Application Name: Headwaters Small Streams Restoration Project

By: Grande Ronde Model WS Foundation

Offering Type: Upper Grande Ronde Initiative

Application Type: Restoration

OWEB Region: Eastern Oregon
County: Union
Coordinates: 45.088694,-118.326062

Applicant:
Jeff Oveson
1114 J Avenue
La Grande OR 97850-2073
(541) 663-0570
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Payee:
Mary Estes
1114 J Avenue
La Grande OR 97850
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Project Manager:
Joe Platz
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LaGrande OR 97850
(541) 962-8571
jplatz@fs.fed.us

Budget Summary:
OWEB Amount Requested: $0
Total Project Amount: $231,515

Administrative Information

Abstract

Provide an abstract statement for the project. Include the following information: 1) Identify the project location; 2) Briefly state the project need; 3) Describe the proposed work; 4) Identify project partners.

The Headwaters Small Stream Restoration Project involves 5.25 stream miles, located on North Fork (.7 mile) and South Fork (2.2 miles) Limber Jim Creeks (tributaries to Limber Jim Creek); Dry Creek (1.6 miles) and Sheep Creek Trib (.75 mile) (tributaries to Sheep Creek). The project is located within Limber Jim Subwatershed (170601040102), and Sheep Creek Subwatershed (170601040105). All of the streams above have summer steelhead and redband trout habitat except for the Sheep Creek tributary stream. South Fork Limber Jim has habitat for spring/summer chinook habitat. All of the streams go partially dry during the summer/early fall except for North Fork Limber Jim Creek and the Sheep Creek tributary stream. Historic beaver trapping, timber harvest, grazing, and roading created a laterally confined channel, with limited floodplain interaction and diminished deciduous vegetation. The project would prioritize LWD placement (channel spanning log jams, whole trees and small wood material) to add roughness, increase floodplain interaction and habitat complexity, and promote out of channel flooding. It is expected that the project will promote longer periods of hydrologic production, decreased stream temperatures, and increased riparian deciduous vegetation. Partners include Grande Ronde Model Watershed, Bonneville Power Administration, and the US Forest Service.

Location Information

What is the ownership of the project site(s)?

✓ *Public land (any lands owned by the Federal government, the State of Oregon, a city, county, district or municipal or public corporation in Oregon)*

What agency(ies) are involved?

United States Forest Service

❑ *Private (land owned by non-governmental entities)*

❑ *This grant will take place in more than one county.*

Permits

Other than the land-use form, do you need a permit, license or other regulatory approval of any of the proposed project activities?

● Yes
❍ No

For Details Go to Permit Page

Racial and Ethnic Impact Statement

Racial and Ethnic Impact Statement

❍ The proposed grant project policies or programs could have a disproportionate or unique POSITIVE impact on the following minority persons. (indicate all that apply)

❍ The proposed grant project policies or programs could have a disproportionate or unique NEGATIVE impact on the following minority persons. (indicate all that apply)

● The proposed grant project policies or programs WILL HAVE NO disproportionate or unique impact on minority persons.

Insurance Information

❑ *Working with hazardous materials (not including materials used in the normal operation of equipment such as hydraulic fluid)*

❑ *Earth moving work around the footprint of a well*

❑ *Aerial application of chemicals*

❑ *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)*

❑ *Applicant's staff or volunteers are working with kids related to this project (DAS Risk assessment tool not required, additional insurance is required)*

❑ *Applicant's staff are applying herbicides or pesticides (DAS Risk assessment tool not required, additional insurance is required)*

Additional Information

❑ *This project affects Sage-Grouse.*

Problem Statement

Describe the watershed problem(s) that this restoration project seeks to address.

Overall Problem: The small streams and its meadow habitats are not in proper functioning ecological condition (hydrologic, geomorphic, vegetative composition), due to historic management that included beaver trapping, over grazing, logging, road building, and an altered fire regime.

Sub-problem - Floodplain form and function/habitat complexity

The small streams' floodplains have limited water capture and retention capacities due to past anthropogenic influences. These deficiencies have lowered ground tables. This has resulted in lower riparian vegetation survival and vigor, a decreased ability to store water and buffer water temperature, less connection to the floodplain to moderate in-channel velocity, and lower quality fish habitat. Lack of floodplain form and function has resulted in a:

* decrease in water storage and meadow/wetland habitats, resulting in drier site and mesic-site species encroachment. Drier habitats are less conducive to riparian deciduous woody vegetation species (Populous and Salix) that are important food and habitat for beaver populations.
* potential increase of in-stream water temperatures from decrease in groundwater recharge, which can be problematic for salmonids.
* increase of in-channel velocity where the channel has downcut, and doesn't spread water out onto the floodplain during high flows. The process of downcutting causes vertical erosion, which increases fine sediment levels and decreases habitat complexity.
* decrease in the amount of zero velocity habitat, which provide juvenile salmonids protection, temperature buffering, food sources and feeding areas, and resting areas.

