



Small Grant Program Application 2019-2021

Application Processing Information (to be completed by the Small Grant Team Contact):

Application #: _____

Date Received: _____

Date Acted On: _____

____ Recommended ____ Denied

SGT Contact

Signature: _____

I. General Information

OWEB Funds Requested (round to nearest dollar) \$3,280

Total Project Cost \$ 5,325

Name of Project (five words or fewer) Kreb's Beaver Dam Analogs

Project Location (if more than one, include location/landowner information on each map)

This project occurs at (check one): A single site ____ Multiple sites

Watershed: Willow Creek

County or Counties: Morrow

Township, Range, Section (e.g. T1N, R5E, S12): T 2N, R 23E, S29 & 33

Latitude, Longitude (e.g. 44.9429, -123.0351): (45.6187, -119.9573)

Subbasin (10-digit hydrological unit code): Lower Willow Creek (1707010405)

River or Creek Name (if applicable): Willow
Creek

River Mile (if applicable):

1. Have you previously submitted an application to OWEB, either through the regular or small grant program, for this project, or one similar to it on the same property? ____ Yes Grant # _____ No
If yes, explain _____

2. Does this application propose a grant for a property in which OWEB previously invested funds for purchase of fee title or a conservation easement; or is OWEB currently considering an acquisition grant for this property? ____ Yes Grant # _____ No
If yes, explain _____

II. Contact Information

Applicant Org.: Morrow SWCD
Contact: Kevin Payne
Mailing Address: PO Box 127 Heppner, OR
Phone: 541-676-5452x111

Tax ID: 930797719

Zip: 97836
Email: kevin.payne@or.nacdnet.net

Landowner(s): Cameron Krebs
Landowner Address: 69956 HWY 74 Lone, OR 97843
Phone: 541-760-0368

Zip:
Email: cameron.l.krebs@gmail.com

Project Manager for the Grantee Org: Kevin Payne
Project Manager for the Grantee: Jared Huddleston
Project Manager Address: PO Box 127 Heppner, OR
Phone: 541-676-5452x101

Zip: 97836
Email:
jhuddleston.morrowswcd@gmail.com

Payee Org.: Morrow SWCD
Contact: Janet Greenup
Mailing Address: PO Box 127 Heppner, OR
Phone: 541-676-5452x109

Tax ID: 930797719

Zip: 97836
Email: janetmgreenup@gmail.com

Technical Contact: Jared Huddleston

Phone: 541-
676-5452x101

Email:
jhuddleston.morrowswcd@gmail.com

III. Project Information

Priority Watershed Concern: the project will address — Check *One* Only.

- Instream Process & Function Riparian Process & Function Urban Impact Reduction
 Wetland Process & Function Private Road Impact Reduction Upland Process & Function
 Fish Passage Water Quantity & Quality/ Irrigation Efficiency

Small Grant Team Priority Project Type(s) addressed by the project (list specific eligible project type):
Improve Instream Habitat/Manage Erosion

1-a. Is the project consistent with the local watershed assessment or action plan?

- Yes Name primary assessment/plan Umatilla/Willow Sub-basin Plan
 No
 N/A—The watershed does not yet have an assessment or action plan

1-b. Is the project consistent with the local Agricultural Water Quality Management Area Plan?

- Yes No

1-c. Is the project consistent with any developed plan for the property (e.g., local conservation or stewardship)?

- Yes No

If yes, name the plan(s): _____

2. Describe the current *watershed* **PROBLEM(s) you are seeking to address.**

This four mile section of Willow Creek on Cameron Krieb's property is continually having seasonally intermittent flows and becoming heavily incised in places. With increasing irrigation uses by landowners upstream of his property, Cameron has noticed a decrease in surface water flowing through his property during the critical spring/summer seasons. Steep and narrow banks that are present throughout this reach confine flows and during high flows don't sufficiently reduce stream velocities to allow for sediment deposition and aggradation. Without adequate sediment deposition, riparian vegetation can't gain a foothold and the water table can't elevate. These conditions also contribute to high water temperatures. In many places there is also a disconnect from the creek to accessible floodplains as well. This project location also falls under ODA's led Focus Area program where the Lower Willow Creek Watershed has been selected.

3. Describe the **SOLUTION(s) you are proposing to address the current problem(s).** Attach a site map, color photo(s), and (if applicable) preliminary project drawings or designs.

Cameron wants to install beaver dam analogs (BDA) to help decrease the rate at which surface flow travels through the system and increases water capture capacity. Three BDA structures will be placed just south of Cecil, and three placed just north of Cecil. Locations of the structures were chosen for sections of Willow Creek with narrow steep banks with some accessible floodplains to widen channels and reduce flow velocities. This slowing of water release should allow for sediment deposition and an elevated water table. Ponding behind BDAs will provide deep pool or pond habitat and increase the duration and extent of surface flow during critical low flow periods. This inundation should also contribute to recharge of shallow alluvial aquifers and increase surface to groundwater connectivity. The elevated water table coupled with more frequent inundation should enhance the extent of riparian vegetation. Beaver dam analogs are temporary structures that last until the pool behind fills with sediment and is colonized by woody vegetation. Please see the attached design packet for more detail. In addition to the BDA structures, Cameron wants to plant some willows along the BDA complex reaches that will help support the creek bank and improve habitat for wildlife. Willows already established on the property will be used as cuttings for the plantings and the weave material for the BDA construction.

