Evaluation Proposal - Non Capital

Applicants must respond to the following items. The local citizen and technical advisory groups will use the evaluation proposal to evaluate your project. Applicants should contact their lead entity for additional information that may be required.

Up to eight pages may be submitted for each project evaluation proposal.

(SUBMIT INFORMATION VIA PRISM ATTACHMENT PROCESS)

1. BACKGROUND

Describe the geographic scope, fish resources, current habitat conditions, limiting factors and historic factors important to understanding this project. Be specific—avoid general statements. When possible, document your sources of information by citing specific studies and reports.

The Wenatchee River watershed is a subbasin of the Columbia River that has its headwaters high in the Cascade Mountains and flows southeasterly down into the semi-arid climate of the Wenatchee Valley. The subbasin, Watershed Resource Inventory Area (WRIA) 45, encompasses approximately 1,400 square miles, and through a network of 230 miles of major streams and rivers, the Wenatchee River drains a portion of the east slopes of the Cascade Mountains in north central Washington within Chelan County. The river empties into the Columbia River at the City of Wenatchee at Columbia River Mile (RM) 468.4. The subbasin is bounded on the west by the crest of the Cascade Mountains, on the north and east by the Entiat Mountains, and to the south by the Wenatchee Range. Elevations within the drainage range from approximately 4000 feet at the headwaters of Nason Creek to 650 feet at the Wenatchee River confluence with the Columbia River. Precipitation varies from approximately 40 inches at Lake Wenatchee to 8 inches near the city of Wenatchee, with over 90 inches of precipitation occurring at the headwaters of Nason Creek. At higher elevations, the majority of the precipitation falls as snow, with snowmelt providing approximately 80% of the total runoff in the watershed. (Jones & Stokes, 2004).

In the late 1990s, three fish species that depend upon habitats within the Wenatchee River subbasin were listed as threatened or endangered under Section 7 of the Endangered Species Act (ESA). Those species are the Upper Columbia River Spring-Run Evolutionarily Significant Unit (ESU) of Wenatchee River run Chinook salmon (endangered), the Upper Columbia River ESU of Wenatchee River run steelhead (endangered), and the Columbia River Distinct Population Segment (DPS) bull trout, including Wenatchee River Subbasin populations (threatened). Each of these species uses portions of the lower Wenatchee River or Nason Creek during one or more of its critical adult migration, spawning, and juvenile rearing life history stages (Andonaegui, 2001). Within the lower Wenatchee River, historic steelhead, and Chinook fish runs were severely depleted by the mid 1930's due to irrigation practices, poor mining practices, grazing, and logging (Andonaegui, 2001). Degradation of fish runs continues to the present day due to the construction of seven dams on the Columbia River between the mouth of the Columbia River and the Wenatchee River confluence, overfishing, and continued habitat alterations.

Although the Wenatchee subbasin manages to function as much needed habitat, it has done so, enduring a long history of resource use and modification. Primary anthropogenic influences on streamflow and channel evolution include the construction of levees, roads,

bridges, bank stabilizing structures, cities and towns, and the Burlington Northern and Santa Fe (BNSF) Railroad. Due to the construction of these channel confining features that have been installed to protect infrastructure, off-channel and in-channel habitats are lacking (Jones & Stokes, 2004). Approximately 38% of the streambanks within the Lower Wenatchee River are considered inerodible (Jones & Stokes, 2004). Within the lower Wenatchee River less than 60% of the historic floodplain remains, and over 70% of the historic riparian vegetation has been removed (Jones & Stokes, 2004, Andonaegui 2001). The railroad, which established itself in the basin during the late 1800s, is a particularly strong influence throughout the basin, especially in the potentially productive Nason Creek drainage.