How have past or current land management practices contributed to the problem?

Historic trapping, overgrazing, logging, road building, and an altered fire regime have degraded the small streams' watersheds ecological form and function. The loss of functional meadow and stream habitat adversely effects the survival and rearing of native salmonids, other fish, and wildlife species. Beaver trapping pressure in the 19th Century almost caused extirpation of this species in the western United States. The decrease in beaver populations within the small streams has contributed to channel incision, decreased habitat complexity, altered vegetative communities, and an altered flow/temperature regime. Beaver serve as ecological engineers by building dams that decrease the velocity of peak flows and spread flows out over longer periods of time. This increase of water retention time decreases erosive forces that cause stream incision. Higher levels of surface and subsurface water retention expands riparian and wetland habitat along the stream. As beaver move in and out of systems, numerous side channels often form, and more woody vegetation ends up in the stream. This leads to increased habitat complexity for fish and wildlife. Historic overgrazing of sheep and later cattle reduced deciduous vegetation communities around the small streams. Overgrazing has also caused bank erosion, channel over-widening, and soil compaction. This has caused vertical erosion and channel incision. Channel incision has altered the stream systems by lowering streambeds and groundwater tables causing a further decrease in riparian vegetation. Currently, only the Sheep Creek Trib. is currently grazed. The rest of the streams do not have any livestock grazing. However, wild ungulate (elk and deer) browsing pressure is high in areas along all of the small streams. Historic logging practices caused a variety of problems in the small streams' watersheds.

High densities of roads near the small streams and its meadows have likely caused a variety of compounding problems. Impermeable road surfaces increase the rate of overland flow. This affects the timing and volume of flow in downstream areas of the watershed. Roads that are built on the sides of meadow systems often result in long-term soil compaction. The soil compaction can lead to a reduction in water holding capacity and infiltration into nearby meadow systems.

Altered natural and human ignited fire (Native American and sheep herders) regimes due to 20th century fire suppression have likely affected the vegetative, hydrologic, and geomorphic processes of montane meadow systems. Less frequent intense wildfires are more likely to have negative effects on meadows (erosion in uplands) than more frequent low-intensity fires. Historically, naturally caused and human ignited low intensity fires were likely more common. Conifer encroachment due to lack of regular fire intervals has caused dense under and mid-story

fir/pine species on the edges of meadows and in some cases all the way up to the streambank. This early stage forest ecosystem dynamic increases competition for large tree regeneration, and contributes to meadow water loss through evapotranspiration. The restoration of small streams' form and function will address a combination of these interrelated problems through a physical approach to creek and meadow restoration.

Does this project address one or both of the following:

✓*Habitat needs for one or more Endangered Species Act-listed species and/or species of concern*
❑*Concerns identified on 303(d) listed streams*
❑*No*

Project History

Continuation - Are you requesting funds to continue work on a project previously funded by OWEB where that work did not result in a completed project?

❍ Yes
● No

Resubmit - Have you submitted, but were not awarded an OWEB application for this project before?

❍ Yes
● No

Phased - Is proposed work in this application a phase of a comprehensive watershed restoration plan or project?

❍ Yes
● No

Plans and Salmon

Is the proposed restoration activity(ies) identified in a local assessment or other plan?

● Yes
❍ No

Provide name of local plan, Watershed assessment or other locally relevant document.

The project is located in the Upper Grande Ronde Restoration Atlas. The Upper Grande Ronde Atlas is a geo-spatial restoration prioritization plan developed in coordination with BPA by local fish biologists, researchers, engineers, hydrologists, practitioners, and stakeholders. The plan divides the subbasin into biologically significant reaches (BSR) and prioritizes those reaches for restoration based on fish use, fish life stages, limiting factors, and floodplain availability. The BSR are associated with restoration actions. Each reach is assigned a Tier with Tier 1 being the highest priority and Tier 3 being the lowest priority. The streams in the Sheep Creek subwatershed are within a Tier 1 BSR. The streams in the Limber Jim subwatershed are within a Tier 2 BSR.

Will this project benefit salmon or steelhead?

● Yes
❍ No

✓Snake River Basin - Steelhead
✓Snake River Spring/Summer-run - Chinook Salmon

How will the resulting restoration project benefit salmon or steelhead or their habitat?