4. Insurance Information

If applicable, select all the activities that are part of your project (check all that apply). You will be required to submit the DAS Risk Assessment Tool for items 1-5:

- 1. Working with hazardous materials (not including materials used in the normal operation of equipment such as hydraulic fluid)
- 2. Earth moving work around the footprint of a well
- 3. Aerial application of chemicals
- 4. Transporting individuals on the water
- 5. Removal or alteration of structures that hold back water on land or instream including dams, levees, dikes, tidegates and other water control devices (this does not include temporary diversion dams used solely to divert water for irrigation)
- 6. Applicant's staff or volunteers are working with kids related to the project (DAS Risk assessment tool not required, additional insurance *is* required)
- 7. Applicant's staff are applying herbicides or pesticides (DAS Risk assessment tool not required, additional insurance *is* required)

OWEB considers these projects to carry a greater risk to the organization, organization's employees, volunteers, and the community. If boxes 1-5 are checked above, the applicant must submit the DAS Risk Assessment, <https://www.oregon.gov/das/Risk/Pages/CntrctrInsReq.aspx>, with this application. Additional information regarding the insurance policy and requirements can be found in the OWEB's Budget Categories: Definitions & Policies document available on the OWEB website.

5. Technical Guidance Source (check at least one and identify the Practice Code, or page and paragraph).

- | | |
|---|---|
| <input checked="" type="checkbox"/> NRCS Field Office Technical Guide
Practice Code <u>643 & 391</u> | <input type="checkbox"/> Guide to Placing Large Wood in Streams
Page # / Para _____ |
| <input type="checkbox"/> Oregon Road/Stream Crossing Restoration Guide
Page # / Para _____ | <input type="checkbox"/> Forest Practices Tech Note #4
Page # / Para _____ |
| <input type="checkbox"/> Nonpoint Source Pollution Control Guidebook
Page # / Para _____ | <input type="checkbox"/> Forest Practices Tech Note #5
Page # / Para _____ |
| <input type="checkbox"/> Urban Subwatershed Restoration Manual
Page # / Para _____ | <input type="checkbox"/> Tribal Natural Resource Plans and Water Plans
(attach the relevant page or pages) |

6. Maintenance and Post-Implementation Monitoring

a) Project maintenance is the responsibility of the landowner. What aspects of the project will be maintained? (See application instructions.)

Who will maintain? Landowner

What will be maintained? Beaver Dam Analogs & plantings

How will it be maintained? Routine Maintenance

of years, # of times/year around time of install

b) Post-implementation monitoring including photo points and visual inspection is *required* for small grants (Year-Two Status Report). What (if any) *additional* aspects of the project will be monitored post-implementation? (See application instructions)

Who will monitor? Morrow SWCD

What will be monitored? Beaver Dam Analogs

Site monitoring protocols? ODFW fish passage standards and specifications

of years, # of times/year As needed & once at YR2

7. Who will be responsible for writing the Year-Two Status Report?

Organization: Morrow SWCD

Name: Jared Huddleston

Mailing Address: PO Box 127 Heppner, OR

Zip: 97836

Phone: 541-676-5452x101

Email: jhuddleston.morrowswcd@gmail.com

8. Have the required permits been obtained for the project? Yes No Not Required

If yes, what permits have been issued? (Attach copies) _____

If no, what permits must be obtained and by when? ODFW requires a Fish Passage Authorization Permit before installation. I have worked with Kregg Smith, Asst. Fish Passage Coordinator with ODFW on previous BDA projects and got approvals for three separate projects. A permit through DSL is not required for this location due to the stream being listed as non-ESH.

9. Is this project required as a condition of a local, state, or federal permit, order, or enforcement action (e.g., a manure storage and management project required by ODA permit)?

_____ Yes No

10. Project Partners. Show all anticipated funding sources, and indicate the dollar value for cash or in-kind contributions. Be sure to provide a dollar value for each funding source. If the funding source is providing in-kind contributions, briefly describe the nature of the contribution in the Funding Source Column. In the Amount/Value Column, provide a total dollar amount or value for each funding source.

Funding Source Name the partner and contribution	Cash	In-Kind	Amount/ Value
OWEB: BDA installation, materials, admin & reporting	\$3,280		\$3,280
Landowner: BDA materials, willow cuttings, County Land-use Form		\$1,645	\$1,645
Morrow SWCD: Project Management		\$400	\$400
Total Estimated Funds (add all amounts in the far right column)			\$5,325

The total should equal the total cost of the project on page 1

11. Project Budget (Word). Itemize projected costs for each budget category that apply to your project. A minimum of 25% match is required. See application instructions and additional team conditions for further guidance.

PLEASE NOTE: Budgets may be submitted in either Word or Excel formats. Documents can be found on the OWEB Forms webpage.

Fill in the amounts, rounded to the nearest dollar; do not include cents.

Expense Category	No. of Units	Unit Cost	OWEB Funds	Match Funds (In-Kind/Cash)	Description--what will be purchased and by whom/who will perform the work.
SALARIES, WAGES, AND BENEFITS. Refers to in-house staff/applicant employees for whom payroll taxes are paid. List position titles; include only costs of employees charged to this grant.					
Project Management	16	\$25	\$0	\$400	Morrow SWCD hours spent on planning/permit process
		\$0	\$0	\$0	
SUBTOTAL (1)			\$0	\$400	
CONTRACTED SERVICES. Labor, supplies, materials and travel to be provided by non-staff for project implementation.					
BDA Materials	6	\$400	\$1,680	\$720	Posts, weave material, post pounder/fuel. Landowner will acquire
BDA Installation	6	\$200	\$1,200	\$0	Landowner will hire contractor
Willow Cuttings	300	\$3.00	\$0	\$900	Willow cuttings sourced from property. Morrow SWCD will assist with planting
SUBTOTAL (2)			\$2,880	\$1,620	
MATERIALS AND SUPPLIES. Refers to items purchased by or invoiced to the applicant organization, and are "used up" in the course of the project. Costs to OWEB must be directly related to the implementation of this grant.					
		\$0	\$0	\$0	
		\$0	\$0	\$0	
SUBTOTAL (3)			\$0	\$0	
TRAVEL. Applicant staff mileage. For rates see: https://www.oregon.gov/oweb/manage-grant/Pages/payments-budget.aspx					
		\$0	\$0	\$0	
		\$0	\$0	\$0	
SUBTOTAL (4)			\$0	\$0	
OTHER. Land use signature costs, project permit costs, small equipment repair, commercial equipment rental.					
Land-use Form	1	\$25	\$0	\$25	County Planning Department
		\$0	\$0	\$0	
SUBTOTAL (5)			\$0	\$25	
MODIFIED TOTAL DIRECT COST (MTDC) (Add Subtotals 1-5)			\$2,880	\$2,045	
INDIRECT COSTS. Not to exceed 10% of Modified Total Direct Costs (MTDC). See the current Budget Categories Definitions and Policies document for eligible costs.					
Indirect Costs	Not to exceed 10% of MTDC		\$200	\$0	
POST-GRANT					
Year-Two Status Report			\$200	\$0	(Not to exceed \$200)
Post-Project Plant Establishment			\$0	\$0	(Not to exceed \$1,000)
PROJECT TOTALS			\$3,280	\$2,045	(Not to exceed \$15,000 in OWEB funds)