The Nason Creek drainage is a Category 2 watershed located within the Wenatchee subbasin. Nason Creek flows out of Lake Valhalla near Stevens Pass and flows east for approximately 21 miles before heading north and flowing into the Wenatchee River immediately below Lake Wenatchee at RM 53.6. The creek can be described as having a sinuous to irregular channel, containing frequent bars (Jones & Stokes, 2004), and is heavily utilized for spawning and rearing by ESA listed salmonid species (spring Chinook, steelhead and bull trout). As a Category 2 watershed, Nason Creek has a high potential to increase salmonid abundance and productivity (UCRTT, 2007a). However, the lack of habitat complexity has been identified as a primary salmonid habitat-limiting factor within Nason Creek. As a part of the larger Wenatchee subbasin, it has been subjected to similar anthropogenic influences through the construction of highways, the railroad and other confining features (Andonaegui, 2001). A major source of confinement on Nason Creek is the Burlington Railroad, especially on the reach located upstream of Coles Corner (approximately RM 5 through 14). Throughout this reach, the railroad acts as a hard barrier, severely limiting the channel's evolution, and disconnecting the creek from potentially valuable off-channel habitat (Andonaegui, 2001).

2. **PROBLEM STATEMENT**

Describe what habitat conditions and habitat-forming processes will be assessed and how that will improve our understanding of salmonid use or habitat needs. All projects should state the nature, source, and extent of the altered conditions that this project will address or help understand. Address the primary causes of the problem, not just the symptoms. Document your sources of supporting information by citing specific studies, reports, or other documentation.

Throughout the body of literature regarding the function and state of riverine habitat in the Wenatchee subbasin (e.g., Andonaegui, 2001, and Jones& Stokes, 2004), a common theme of habitat degradation can be linked back to the confinement of the channel through anthropogenic modification. The construction of roads, highways, railroads, and other structures has confined many reaches throughout the basin, reducing the amount of off-channel habitat and simplifying channel form. The BNSF railroad prism constricts channel migration, floodplain capacity, and fish access to off-channel habitats in key salmonid spawning, rearing, and migration areas in the Wenatchee watershed. In recent past, the BNSF Railroad has been reluctant to work with the Chelan County Natural Department (CCNRD) or other entities, and agree to salmon recovery projects that require modification to RR structures. In light of the stated subbasin-wide goals that include increasing the amount of habitat quality and quantity for ESA listed salmonids species (e.g., Federal Columbia River Power System Biological Opinion, or FCRPS BiOp), the CCNRD seeks to develop working relationships with landowners that can significantly improve the fluvial system. In particular, the CCNRD seeks funding to develop a project proposal,

review, and implementation process with the BNSF Railroad, that will facilitate the undertaking of future projects on BNSF land.

In general, channel confinement restricts channel migration and the hydrologic connection to side channels. Due to a decrease in sinuosity the channel begins to entrench, increasing sediment supply and deposition, limiting large woody debris recruitment, and reducing instream flows (Jones & Stokes, 2004). Channel confinement also restricts access to the river's floodplain, affecting access to off-channel and important high-flow refuge habitats. The associated increase in flow velocity negatively impacts the migration for both adults and juvenile salmonids and erodes instream habitat features (Jones & Stokes, 2004). This is especially true throughout Nason Creek where the construction of SR 2 and the Burlington Northern Railroad has effectively ceased channel migration resulting in a semi-braided system with sever aggradation, and cut off approximately 400 acres of side channels and oxbows (Jones & Stokes, 2004). Today, Nason Creek has approximately 25% as much side channel habitat as nearby reference reaches (Andonaegui, 2001).

There is a clear need for the restoration, reconnection, and enhancement of main and back channel habitats. Andonaegui (2001) concludes that in order to provide for the year-round spawning, rearing, and habitat needs of all life history stages of Wenatchee subbasin salmonids, the Wenatchee River corridor must provide adequate quantities of high-quality off-channel habitat. The Upper Columbia Regional Technical Team (UCRTT, 2007a) advises that habitat restoration and protection should focus on the active management of the main channel and address salmonid limiting factors (e.g., channel confinement) at the reach scale. Jones & Stokes (2004) inform that habitat restoration and enhancement projects should focus on areas immediately adjacent to the main channel and backchannel habitats. The Nason Creek drainage is no exception as it supports the second strongest population of spawning spring Chinook in the Wenatchee subbasin (Andonaegui, 2001). The highest potential to increase salmonid abundance and productivity in the Nason Creek watershed is through restoration efforts (UCRTT, 2007a). Within the Nason Creek drainage, habitat restoration projects aimed at improving riparian habitat and floodplain functions, especially the reconnection of off-channel habitat to the extent it is determined to cumulatively show an appreciable improvement in channel function, have been given a high priority (Andonaegui, 2001). The Tier 1 habitat action recommendations for Nason Creek are to (UCRTT, 2007a) (a) increase LWD complexes from Whitepine Creek to mouth, and (b) reconnect side channels and off-channel habitat, where appropriate, from Whitepine Creek to mouth.

