



## Contact Information

# 2024 Upper Columbia Regional Project Pre-Application

\* Pre-applications due March 11, 2024 (COB)

\*Complete applications due in PRISM April 19, 2024 (COB)

\*Revised proposals due in PRISM May 24, 2024 (COB)

\*Final revised applications due in PRISM June 24, 2024 (noon)

<b>Project Title</b>	Entiat River Floodplain Riparian Enhancement Project
<b>Sponsor</b>	Chelan County Natural Resources Department
<b>Primary Contact</b>	Allison Lutes
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## Budget Request

Values MAY be duplicative and do not have to equal TOTAL anticipated budget in pre-application.

<b>Anticipated Request - SRFB Riparian Funding</b>	235363
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<b>Anticipated TOTAL Budget</b>	235,363
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## Project Location

<b>Briefly describe the location of the project</b>	The project will occur on Chelan Douglas Land Trust property on the Entiat River at river miles 18.6 and 21
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<b>Latitude (decimal degrees)</b>	47.821299
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<b>Longitude (decimal degrees)</b>	-120.422313
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<b>Project subbasin</b>	Entiat
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<b>Entiat Assessment Unit(s)</b>	Entiat River-Potato Creek
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Does the proposed project span multiple assessment units?

No

Reach(es) Name

Entiat River Potato 06, Reach: Entiat River Potato 07

Identify the reach(es) priority/ reach ranking. Note: If the project involves work in multiple reaches, select "Multiple" and include details in the text box that will appear below. Please reference the Prioritization Web Map: <https://prioritization.ucsrb.org/>.

Multiple reaches (provide details below)

Please detail the reach-ranking of the reaches below

Entiat River Potato 06 - Rank 2  
Entiat River Potato 07, Rank1

## Project Information

**1. What are the project objectives? Objectives support and refine biological goals, breaking them down into small steps. Objectives are specific, quantifiable actions the project will complete to achieve the stated goal. Each objective should be SMART (Specific, Measurable, Achievable, Relevant, and Time-bound). Note: This exact question is included in the PRISM application. Example format: The project seeks to address [specify limiting factor(s)] for [limiting life stage(s)] by [specific actions proposed] to create an estimated [include specific target metrics, as described below] upon implementation in [estimated year].**

Objective 1: Develop a Riparian Enhancement Plan in coordination with Chelan Douglas Land Trust in order to restore 3.23 acres of degraded riparian floodplain habitat at river miles 18.6 and 21. The plan will be prepared spring/summer 2024.

Objective 2: Following the approach outlined in our Riparian Enhancement Plan, the project will conduct riparian planting site preparation and noxious weed treatments to 0.75 acres of riparian floodplain currently infested with the invasive reed canary grass. The treatment will include a three-step targeted approach proven to be effective against reed canary grass: weed whacking new growth in the spring prior to plants setting seed, applying aquatic label herbicide treatments in spring and fall to target existing plants, and solarization with heavy duty tarps during the growing season to scorch the seed bed and kill new growth.

Objective 3: This project will plant 9,460 native riparian shrubs and trees and restore native riparian species to 3.23 acres of degraded riparian habitat that will restore riparian functions such as groundwater infiltration, large wood recruitment, bank stability, increased shade and decreased temperature, pollutant filtration, wildlife habitat (i.e. birds, deer,etc.), fish cover, sediment deposition and decreased instream turbidity. Benefits such as species diversity, bank stability, pollutant filtration, wildlife habitat, and decreased instream turbidity are expected to be immediate (1-2 years post project), while large wood recruitment, increased shade, decreased temperature and fish cover are expected to be longer term benefits once trees and shrubs have matured (10-15 years post planting).

Objective 4: This project seeks to achieve long-lasting riparian health and ecological success by providing 2 seasons of post-planting intensive adaptive management including weed spraying, weed-whacking, mulching, watering, and other maintenance tasks as needed post-planting to ensure high plant survival and that native plantings achieve a level of plant vigor to out compete invasive species.

Objective 5: This project will establish 10-meter square pre and post monitoring plots across 20% of the planting area to track effectiveness of reedcanary grass weed treatments by assessing % cover, plant vigor, survival stem counts, and photo points. Monitoring results will be summarized in annual monitoring

reports and will provide adaptive management recommendations.