We, the undersigned, attest that to the best of our knowledge the information contained in this application is true, that the proposed project is not required by a state or federal agency directive, and that the project will be completed within 24 months from the date of the team funding recommendation of the application. We understand that the submitted application is a matter of public record.

Also, should funding for this project be awarded we understand:

- 1) **We may not incur** any project expenses until all designated signatories have signed an OWEB grant agreement,
- 2) **We will be required to provide** proper accounting of project expenses, and
- 3) **We will be required to provide** necessary and normal maintenance to sustain the value of the project once it is completed.

By their signatures, the **landowner(s)** attest that they have no plans to sell their property as of the date of this application, are authorized to sign as landowner, and they agree to provide, upon prior request and at a mutually acceptable time, site access to the applicant or representatives of OWEB for a period up to two years following project completion to allow project work to be implemented, monitored, and maintained.

Applicant	Date
Landowner	Date
Fiscal Agent	Date

Attachment Checklist

- Project location map (Required)
- Color photographs of site (Required)
- Site drawings/diagrams (if applicable)
- Juniper Checklist (if applicable)
- Cooperative agreement, if 2 or more landowners (Optional) **May be submitted in lieu of ALL Landowner signatures on Application ALL Landowners must sign the Grant Agreement**
- Racial and Ethnic Impact Statement (Required)
- Restoration Metrics form (Required)

Other materials (as required by team)

Optional Forms at time Application

(Required at the time of Request for Release of Funds, see instructions)

- Irrigation Efficiency
- Culvert/Stream Crossing
- Secured Match
- Land Use



Racial and Ethnic Impact Statement

This form is used for information purposes only and must be included with the grant application.

Chapter 600 of the 2013 Oregon Laws require applicants to include with each grant application a racial and ethnic impact statement. The statement provides information as to the disproportionate or unique impact the proposed policies or programs may have on minority persons¹ in the State of Oregon if the grant is awarded to a corporation or other legal entity other than natural persons.

1. The proposed grant project policies or programs could have a disproportionate or unique **positive** impact on the following minority persons:

Indicate all that apply:

- Women
- Persons with Disabilities
- African-Americans
- Hispanics
- Asians or Pacific Islanders
- American Indians
- Alaskan Natives

2. The proposed grant project policies or programs could have a disproportionate or unique **negative** impact on the following minority persons:

Indicate all that apply:

- Women
- Persons with Disabilities
- African-Americans
- Hispanics
- Asians or Pacific Islanders
- American Indians
- Alaskan Natives

3. The proposed grant project policies or programs **will have no** disproportionate or unique impact on minority persons.

If you checked numbers 1 or 2 above, on a separate sheet of paper, provide the rationale for the existence of policies or programs having a disproportionate or unique impact on minority persons in this state. Further provide evidence of consultation with representative(s) of the affected minority persons.

I HEREBY CERTIFY on this _____ day of _____, 20____, the information contained on this form and any attachment is complete and accurate to the best of my knowledge.

Signature

Printed Name: Jared Huddleston

Title: Natural Resource Technician

¹ "Minority persons" are defined in SB 463 (2013 Regular Session) as women, persons with disabilities (as defined in ORS 174.107), African-Americans, Hispanics, Asians or Pacific Islanders, American Indians and Alaskan Natives.



Restoration Metrics Form

OWEB receives a portion of its funds from the federal government and **is required to report** how its grantees have used both federal and state funds. The information you provide in the following form will be used for federal and state reporting purposes.

Please complete all portions of the form below as they apply to your project and submit all pages (do not exclude any pages). Please provide specific values, do not enter values like “2-3” or “<100”. Enter your best approximation of what the project will accomplish.

If you have any questions, please contact Ginger Lofftus, OWEB PCSRF Reporting Assistant, at 503-986-5372 (ginger.lofftus@state.or.us)

Section 1. Project Overview

Answer all five questions below, even if you have answered a similar question in a previous section in the grant application.

1. Land Use Setting: CHECK ONE BOX ONLY.

- Urban/Suburban/Exurban** (Projects located within urban growth boundaries or rural residential areas)
 Rural (Projects located outside urban growth boundaries or rural residential areas.)

2. Dominant Watershed Setting: CHECK ONE BOX ONLY. Example: Your project involves managing erosion in the upland area with some erosion control extended to the riparian area. Because most of the work is to occur in the upland area, you would check **only** the Upland box below.

- Estuary** (where freshwater meets and mixes with saltwater of ocean tides.)
 Riparian (adjacent to a water body, within the active floodplain.)
 Instream (below the ordinary high-water mark or within the active channel — includes fish passage.)
 Upland (above the floodplain.)
 Groundwater (Projects that recharge groundwater or primarily affect the subsurface water table.)
 Wetland (areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions.)