In order to accomplish these tasks, it is important that the CCNRD work with landowners to reach mutually beneficial solutions. Jones & Stokes (2004) recommends that Chelan County coordinate with the appropriate entities to establish agreed-upon monitoring strategies for restoration, enhancement, and preservation actions within the Wenatchee subbasin. This includes working with major influences throughout the basin , such as the BNSF Railroad. The UCRTT has identified the railroad as a major influence as many high value projects lie on BNSF property in reaches where the railroad has disconnected large portions of valuable floodplain and off-channel habitat. Additionally, the UCRTT (2007b) has recommended that if projects are going to occur in areas heavily influenced by the railroad (e.g., Nason Creek), then policy-level discussions need to occur with the railroad to develop a project implementation strategy to be used for future projects on railroad property.

A section of Nason Creek, located just upstream from Coles Corner (RM 9.5 to 11) provides an example. Approximately 200 acres of floodplain and valuable off-channel habitat

has been disconnected from the main channel by the railroad. Also along this reach, access into Roaring and Coulter Creeks is negatively impacted. Despite the use of two small culverts, placement of the railroad grade inundates the area in the vicinity of Roaring Creek, flooding the disconnected oxbow and the confluence of Nason and Roaring creeks up against the railroad grade (Andonaegui, 2001). For example, Figure 1 shows a section of a Light Detection and Ranging (LiDAR) dataset collected in October 2006 of Nason Creek (RM 11.3 to 9.6). LiDAR data has an advantage over other types of remotely sensed terrain data in that it allows the user to strip away the vegetation, leaving a "bare-earth" digital elevation model (DEM). In the figure, the railroad and US 2 are labeled for reference and the current main channel of Nason Creek highlighted in blue, with labeled river miles. Looking below the railroad grade, Multiple side and relic channels are clearly visible, highlighting past river courses. The confining nature of the railroad becomes apparent as the occupied Nason Creek channel is nearly straightened from RM 11.1 to 10.7. Moving downstream in the figure, the amount of floodplain disconnected by the railroad is made apparent.

The above section of Nason Creek provides an eye-opening example of the potentially available habitat, emphasizing the importance in building a partnership with the Burlington Northern Railroad. Currently, the Bureau of Reclamation (USBR) is conducting a multidisciplinary channel assessment (MCA), as part of the Wenatchee Watershed Fluvial Habitat Restoration Plan (WFHRP), for Nason, Icicle, and Peshastin creeks in the Wenatchee subbasin. This MCA is evaluating the Nason Creek fluvial system at a reach scale and will identify and prioritize habitat restoration project sites. The Nason Creek MCA is the first MCA to be completed as part of the larger Wenatchee Watershed Fluvial Habitat Restoration Plan as prioritized through Wenatchee Watershed Planning and the Salmon Recovery Plan Implementation Strategy. The Wenatchee Habitat Subcommittee (HSC) works to prioritize projects based on biological benefit and social criteria (e.g., landowner cooperation). The HSC has advised that in order to implement top-ranked projects, or those that work towards recovery, cooperation from the railroad is a missing key component. Additionally, the HSC has recommended that this become a top priority task that will lead to the implementation of projects. Several opportunities for channel reconnection in Nason Creek are associated with BNSF right-of-way. As a major landholder, as well as an extensive source of channel confinement throughout the basin, BNSF's cooperation becomes critical to the goals of restoring riparian function to disconnected off-channel habitat and floodplains.