**2. What species will the project benefit?**

Spring Chinook

Steelhead

Bull Trout

Summer Chinook

**3. Select the project's objectives and the associated tracking metrics**

Design, Monitoring or Assessment

Riparian Habitat

**Riparian Habitat: Reporting Code**

Total riparian miles streambank treated

Total riparian acres treated

**4. Does this project already exist in Salmon Recovery Portal or PRISM?**

No

**5. Has this project been submitted previously for funding through the SRFB and/or other process(es)?**

No

**6. What category is the project?**

Restoration

**Is the project eligible for Riparian Funding?**

Yes

## Design and Restoration Proposals

**7. What project phase(s) are proposed for completion?**

Final Design

Construction

**8. Is your project within a completed (or soon-to-be completed) Reach Assessment or other type of assessment (e.g., Rapid Site Assessment, other)?**

2013 Bureau of Reclamation Entiat River Stormy Reach Assessment

**9. Which limiting factors does the project propose to address?**

Riparian

Riparian - Canopy Cover

Riparian - Disturbance

Riparian - Structure

Temperature - Adult Holding

Temperature - Adult Spawning

Temperature - Rearing

**10. Which life stages will the proposed project address?**

Adult Migration

Adult Non-Spawning (Bull Trout)

Natal Rearing (Bull Trout)

Subadult Rearing (Bull Trout)

Fry

Holding and Maturation

Smolt Outmigration

Spawning and Incubation

Summer Rearing

Winter Rearing

### **11. Freshwater Benefits - Describe how your project will improve survival, capacity and/or distribution for target species at the reach scale?**

Historic land use such as riparian grazing at the project site has resulted in a damaged riparian zone with sparse native vegetation and areas dominated by invasive reed canary grass. This project will implement riparian restoration to re-establish a healthy riparian zone characterized by a self-sustaining diverse assemblage of native plants. Healthy riparian zones are an important component of high quality in-stream habitat for target species at the reach scale. Direct benefits include providing both in-stream and over-bank fish cover and supplying an input of terrestrial detritus to fuel aquatic food webs. Riparian planting will also decrease solar radiation on the creek through increased shade, thus addressing at-risk summer temperatures within the project reaches. Restored riparian will also increase pollutant filtration, bank stability, and groundwater infiltration. Riparian planting helps to filter fine sediment that can reduce water quality for rearing salmonids and decrease oxygen levels in incubating redds. The underground root paths provided by mature riparian plants are key to increased groundwater infiltration; thus, riparian planting also supports adequate baseflows. Finally, well vegetated banks are crucial to help prevent bank erosion that results in wide and shallow channels and floodplain disconnection. Therefore, this project will improve habitat capacity and survival of ESA-listed species by improving habitat quality and quantity at the reach scale.

### **12. Temporal Effect - Briefly describe how and to what extent the project would promote natural stream/watershed process consistent with the geomorphology of the stream?**

Riparian restoration is a process-based restoration technique that restores the root cause of degradation. By definition, "process-based restoration aims to reestablish normative rates and magnitudes of physical, chemical, and biological processes that create and sustain river and floodplain ecosystems" (Beechie et al 2010). Restoring riparian areas will restore riparian functions such as groundwater infiltration, large wood recruitment, bank stability and a reduction in channel width, increased shade and decreased temperature, pollutant filtration, fish cover, sediment deposition and decreased in-stream turbidity. Terrestrial detritus from riparian areas also supports aquatic invertebrates which provide a major food source for ESA-listed juvenile salmonids. As native trees installed as part of this project mature, they will provide the reach with a source of wood to help sustain in-stream habitat forming processes for the long term.

### **13. Temporal Effect - How long will it take for the project to achieve its intended response?**

1-10 years

### **14. Temporal Effect - How long will the restoration action and its benefits persist?**

10-50 years

### **15. Temporal Effect - What level and/or interval of maintenance is anticipated? What is the plan for any anticipated maintenance?**

Reed canary grass (*Phalaris arundinacea*) is an invasive grass species that can significantly negatively impact native ecosystems. This species is known for its ability to outcompete native vegetation, particularly in wetland and riparian areas; its ability to spread rapidly; and its ability to alter hydrologic processes due to its high water demand causing changes in wetland water levels and nutrient cycling. Reed canary grass is notoriously difficult to control and has been identified as a major invasive species in many regions of the United States (Apfelbaum & Sams, 1987). The infestation of reed canary grass can be particularly problematic due to its ability to establish and spread rapidly over large areas. Therefore, successful riparian projects aiming to address reed canary grass include maintenance both pre and post project. Pre-project, the approach is to conduct two years of intensive reed canary grass treatments that will a combination approach supported by in-field experimentation and the literature. The goal is to weed