3. Total Acres Treated: 4.2 Total Stream Miles Treated: 0.4
(do not include upstream stream miles made accessible to fish with passage improvements)

4. Project Monitoring: All OWEB funded restoration projects require post-implementation status reporting including photo point monitoring. *Please indicate below:* 1) the location of the monitoring activities relative to the project, including photo point locations, 2) whether effectiveness monitoring is planned, and 3) whether additional monitoring will be conducted for this project.

4.1) Identify the location for the planned monitoring activities relative to the restoration project location.
Check as many boxes as apply.

- Onsite Downstream Upstream Upslope

4.2) Effectiveness monitoring will be conducted for this project. Please note that effectiveness monitoring cannot be funded with OWEB Small Grant Funds.

4.3) Will this project conduct monitoring activities beyond the required post-implementation status reporting and photo point monitoring?

Yes No If you answer yes, select the monitoring activities below, if you answer no proceed to Section 2.

Check all proposed monitoring activities

- | | |
|---|---|
| <input type="checkbox"/> Adult Fish: presence/absence/abundance/distribution survey(s) | <input type="checkbox"/> Water quality |
| <input type="checkbox"/> Spawning surveys | <input type="checkbox"/> Macroinvertebrates |
| <input type="checkbox"/> Juvenile Fish: presence/absence/abundance/distribution survey(s) | <input type="checkbox"/> Water quantity |
| <input type="checkbox"/> Upland vegetation (Presence/Absence) | <input type="checkbox"/> Noxious weed (Presence/Absence) |
| <input type="checkbox"/> Instream Habitat surveys | <input type="checkbox"/> Photo Points |
| | <input type="checkbox"/> Riparian vegetation (Presence/Absence) |
| | <input type="checkbox"/> Other (explain): _____ |

Section 2. Project Activities

Provide values for each Project Activity applicable to your application. **Leave blank any Project Activity or metric line that is not appropriate to your application.** All data entered in this form should be what you **plan** to do with the project. Data about **completed** projects will be reported at the end of the project to the Oregon Watershed Restoration Inventory (OWRI). For each activity type where you enter metrics, **estimate** the percentage of the total cost of the project (OWEB and **all** other funding sources, shown in **III. 9.** of this application) that applies to the activity. The sum of all of the activity cost percentages should equal 100%. Please distribute all administrative, project management and other general project costs among the various project activities when estimating percentages.

Example: A project will remove a fish passage barrier, place large boulders instream, and plant a riparian buffer. You would enter the appropriate metrics into the Fish Passage, Instream Habitat, and Riparian Habitat activity sections of this form. Then, estimate the percentage of the total cost of the project for each activity. For instance: 20% towards Fish Passage activities, 25% towards Instream Habitat activities, and 55% towards Riparian Habitat activities.

Fish Screening Projects: Projects that result in the installation or improvement of screening systems that prevent fish from passing into areas that do not support fish survival, for example, into irrigation diversion channels.

Note: OWEB funds cannot be used for fish screening projects

_____ % Estimate the percentage of total cost of the project applied to fish screening activities

New Fish Screens Installed

_____ # Estimate the number of **new** screens installed (do not count diversions where existing screens are replaced)

_____ cfs Estimate the cubic feet per second of flow influenced by **new** screen(s) installed (to nearest 0.01 cfs)

Existing Screens Replaced, repaired or modified

_____ # Estimate the number of **existing** screens replaced, repaired or modified

_____ cfs Estimate the cubic feet per second of flow influenced by **existing** screen(s) screens (to nearest 0.01 cfs)

Fish Passage Improvement: *Projects that improve fish migration by addressing a migration barrier problem.* Complete sections A-E as they apply to the proposed project. For projects that improve fish passage at road crossings complete both sections A (define the problem) and B (define the treatment). Non-road crossing improvements are reported in sections C and D. Section E should be completed for all fish passage improvement projects. Refer to the application instructions for additional information and examples.

A. Road Crossings – Define *Existing* Fish Passage Problem

- 1. **Culverts** hindering fish passage _____ # crossings
- 2. **Bridges** hindering fish passage _____ # crossings
- 3. **Fords** hindering fish passage _____ # crossings

B. Road Crossings – Define the Fish Passage *Improvements* to be implemented by this project

1. **Culverts** installed/improved -*Improvements include* installing baffles inside culverts or installing/improving engineered bypasses (e.g. weirs) directly below a culvert outlet to improve passage.

_____ # crossings _____ str. mi with improved access*

2. **Bridges** installed/improved -*Improvements include* installing/improving engineered bypasses (e.g. weirs) directly below a bridge crossing to improve passage.

_____ # crossings _____ str. mi with improved access*

3. **Fords** installed/improved

_____ # crossings _____ str. mi with improved access*

4. **Road Crossings removed and not replaced**

_____ # crossings _____ str. mi with improved access*

* Estimate stream miles in the main channel and tributaries made more accessible above the crossing(s) (to nearest 0.01 mile). If a barrier exists upstream, report the length made accessible up to that next upstream barrier.

C. Fish Passage Barriers – Other than Road Crossings

1. **Type(s) of barriers** to be treated/removed to improve fish passage.

- | | |
|---|---|
| <input type="checkbox"/> Diversion Dam | <input type="checkbox"/> Logs |
| <input type="checkbox"/> Push-up Dam | <input type="checkbox"/> Debris |
| <input type="checkbox"/> Wood or Concrete Dam | <input type="checkbox"/> Boulder/Rock Barrier (not weirs) |
| <input type="checkbox"/> Weir (not associated with a road crossing) | <input type="checkbox"/> Landslide |

Other (explain) _____

2. _____ # Estimate the total number of **non-road** crossing barriers (listed above) to be removed or altered to improve passage.