The project will improve floodplain function, increase habitat complexity, increase off-channel habitats, lower stream temperatures, increase riparian vegetation (shade, cover).

The project will also affect downstream fish habitat by promoting cooler water temperatures and an improved flow regime throughout the year.

Does the project address a restoration action identified in a regional assessment or recovery plan?

❍ Yes
● No

Proposed Solution

Goal, Objectives, and Activities

State your project goal. A goal statement should articulate desired outcomes (the vision for desired future conditions) and the watershed benefit.

Overall Goal: To achieve proper ecological form and function of the small streams and its meadows, and thereby restore habitat for the imperiled Snake River Basin Spring/Summer Chinook and Snake River Basin Steelhead.
Subgoal 1: Physical - Restore Hydrologic Function
Increase hydration of laterally confined channel to improve groundwater retention. Use Large Woody Debris (LWD) to restore stream grade, reduce hydraulic efficiencies, and increase floodplain meadow inundation time. LWD structures will be placed in locations to increase roughness and back up water.

Subgoal 2: Biological - Improve Fish Habitat
Restore channel habitat complexity. Structures will enhance pools, cover and floodplain connection. The structures will increase hydraulic complexity and zero velocity refugia on active channel margins. LWD structure types designed to meet fish habitat goals include: channel spanning structures to back water into pool habitat and small wood and whole tree placements.

List specific and measurable objectives. Objectives support and refine the goal by breaking it down into steps for achieving the goal. (NOTE: If you quantify your objectives, ensure all numbers match the metrics listed in your selected habitat types.) Provide up to 7 objectives.

Objective #1

Objective

Hypothesis 1: If channel spanning wood structures using trees and racking material are constructed in strategic locations to slow down and back up stream flows then:
- 2 years post implementation: 25% more of the floodplain will be inundated in the late summer season (June-July) than in 2018-19.
- Water storage will be quantified in terms of acres of inundated floodplain using drone technology.
Strategy and Objectives 1: Mimic beaver dam function @ pool tail crests and in areas where accessible side channel habitats exist by constructing channel spanning wood structures to:
- Deflect water into the floodplain for groundwater storage (hyporheic activity) and off channel fish habitat.
- Back water into existing fish habitat structures.
- Recruit fluvially sorted wood.
- Promote gravel deposition and spawning gravel recruitment.
- Recruit deciduous vegetation by increasing groundwater storage.
- Improve habitat for future use by beaver populations.
- Decrease conifer encroachment in meadow habitats.

No hypothesis will be tested for objective 2.
Strategy and Objectives 2: Place whole trees and small wood to:
- increase habitat complexity .
- fish cover.

Describe the project activities. Activities explain how the objective will be implemented.

All of the wood for these streams would be obtained within 200 feet on each side of the streams. All of the wood and racking materialwould be felled (no trees pushed over) and brought to the stream with the use of two mini excavators with rotating clams. Trees that could provide future recruitment of wood will not be felled for

instream wood placement unless the stand is dense and would benefit from thinning. Small debris jams will be placed in the creek and will average 30 - 40 debris jams per mile. Each debris jam will consist of 5 logs (9” – 12” in diameter and 20’ long) with branches intact and racking material (consist of tree tops, branches and small trees less than 8” in diameter). An additional 50 whole trees (10” – 12” in diameter) with small wood will be spaced in between sites per mile. An average of 250 trees (9” – 12” in diameter) will be placed per mile. It is estimated that each log jam will consist of one ten yard load of racking material. It is estimated that another 10: ten yard loads of racking material will be associated with the whole tree placements.

There will be 5.25 miles of stream treated (North Fork and South Fork Limber Jim Creeks, Dry Creek and the Sheep Creek Trib), which will consist of approximately 200 log jams (1000 large wood pieces), 250: ten yard loads of racking material, and 250 whole trees. In addition, 400 pieces of floodplain wood will occur within the project area. All disturbed areas will be seeded with a native seed mix.

List the major project activities and time schedule for each, including post project implementation.

Element	Description	Start Date	End Date
Wood placement in small streams	Two mini excavators will work in conjunction with USFS employees to place wood in small streams.	9/2019	11/2019

Element	Q3 2019	Q4 2019
Wood placement in small streams		

Habitat Types

In which habitat type(s) are you proposing to work?