whack in the spring any new growth and to reduce the biomass before herbicide treatment, followed by a herbicide spray treatment of aquatic label approved herbicide, and then the reedcanary grass will be covered with black solarization tarps. The spraying and tarps will kill any new growth, scorch the seed bed, and kill the reed canary grass rhizomes. In the fall, the tarps will be removed and an herbicide application will be applied again to kill any new growth. This cycle will be repeated for two full seasons and will be monitored with 10meter square monitoring plots assessing % cover. If a third season of reed canary grass treatment is needed it will be conducted prior to the plantings. All plantings will receive a mulch ring that is 2-3 feet wide and 2" thick to immediately suppress competition around the planting and encourage soil moisture retention.

Post-planting, maintenance will be informed by the monitoring program which will identify adaptive management needs. Adaptive management may include hand-pulling/treatment of weeds, adding additional mulch, staking plants, providing herbivore protection, or otherwise identified. Two years of post-planting maintenance is planned under this project, with long-term stewardship of the lands to be under the guidance of the Chelan Douglas Land Trust.

Maintenace of riparian projects is expected in order to target non-native species, provide supplemental watering, and

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## **16. Methods - Briefly describe the potential (for design) or proposed restoration methods and how they will achieve project objectives.**

Restoration actions/methods will include noxious invasive weed treatments (mowing, herbicide application, and tarp solarization), riparian planting methods, and adaptative management methods (mulching, weed whacking, watering, and hand-weeding):

Weed treatments:

During the 2023 field season CCNRD staff in collaboration with CDLT set up five experimental plots to gather qualitative data to determine the most effective control method for Reed Canary Grass (*Phalaris arundinacea*). The experimental area, which was placed within the main wetland meadow, consisted of these 5 combinations of control:

Plot 1 – Mowing and solarization tarps,

Plot 2 – Mowing only,

Plot 3 – mowing, cardboard and mulch,

Plot 4 – Mowing, herbicide application, and solarization,

Plot 5 – Mowing and herbicide applications.

Mowing and herbicide treatments occurred twice throughout the 2023 season: once in early summer and once in the fall. Tarps used for solarization were placed in the early summer and remained in place until early winter. The treatment plots were selected close in proximity to one another in an area that had an abundance of RCG cover and little to no native plants. Before and after photos and % cover of RCG were taken of the plots to visualize changes in RCG cover and mortality throughout the 2023 field season. While all treatments did impact the reed canary grass, the most effective treatment included the combination of mowing, herbicide application, and tarp solarization. Therefore, the approach we will take is to utilize this combined mowing/spraying/tarping approach to treat 0.75 acres of reedcanary grass infestation.

Planting methods and plant procurement:

All plants will be procured by a native plant nursery with seed collected and growth within Chelan County. Native seed collected from the Entiat watershed is available for plants to be grown out at Derby Canyon nursery in Peshastin Wa. Plants budgeted for this project will be approximately half 40 ci size pots and half t-pot or 1 gallon stock. The use of 1 gallon stock is recommended to provide fast competition against

competing grasses and shade against any invasive species. Plantings will be conducted in polygons to mimic natural riparian growth and to provide for maintenance post-planting.

All plantings will be installed by qualified planting contractors. The Contractor shall dig planting holes 3" larger than the root ball on all sides and 3" deeper than the height of the root ball from bottom of container to root collar. To reach the desired planting height, the Contractor shall mound soil in the bottom of the planting hole and firmly compact by hand until correct height is reached. Backfill around the root ball by firmly compacting the soil by hand to a level ¾" below finish grade. In their final position, all plants shall have their top true root (not adventitious root) no more than 1 inch below the soil surface. Placement of plants will be guided by Chelan County supervising staff who are qualified in riparian restoration ecology and will provide layout based upon the final planting plans. After planting, each plant will receive a ring of mulch that is certified weed free that will be 2-3 feet in diameter and 2" thick. Mulch will be pulled away from the stem of the plant to prevent burying the root collar.

**17. If the project is eligible and applying for Riparian Funding, does the project have in-stream components? If so, briefly describe those components, how they support riparian plant survival and/or natural regeneration, and why they are necessary for the success of the riparian habitat elements of the project.**

No instream components are proposed under this funding proposal. However, this work does build off of the successful instream work completed for the Middle Entiat Restoration projects completed in 2019 and 2020. Those projects included levee removal, instream ELJ construction, and side channel development; all of which will be enhanced by this riparian work.