D. Fish Ladders or Engineered Bypasses (not associated with Road Crossings)

1. **Fish ladders** will be installed/improved

_____ # fish ladders to be installed/improved

2. **Engineered bypasses** will be installed/improved. This includes weirs, rock boulder step pools, and chutes constructed/roughened in bed rock. Do not count engineered bypasses located at a road crossing to improve passage at the crossing. These types of improvements should be identified above in section B as a Road Crossing Fish Passage Improvement.

_____ # engineered bypasses to be installed/improved

E. Fish Passage Summary Metrics

1. _____ % Estimate the percentage of total cost of the project applied to fish passage improvements
2. _____ mi Estimate the total stream miles that will be made more accessible in the main channel and tributaries above the project (to nearest 0.01 mile). *This metric summarizes the stream miles for all of the proposed passage improvements (defined above in Sections A-D). If a barrier exists upstream of the project, report the length made accessible up to that next upstream barrier.*
3. _____ # Estimate the total number of barriers (this includes road crossings, diversion dams, push up dams, wood or concrete dams, weirs, etc.) to be removed or altered to improve passage.

Instream Flow: Projects that maintain and/or increase the instream flow of water. Irrigation improvements that are primarily designed to improve water quality should be reported under Upland – Agriculture Management. **Check all proposed activities.**

- Irrigation practice improved to increase instream flows (e.g. install diversion headgate, replace open ditches with pipes)
- Water flow gauges installed to measure water use
- This project will dedicate instream flow.
- Other (explain): _____

_____ % Estimate the percentage of total cost of the project applied to instream flow activities

_____ mi. Estimate the miles of stream where increased flow is the result of decreased/eliminated water withdrawals

_____ cfs Estimate the increase in flow of water in the stream as a result of conservation effort (cubic feet per second)

_____ mm/dd/yyyy Initial start date of irrigation practice improvement

_____ mm/dd/yyyy Final end date of irrigation practice improvement (if improvement is permanent enter 12/31/9999)

_____ mm/dd/yyyy Water lease/agreement initial start date of no withdrawal

_____ mm/dd/yyyy Water lease/agreement final end date of no withdrawal (if lease/agreement is permanent, enter 12/31/9999)

Instream Habitat: Projects that are designed to improve instream habitat conditions. **Check all proposed activities.**

- Channel reconfiguration and connectivity (e.g., creating instream pools, meanders, improving floodplain connectivity, off-channel habitat, removal or alteration of levee or berm, removal of sediment)
- Spawning gravel placement
- Channel structure - large wood placement
- Plant Removal/control (instream) List scientific names of plants _____
- Channel structure - boulder placement
- Carcass or nutrient placement: salmonid carcass; fish meal brick; other nutrient
- Channel structure placement (**other** than large wood or boulder placements), e.g., engineered structures or deflectors, barbs, weirs, etc.
- Other (explain): _____
- Streambank stabilization through resloping and/or placing rocks, logs (e.g. revetments, gabions, barbs), or bioengineering on streambank

76 % Estimate the percentage of total cost of the project applied to instream habitat activities

0.4 mi. Estimate the miles of stream to be treated with instream habitat treatments (to nearest 0.01 mile)

_____ % Estimate the percentage of instream activity costs for carcass or nutrient placements. If you do not select carcass/nutrient placements as an instream activity, leave this value blank.

Example: Your project will place salmon carcasses. You estimated that 25% of the total project cost will apply to instream habitat activities and one half of the instream improvements costs will apply to the carcass placement, you would report 50%.

Riparian Habitat: Projects above the ordinary high-water mark of the stream and within the floodplain of the stream. **Check all proposed activities.**

- Riparian planting
- Non-native/noxious plant control
- Riparian exclusion fencing
- Vegetation management (e.g. prescribed burnings, stand thinning, stand conversions, silviculture)
- Livestock exclusion by means other than fencing (includes placing obstacles to exclude livestock, people, vehicles, etc., but not for individual plant protection)
- Debris/structure removal (OWEB funds cannot be used for general trash removal)
- Water gap development (fenced livestock crossing or livestock bridge)
- Other (explain): _____ DO NOT report livestock water developments here, report livestock water developments under upland habitat treatments.

24 % Estimate the percentage of total cost of the project applied to riparian habitat activities

0.5 ac. Estimate the acres of riparian habitat to be planted (to nearest 0.1 acres)

_____ ac. Estimate the acres of riparian habitat to be treated for non-native/noxious weeds (to nearest 0.1 acres)

4.2 ac. Estimate the total riparian acres to be treated. (to nearest 0.1 acres)

0.4 mi. Estimate the miles of riparian streambank to be treated (to nearest 0.01 mi).

Stream sides treated 1 2 (Do not double count miles if a second side is treated)

Upland Habitat: Projects implemented above the floodplain. **Check all proposed activities.**

- Planting/seeding for erosion control (e.g., convert from crops to native vegetation, plant area where non-native/noxious weeds removed, grassed waterways, windbreaks, filter strips)
List scientific names of plants _____
- Livestock Manure Management (e.g., feedlot improvements to reduce runoff, relocate/improve manure holding structures and manure piles to reduce/eliminate drainage into streams)
- Slope stabilization (e.g., grade stabilization, landslide reparation, terracing slopes)
- Upland Livestock Management (**other** than livestock water developments), e.g., grazing plans, fencing
- Non-native/noxious plant control
List scientific names of plants: _____
- Restore Historic Upland Habitats (e.g. oak woodland, oak savannah, upland prairie restoration)
- Juniper removal/control
- Livestock/Wildlife Water Developments
- Vegetation Management (**other** than non-native/noxious plant control or juniper removal, e.g. tree thinning, brush control, burning)
List scientific names of plants: _____
- Erosion control structures not already reported under Upland Agriculture Management or Road Drainage System and Surface Improvements.
- Upland Agriculture Management (e.g., no/low-till, wind breaks, filter strips, crop rotation, terracing, water and sediment control basins, grade stabilization and irrigation improvements)
- Other (explain): _____

_____ % Estimate the percentage of total cost of the project will apply to upland habitat activities

_____ # Estimate the number of livestock/wildlife water developments

_____ ac. Estimate the acres of upland habitat to be treated for non-native/noxious plants (to nearest 0.1 acres)

_____ ac. Estimate the total acres of upland habitat to be treated (do not include acres of upland habitat affected by livestock water developments (to nearest 0.1 acres)

_____ % Estimate the percentage of upland activity costs applied to Livestock Manure Management. If you do not select Livestock Manure Management as an upland activity, leave this value blank.