3. **PROJECT OBJECTIVES**

List the project's objectives. Objectives are statements of specific outcomes that typically can be measured or quantified over time. Objectives are more specific than goals (visions of the desired future condition/information) and less specific than tasks (the specific steps that would be taken to accomplish each of the objectives). For example, the objectives of an assessment might be to determine project siting, feasibility, and design. Explain how achieving the objectives will address and help solve the problem identified in #2 above. (Reference Appendix E – Standard Stages of Project Development for Feasibility and Design Projects).

- In cadence with other subbasin-wide objectives (e.g., the Nason Creek MCA), the proposed project has a larger goal of meeting the Salmon Recovery Plan Implementation Strategy and the FCRPS BiOp metric requirement for adding habitat complexity to the

Wenatchee subbasin by improving habitat quantity and quality for ESA listed salmonid species. In order to accomplish this goal, the CCNRD seeks to develop a project proposal and review process with the BNSF Railroad. Thus, the specific objectives of this project are to:

1. Research past and existing examples of agencies collaborating with railroads.
2. Perform an engineering feasibility analysis to evaluate the viability of various modifications to the Burlington Northern and Santa Fe Railroad grade.
3. Build a coalition of support, including stakeholders such as state and federal representatives, the tribes, and the United States Forest Service.
4. Work with BNSF representatives to outline a project proposal and review process, identifying:
   a. key representatives at both the CCNRD and BNSF,
   b. BNSF data requirements for engineering evaluations,
   c. BNSF project approval criteria.
5. Draft a project implementation strategy, documenting the CCNRD/BNSF process for project proposal, review, and approval.

- The accomplishment of the above objectives will help the CCNRD address habitat issues within the Wenatchee subbasin by creating a working relationship with the railroad, a source of channel confinement and floodplain disconnection throughout the basin. With permission to undertake projects on railroad-owned land, the CCNRD could potentially open up quality off-channel habitat for ESA listed salmonid species.

4. **PROJECT APPROACH AND METHODOLOGY**

a. Briefly describe the geographic setting of the project (marine nearshore, estuary, main stem, tributary, etc.) and the life cycle stage(s) affected.

- Although Nason Creek, a tributary of the Wenatchee River, is highlighted as an example, the proposed project has implications for all salmonid-inhabited reaches of river affected by the railroad in the Wenatchee subbasin. The project has the potential to benefit all life history stages of salmonids utilizing mainstream and off-channel habitats, including adult migratory and spawning stages, as well as juvenile foraging and migratory life history stages.

b. List the individuals and methods used to identify and scope the project and its location.

- The scope of this project was determined from several sources. The Nason Creek MCA and Wenatchee River CMZ have identified specific project sites. The UCRTT and HSC have both stressed the importance of developing a working relationship with the BNSF railroad.

c. Clearly state how the assessment design and methodology is adequate to answer the objective of the assessment and how it will be implemented.

- In order to meet the objectives of this project, the CCNRD will work to build a coalition of support, including stakeholders such as state and federal representatives and the tribes. The CCNRD will work with BNSF representatives to identify data requirements for engineering evaluations, determine project approval criteria, and

establish an official proposal, review, and approval process prior to specific project proposals.

d. Explain how the results of the assessment will lead directly to projects that benefit salmonids or how the assessment fills a data gap identified as a priority in the lead entity's strategy or regional recovery plan.

- The proposed project fits in with the umbrella goals of the Upper Columbia Salmon Recovery Plan (UCSRP) and FCRPS BiOp metric requirement for adding habitat complexity to the Wenatchee subbasin by improving habitat quantity and quality for ESA listed salmonid species. In establishing a partnership with the railroad, the project has the potential to make accessible those portions of off-channel habitat and floodplain disconnected by the railroad.

e. Describe the consequences of not conducting this project at this time. Explain why this project is imperative to do. For combination projects that include acquisition, also describe the current level and imminence of risk to habitat.