## Assessment Proposals

## Protection Proposals

## Monitoring Proposals

## Project Risk and Economic Benefits

1. What is the landownership? Chelan Douglas Land Trust

2. Have you secured landowner participation in or acceptance for this project? Yes

### Please explain

The Chelan Douglas Land Trust is supportive of this project and is an active participant.

**3. Describe any land owner requirements (e.g., design elements, right-of-ways, access agreements, liability waivers, etc.) and if/how they could affect the project**

There are no specific land owner requirements that will affect the project design. CDLT is supportive of the project and has been an active partner on adaptive management of the existing riparian efforts on these properties.

**4. Will the project raise potential concerns for interest groups (e.g., recreational users) or the community at large (including upstream/ downstream/ adjacent landowners)?**

The projects are both on property preserved for conservation and restoration. Public outreach regarding restoration within the Entiat Community has been on-going since 2010 and is lead by the Entiat Watershed Action Team (Cascadia Conservation District). Because of the relatively low impact of riparian restoration versus in-stream construction projects, the Entiat WAT has not encountered opposition or concerns regarding riparian restoration from the Entiat Community. Additionally, the project does not include



components that could impact in-stream recreation (i.e. in-stream large wood). On the contrary, the proposed project will likely increase the quality of experience for recreational users as thriving riparian areas are of high aesthetic natural value compared to those dominated by invasive plants. Riparian areas also attract birds and wildlife for improved wildlife viewing. Plants will be installed by hand and/or using low-impact machinery (i.e. Stinger) and therefore implementation is not expected to have a large impact on the surrounding community, especially relative to other large-scale in-stream restoration projects that are essentially large construction projects.

**5. Who will have the responsibility to manage and maintain the project? What is the responsibility of current or future landowners?**

Chelan County will manage and maintain the project for the life of the grant. The long-term site maintenance will then transfer to the Chelan Douglas Land Trust who will continue to maintain and manage the properties for conversation and stewardship values.

**6. Are other projects being proposed immediately upstream or downstream of worksite?**

Don't know

**7. Please describe the risk of failure associated with this project.**

Risk of failure associated with the project is low. This is because there is a good understanding of the challenges for planting at these locations, what species are doing well currently, and how best to address the invasive species challenges on site. This planting builds off of lessons learned from the 2020 riparian planting efforts that were conducted within the restoration/access/staging areas associated with the Middle Entiat habitat restoration project.

**8. Is there any public outreach planned during and/or after implementation? Does the project build community support for salmon recovery efforts?**

Yes

**9. Does the project represent an opportunity for economic benefit? How much benefit does the project create for the dollars invested?**

Yes. This project has an opportunity for economic benefit as all of the labor and materials will be sourced by local providers. Native plant stock is best provided by native plant nurseries that grow out seed that is collected within the endemic region. The project will thus obtain plant material from and provide business to local nurseries. Plant installation will also provide jobs to the local community.

The proposed project has a high benefit to cost ratio, owing to the multiple long-term benefits of riparian planting and the relatively low cost of riparian restoration. Specifically, high ecological benefits (temperature decreases, fish cover, pollutant filtration, wood recruitment, improved groundwater infiltration) are juxtaposed with low cost materials such as plants, shovels, and browse guards, and low construction footprint.

**10. Describe any partnerships, their experience, and types of contributions supporting the project.**

CDLT - landowner. Chelan Douglas Land Trust Taking owns and manages nearly 7000 acres of our region's most important natural areas, and they hold conservation easements on an additional almost 15,000 acres. CDLT has a long and successful track record of taking that responsibility seriously and strive to protect and maintain the conservation values and natural character of our precious lands and waters to ensure that they remain intact forever.

Derby Canyon- Derby Canyon Natives, located along the Wenatchee River near Peshastin, WA, is a specialty nursery growing wildflowers, grasses, shrubs and trees native to Central Washington. Since 2002 we have provided container-grown plants produced from seeds and cuttings collected from the region's varied habitats, including shrub-steppe, forest and riparian zones. All plants are source-identified (traced to their collection location) and locally adapted (grown in the Wenatchee Valley and acclimated to Central Washington conditions).

## Optional Section - Preparation for PRISM

The following questions are identical to the questions RCO requires in the PRISM application. If desired, sponsors can complete associated questions early and copy responses into PRISM during the "Complete Application" phase due on April 19, 2024.

Do you want to review and/or pre-populate PRISM questions?

Yes

## Supporting Documents

[Upper Columbia Process Guide 2024](#)

[SRFB Manual 18 \(2024\)](#)

[RCO Application Resources \(2024\)](#)