Example: Project will relocate a feedlot to reduce livestock manure runoff. You estimated that 33% of the total project cost will apply to upland habitat activities and one half of the upland improvements costs will apply to the feedlot relocation, you would report 50%.

Road Activities: Projects designed to improve road impacts to watersheds. **Check all proposed activities.**

- Road drainage system and surface improvements & reconstruction
- Other (explain): _____
- Road closure, relocation, obliteration (decommissioning)

_____ % Estimate the percentage of total cost of the project applied to road activities

_____ mi. Estimate the miles of road treated (to nearest 0.01 mile)

Urban Impact Reduction: Check all of the urban impact related activities that will be used by this project.

- Toxin reduction: list names of each toxic species, element or material: _____
- Bioswales
- Pesticide reduction: list names of each pesticide: _____
- Detention Facility
- Stormwater/wastewater modification or treatment (includes rain gardens)
- Other urban impact reduction (explain): _____

Check all of the water quality limiting factors addressed by the Urban Impact Reduction activities selected above. Do not select limiting factors addressed by other types of restoration activities.

- Bacteria
- Dissolved Oxygen
- Heavy Metals
- Pesticides
- Toxics
- High Temperature
- Nutrients
- Sediment
- Other (explain): _____

_____ % Estimate the percentage of total cost of the project applied to urban impact activities

Wetland Habitat: Projects designed to create or improve wetland areas. Check all proposed activities.

- Wetland planting
- Non-native/noxious/invasive plant control
- Artificial wetland area created from an area not formerly a wetland
- Wetland improvement/restoration of existing or historic wetland (other than vegetation planting or removal)
- Other (explain): _____

_____ % Estimate the percentage of total cost of the project applied to wetland habitat activities

_____ ac. Estimate the acres of wetland habitat to be treated for non-native/noxious/invasive plants (to nearest 0.1 acres)

_____ ac. Estimate the acres of artificial wetland created (to nearest 0.1 acres)

_____ ac. Estimate the total acres of wetland habitat (existing or historic) treated (to nearest 0.1 acres)

Estuarine Habitat: Projects that result in improvement or increase in the availability of estuarine habitat.

Check all proposed activities.

- Estuarine planting
- Channel modification/creation (e.g., improve intertidal flow to existing estuarine habitat)
- Non-native/noxious plant control
- Creation of new estuarine habitat where one did not exist previously by methods other than tidegates or dikes
- Dike or berm modification/removal
- Placement of fill material (for proper terrestrial function)
- Estuarine culvert modification/removal
- Other (explain): _____
- Removal of existing fill material
- Exclusion devices

_____ % Estimate the percentage of total cost of the project applied to estuarine habitat activities

_____ ac. Estimate the acres of estuarine habitat to be treated for non-native/noxious plants (to nearest 0.1 acres)

_____ ac. Estimate the total acres of estuarine habitat (existing or historic) to be treated (to nearest 0.1 acres)

Section 3.

Salmon/Steelhead Populations Targeted and Expected Benefits to Salmon/Steelhead

The information provided will be used by OWEB better to meet federal and state reporting requirements. Completion of this section is required but will not be used to evaluate this application for funding.

This project is **NOT** specifically designed to benefit salmon or steelhead.

▶ If you check this box, **STOP** here.

Targeted Salmon/Steelhead Populations: Select one or more of the salmon ESUs (Evolutionary Significant Unit) or steelhead DPSs (Distinct Population Segment) that the project will address/benefit. For species where the ESU/DPS name is not known or determined, use the species name with unidentified ESU (e.g., Chinook salmon – unidentified ESU). Additional information on the designation and location of the salmon/steelhead populations can be found at:

https://www.westcoast.fisheries.noaa.gov/maps_data/species_population_boundaries.html

Chinook Salmon (*Oncorhynchus tshawytscha*)

- Deschutes River summer/fall-run ESU
- Lower Columbia River ESU
- Mid-Columbia River spring-run ESU
- Oregon Coast ESU
- Snake River Fall-run ESU
- Southern Oregon and Northern California Coastal ESU
- Upper Klamath-Trinity Rivers ESU
- Upper Willamette River ESU
- unidentified ESU

Chum Salmon (*O. keta*)

- Columbia River ESU
- Pacific Coast ESU
- unidentified ESU

Coho Salmon (*O. kisutch*)

- Lower Columbia River ESU
- Oregon Coast ESU
- Southern Oregon/Northern California ESU
- unidentified ESU

Steelhead (*O. mykiss*)


- Klamath Mountains Province DPS
- Snake River Spring/Summer-run ESU
- Lower Columbia River DPS
- Middle Columbia River DPS
- Oregon Coast DPS
- Snake River Basin DPS
- Washington Coast DPS (SW Washington)
- Upper Willamette River DPS
- Steelhead/Trout unidentified DPS

Expected Benefits: Write a brief description of the goals and purpose of the project and how it is expected to benefit salmon/steelhead or salmon/steelhead habitat. **See Application Instructions for helpful examples.**