- This project seeks to build on the momentum of other Wenatchee subbasin projects. The subbasin's Biological Strategy (UCRTT, 2007a) and the Implementation Strategy of the UCSRP have identified a need for increased habitat quantity and quality for ESA listed salmonid species. The USBR's Nason Creek MCA is currently identifying the location of projects that maximize the benefit for salmonids. It is important that once the location of those projects has been identified, the landowner relationships are in place that will allow for their undertaking.

f. Explain how the project's cost estimates were determined.

- Since the project is very labor intensive, standard estimates for travel costs and hourly wages were applied for the projects projected duration.

g. Describe other approaches and opportunities that were considered to achieve the project's objectives.

- Past attempts by the CCNRD and other entities to coordinate with the BNSF Railroad on salmon recovery projects have not been successful. In 2005, the SRFB-funded Gagnon project prompted discussion with BNSF to allow a portion of the BNSF right-of-way to be used in the creation of off-channel habitat. The lack of official review process and working with BNSF Railroad personnel unfamiliar with the salmon recovery goals in the Wenatchee Watershed led to the portion of the Gagnon project within the BNSF right-of-way being dropped from the final project. It is the recommendation of the UCRTT that an official review and approval process be established with BNSF prior to specific project proposals. This approach will avoid the parties bogging down in project details, allowing all to focus on establishing a process.

h. List project partners who will be contributing to the project. When appropriate, include a letter from each participating partner briefly outlining its role and contribution to the project.

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i. List all landowner names (if the assessment covers large stream reach or an entire sub-basin, then the landowner willingness forms are not required). Include a signed form from each landowner

acknowledging their property is proposed for SRFB funding consideration. For sponsors proposing feasibility/assessment work on their own property this form is not required.

- The major landowner involved with the proposed project is the BNSF Railroad.

j. Describe how the assessment addresses the stages and elements in *Guidance on Watershed Assessment for Salmon* (Joint Natural Resources Cabinet, May 2001). Also, see Appendix E for additional definitions of design stages.

- Previous studies within the lower Wenatchee River and Nason Creek have identified the salmonid habitat limiting factors, the processes that are causing these conditions, and the linkages between the degraded habitat conditions and salmonid population health (e.g., UCRTT, 2007a, Jones & Stokes, 2004, Jones & Stokes, 2003, nhc, 2003, and Andonaegui, 2001). This design project will result in a project design that when finished will directly address the primary salmonid habitat limiting factors within the lower Wenatchee River.

k. When known, identify the staff, consultants, and subcontractors that will be designing and implementing the project, including their names, qualifications, roles and responsibilities. If not yet known, describe the selection process.

- The CCNRD staff will be working with capable consultants for the research portion of the project.

l. For projects that have acquisition component: Briefly describe the extent to which habitat to be acquired is currently fully functioning and/or needs restoration; the timeframe in which responses or improvements in habitat functioning are expected; and the continuity of the proposed acquisition with other protected or functioning habitat in the reach. Identify any planned use of the property, including uplands. Also, provide the current zoning and Shoreline Master Plan designation.

5. **TASKS AND TIME SCHEDULE**

List and describe the major tasks and time schedule you will use to complete the project. Non Capital projects should be completed within two years.

- It is the goal of the CCNRD to complete all tasks by the end of 2009. Specific objective goals are as follows.

Proposed Project Objective	**Projected Completion Period**
1. Research railroad collaboration examples	January, 2008
2. Perform engineering feasibility analysis	January to March, 2008
3. Coordinate a coalition of stakeholders	March to September, 2008
4. Collaborate with BNSF to outline a project proposal, review, and implementation process	September, 2008 to March 2009
5. Draft a project implementation strategy	April, 2009 to December, 2009

6. CONSTRAINTS AND UNCERTAINTIES

State any known constraints or uncertainties that may hinder successful completion of the project. Identify any possible problems, delays, or unanticipated expenses associated with project implementation. Explain how you will address these constraints and the likelihood of success.

- The county will address the many constraints and uncertainties in working with the railroad on salmon recovery projects throughout the basin. This assessment is an attempt to address those many constraints and uncertainties that have made it difficult to form working relationships with the railroad in the past.