and stakeholder engagement proposed by the MWBP, will be able to accomplish.

We have a long history of working with the groups that make up the MWBP, and have seen them successfully plan, execute, and follow-through with complex projects. The MWBP has pulled together support from several successful grants, and have done a tremendous job coordinating with other state

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WASHINGTON

*PARTIAL

and federal agencies, NGOs, tribes, and other local groups to initiate this work. This proposal will ensure that the MWBP is fully funded and able to engage in this important work. I expect that my staff will provide support, through technical assistance, stakeholder engagement, and outreach to support the MWBP efforts as needed.

Thank you for your consideration of this timely and needed proposal. Please reach out to me or my staff if you have further questions.

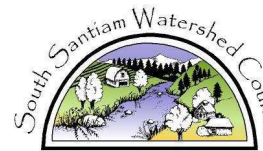
Sincerely,

Chris Allen for,

Paul Henson, PhD
State Supervisor

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Mid-Willamette Beaver Partnership

April 9, 2021

Re: Luckiamute Watershed Council proposal on behalf of the Mid-Willamette Beaver Partnership

Dear Oregon Wildlife Foundation Project Committee,

Bonneville Environmental Foundation and the Calapooia, Marys River, North Santiam, and South Santiam Watershed Councils submit this letter of support for the Luckiamute Watershed Council’s proposal for the Mid-Willamette Beaver Partnership’s (MWBP) habitat assessment and prioritization project. Through this effort, the MWBP seeks to evaluate and shift human perceptions around beaver by identifying areas of conservation and restoration opportunity. The partnership will use both fine-scale habitat analysis and stakeholder engagement to achieve these goals, working in close collaboration with local, state, and federal agencies, Tribes, landowners, and nonprofits.

Human perceptions of beaver and their potential impacts to infrastructure are a major limiting factor to beaver-centric restoration in the Beaver State. Given their engineering prowess, beaver and beaver dams are, at times, in conflict with humans and human-managed landscapes. Yet, beaver are a keystone species that are inextricably linked to the evolution of our watershed ecosystems, and the loss of beaver habitat from trapping and other anthropogenic activities over the past two centuries has contributed to a legacy of poorly functioning watersheds and severe loss of habitat for many critical species. Dam-building beaver provide a multitude of benefits that support healthy watersheds. They create slow, low gradient and complex stream systems that connect floodplains, retain and filter surface and ground water, and support a diverse community of plant and animal species. The MWBP is proposing to strategically target areas for beaver-centric restoration while working to address the social barriers to human-beaver coexistence.

The proposed habitat analysis will produce highly refined, ground-verified modeling results that will be analyzed to prioritize stream reaches best suited for beaver-targeted restoration. Concurrently, a robust stakeholder engagement process will enable the MWBP to understand the concerns and identify the opportunities to beaver-centric restoration. This process will assist us in shifting perspectives, addressing barriers, and increasing acceptance of and coexistence with beaver. The novel regional approach taken by this initiative will create a unified vision and voice for the partners involved that will facilitate basin-scale restoration across the mid-Willamette. The MWBP has secured grants from the Oregon Watershed Enhancement Board (OWEB) and Meyer Memorial Trust Anchor Habitat Working Group (through BEF) to launch this program and is seeking support from Oregon Wildlife Foundation to secure necessary cash match funding for the habitat assessment and prioritization portion of the project.

The MWBP councils have a deep-rooted history - because of our proximity the councils share many stakeholders, partners, landowners, and land managers, and our watershed boundaries also share at times very similar economic, social, and ecological challenges. With this, and because our missions, needs, and challenges are so similar, a close partnership has formed, built upon a decade-long collaboration between the organizations.

Calapooia Watershed Council	Luckiamute Watershed Council	Marys River Watershed Council	North Santiam Watershed Council	South Santiam Watershed Council	Bonneville Environmental Foundation
351 N Main St., Brownsville, OR 97327	165 D St, Independence, OR 97351	101 SW Western Blvd. Corvallis, OR 97333	284 E Water St, Stayton, OR 97383	4431 US-20, Sweet Home, OR 97386	1500 SW 1 st Ave. Suite 885 Portland, OR 97201
www.calapooia.org	www.luckiamutelwc.org	www.mrwc.org	www.northsantiam.org	www.sswc.org	www.b-e-f.org

- All MWBP members have worked closely over the past 10 years through BEF's Model Watershed Program and as part of Meyer Memorial Trust's Willamette River Initiative. We represent five of seven councils selected to receive annual capacity funding and take part in peer networking and shared learning opportunities. The successful work of the Model Watershed Program has been recognized by the International Thiers Riverprize awarded from the International River Foundation and the Headwaters Award from the Arbor Day Foundation.
- From 2014-2016, MRWC served as the fiscal sponsor for LWC as they were undertaking the 501(c)3 tax-exempt determination process. Over this time, we shared bookkeeping staff and developed a close trust and connection. The LWC has also helped the NSWC as they have undertaken the process of getting their tax-exempt status over the past few years.
- Since 2017, the LWC, MRWC, NSWC and SSWC have shared contracted project management services provided by BEF. Jean-Paul Zagarola (BEF) will serve as project lead on the habitat assessment and prioritization project. Additionally, the LWC and MRWC also share an Assistant Project Manager staff position.
- The watershed councils are part of the Mid-Valley River Connections collaborative network. This collaborative serves as a peer-to-peer learning network working to advance diversity, equity, and inclusion and other initiatives within the mid-Willamette region.

In addition to our participation in the project, MWBP partners have committed significant cash and in-kind contributions that are being used as match to the recently secured Technical Assistance (TA) and Stakeholder Engagement (SE) OWEB grants. These contributions demonstrate the commitment of partners to the program. Oregon Wildlife Foundation's funding will complement the OWEB and partner contributions already secured.

Please accept this letter of support for the Luckiamute Watershed Council's proposal on behalf of the Mid-Willamette Beaver Partnership.

Thank you for your consideration.

Sincerely,

Collin McCandless, Executive Director, Calapooia Watershed Council
541-583-3626 | cmccandless@calapooia.org

Holly Purpura, Executive Director, Marys River Watershed Council
541-758-7597 | holly@mrwc.org

Rebecca McCoun, Executive Director, North Santiam Watershed Council
503-930-8202 | council@northsantiam.org

Shannon Richardson, Executive Director, South Santiam Watershed Council
541-367-5564 | s.richardson.sswc@gmail.com

Jean-Paul Zagarola, Watershed Program Sr. Project Manager, Bonneville Environmental Foundation
971-832-9097 | jpzagarola@b-e-f.org

Photos: Beaver Habitat Assessment and Prioritization *(Photos attached as individual files and compiled here with captions.)*



Figure 1: Ritner Creek, tributary to the Luckiamute River. Historical removal of beavers and their dams, as well as historical practices such as splash damming and log drives, have left many streams scoured to bedrock and unable to recover without intervention.



Figure 2: Ritner Creek, tributary to the Luckiamute River. After large wood placement in 2019 and control of reed canary grass, the area has seen an increase in beaver activity, include the dam shown here. Beaver dams have positive ecological impacts and provide water quality and habitat benefits for an array of species.



Figure 3: Hook Creek, tributary to the Luckiamute River. Another example of an existing beaver pond. The Mid-Willamette Beaver Partnership requests funds to conduct modeling and field verification to encourage coexistence with beaver and beaver-based restoration strategies.



Figure 4: Beaver complex on Dead Horse Slough in the South Santiam watershed. The regional partnership of the MWBP brings a landscape scale approach to the social and ecological aspects of working with beaver for water quality and habitat benefits across the region.