Project Location

(45.6187,-119.9573)

Legend

 Project Location

Google Earth

© 2019 Google

19



10 mi



Beaver Dam Analog Locations

3 BDA's at each Complex

Legend

-  Willow Creek Reach
-  Complex



Google Earth



© 2018 Google

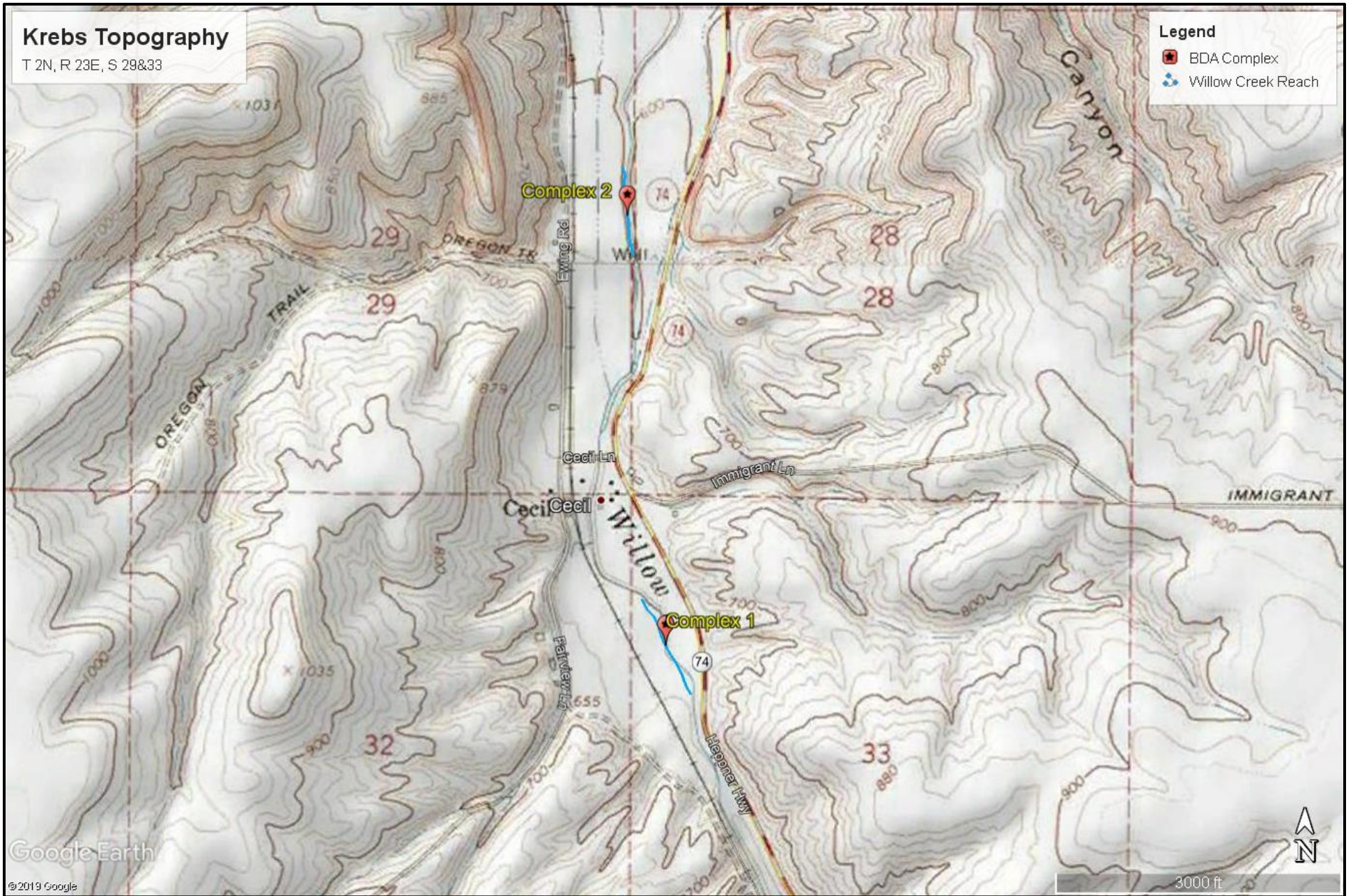
2000 ft

Krebs Topography

T 2N, R 23E, S 29&33

Legend

-  BDA Complex
-  Willow Creek Reach



Google Earth

© 2019 Google

3000 ft

Kreb's Beaver Dam Analogs



Photo of Willow Creek north of Cecil where BDA placement would enhance riparian growth on accessible floodplain and divert/reduce flow velocity from the cut bank. Photo taken standing on top of 8-foot high cut bank.



Another photo of a section of Willow Creek north of Cecil. Showing narrow channel with no accessible floodplain. Willows are present which will be sourced for plantings and BDA weave material.



Photo of Willow Creek south of Cecil showing narrow straightened channel that is becoming incised.



Another photo of Willow Creek south of Cecil showing willow present and an accessible floodplain to the left of the creek channel. BDA placement could widen channel and enhance riparian growth.

Morrow SWCD Beaver Dam Analog Design Packet

The proposed actions are based on outcomes from the Bridge Creek Intensively Monitored Watershed Project and the Middle Bear Creek BDA Restoration Project both of which are in Wheeler County, Oregon. Many of the restoration goals from these two projects were analogous to those identified in Morrow County. BDAs offer an effective and cost efficient means for achieving restoration goals.

Herb Winters (Gilliam County SWCD) and Nick Weber (Eco Logical Research Inc.) have both been contacted and have offered their expertise in planning and installation. Both of them have implemented successful BDA projects.

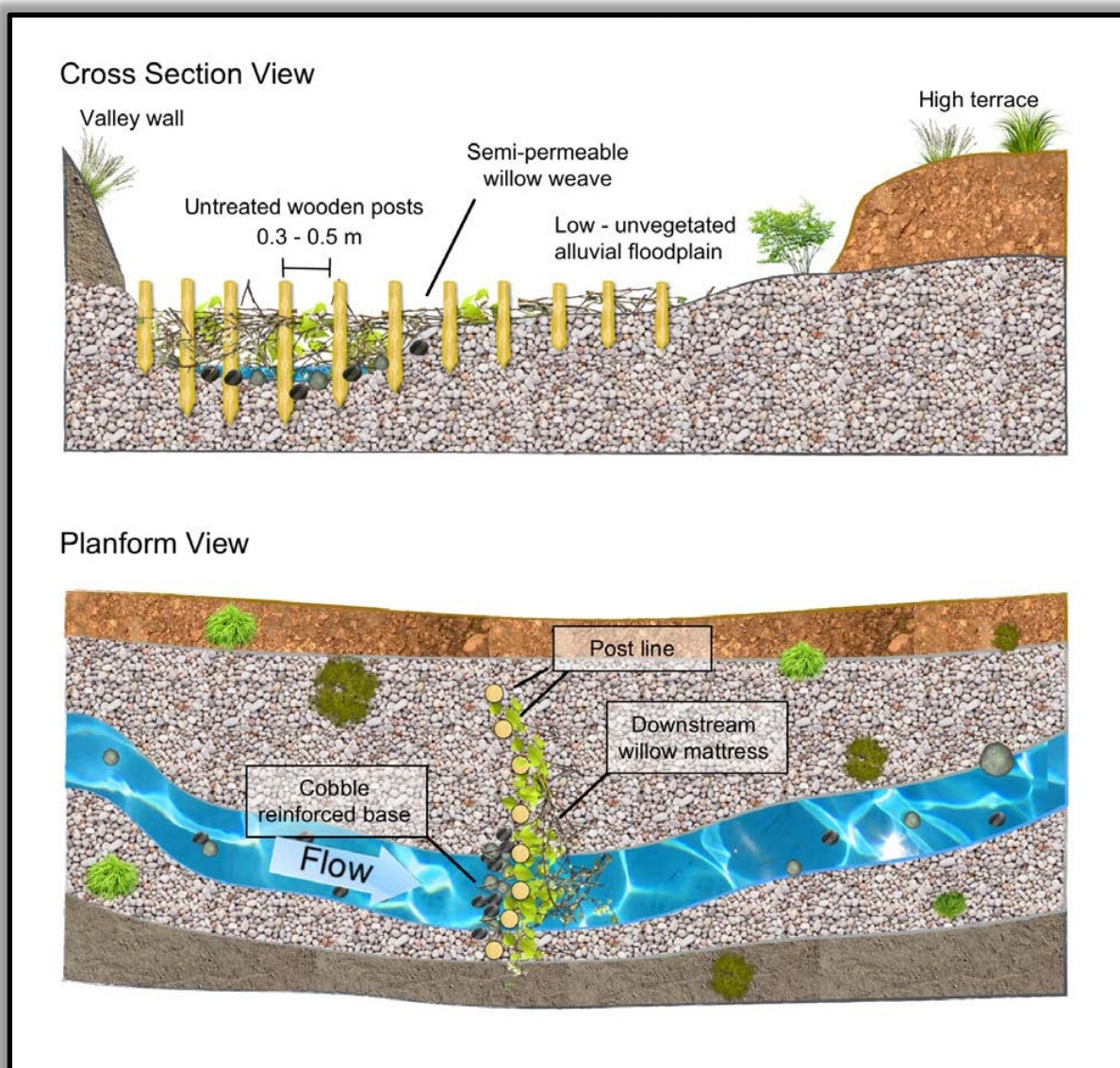


Example of BDA from Bridge Creek in Wheeler County, OR to be installed in Morrow County.

Design

BDA structures are designed to function as part of a complex so individual structures work together to maximize restoration benefits according to limitations set by stream segment characteristics. Structures supported by downstream structures will lower the needed crest elevation to dissipate the gradient. Structures are constructed of natural, untreated posts approximately 3 - 4" in diameter. Posts are driven into the active channel and floodplain features using a hand-operated portable hydraulic post pounder. Once installed, posts will extend no more than 18-20" above the active channel bed, which is within and in many cases lower than the height range of natural beaver dams currently found on Bear Creek and within the Bridge Creek watershed. For a single structure posts are spaced approximately 12-18" apart, and driven to a depth of approximately 12-18" into the streambed. Following installation of the post line, willow stems will be woven in between the posts and reinforcement material such as cobble, gravel, and sediment added to the base of the structure to create a semi-permeable structure that

functionally resembles a natural beaver dam. The willow weaving acts as a dam, yet is passable to fish and consistent with the adult and juvenile fish passage criteria provided in NOAA's Anadromous Salmonid Passage Facility Guidelines (NMFS 2008) and the Aquatic Resources Biological Opinion for Restoration Actions on Federal Lands in Oregon and Washington (NMFS 2013). Reinforcing the base of BDA structures prevents flow from scouring under the dam and facilitates pond formation, raises the water table, and triggers many hydraulic and geomorphic feedbacks. As with natural beaver dam construction, reinforcement materials are sourced within the vicinity of the complex and care is exercised such that the modest amount of material moved does not unnecessarily destabilize the banks or bed. Beaver dam analogues are temporary structures that last until the pool behind the dam fills with sediment and is colonized by woody riparian vegetation (circa < 5 yr.). The placement and spacing between structures has been designed to be consistent with that of natural beaver complexes, and is dependent on valley, floodplain, and channel characteristics of specific stream segments.



Generalized design elements and channel position for BDAs showing cross-section (top) and planform (bottom) view of the channel.