✓*Instream Habitat: below the ordinary high water mark (includes in-channel habitat restoration, bank stabilization, flow, fish screening, and fish passage) -- Details will follow.*

✓*Riparian Habitat: above the ordinary high-water mark of the stream and within the stream's floodplain. -- Details will follow.*

❑*Upland Habitat: above the floodplain and improves native habitat and watershed function.*

❑*Wetland Habitat: land or areas covered, often intermittently, with shallow water or have soil saturated with moisture.*

❑*Estuarine Habitat: tidally influenced areas.*

Instream Habitat

Select all applicable Instream categories.

❑**Bank stabilization**

❑**Fish passage improvement**

❑**Fish screening project**

❑**Instream Flow**

✓**Instream habitat restoration**

Select all the actions you propose to implement to address the problem.

✓*Placement of materials in channel*

Does the proposed project follow:

✓*ODFW Guidelines*

✓*NOAA Guidelines*

❑*Other*

What types of instream habitat materials are you proposing to install? (select all that apply)

✓*Large wood*

Number of structures.

250

Average number of logs per structure.

5

Average length of logs per structure (feet)

20

Average diameter of logs per structure (feet)

10

❑*Boulders*
❑*Combination log/boulder*
❑*Other materials: Materials that stabilize the streambed*

❑*Channel reconfiguration and connectivity, including alcoves and side channel reconnection*
❑*Spawning gravel placement*
❑*Beaver reintroduction*
❑*Non-native plant control*
❑*Nutrient enrichment*
❑*Animal species removal*

Is the primary purpose of the instream habitat restoration treatment(s) to address water quality limiting factors?
❍ Yes
● No

Total miles of stream to be treated with all instream habitat restoration treatments
5.25

❑**Stockpiling logs**

Riparian Habitat

Select all applicable Riparian categories.
❑**Riparian road activities**
❑**Fencing and other materials for habitat protection**
❑**Vegetation establishment or management**
❑**Livestock management**
❑**Debris and Structure Removal**

Is an objective of the riparian treatment(s) to address water quality limiting factors?
❍ Yes
● No

Total linear stream miles to be treated.
5.25

Total riparian acres to be treated.
32

Left streambank miles to be treated.
5.25

Right streambank miles to be treated.
5.25

Wrap-Up

Public Awareness

Does this proposed project include public awareness activities?

❍ Yes
● No

Design

Were design alternatives considered?

● Yes
❍ No

Describe the design alternatives that were considered and why the preferred alternative was selected.

Hand crews were considered to complete the work, however, it was determined that mini excavators will construct structures that provide increased benefits to floodplain connectivity and inundation.

Select the appropriate level of design for your project.

❍ No design is required.
❍ 10-30%: Conceptual design (evaluation of alternatives, concept-level plans, design criteria for project elements, rough cost estimates).
● 30-85%: Preliminary design (selection of the preferred alternative, draft plans, draft design report, preliminary cost estimates).
❍ 85-100%: Final design (final design report, plans, and specifications, contracting and bidding documents, monitoring plan, final cost estimate).

If work remains on the project's design, describe the work that remains to be done and when you expect to have it completed. If no design is required put "N/A"

No additional work is needed on the design for this project.

Describe the steps you will take to minimize adverse impacts to the site and adjacent lands during and after project implementation.

Ground disturbance will be minimal due to the use of mini excavators, rotating clam buckets, and obtaining trees onsite.

Project Management

List the key individuals, their roles, and qualifications relevant to project and post project implementation. At a minimum include the following: project management, project design, project implementation, and project inspection.

Role	Name	Affiliation	Qualifications	Email	Phone
Project design, implementation and inspection.	Joe Platz	United States Forest Service - Biological Technician	Joe Platz is a biological technician for the US Forest Service. Joe Platz has a Bachelor of Science degree from OSU in Fisheries Science. He has been involved in designing/implementing restoration projects since 1989.	jplatz@fs.fed.us	(541) 962-8571

Optional Monitoring

OPTIONAL: Restoration Project Monitoring

❑ *Salmonid Monitoring*
❑ *Non-salmonid biological monitoring*
✓ *Water (quantity) flow monitoring*
✓ *Water quality monitoring*
❑ *Rangeland monitoring*
✓ *Onsite*
❑ *Downstream*
❑ *Upstream*
❑ *Upslope*

Will effectiveness monitoring will be conducted for this project?

● Yes
❍ No

Please describe the monitoring activities and any additional sources of funding (amount and source) to support this effort.

Monitoring will involve the following:

(1) Drone: Drone imaging will be collected, yearly, for five years by GRMW.
(2) Structure construction: Monitoring of structures would involve photo points of before and after operations occur. Follow up photo points would occur at year 1 - 3 after project completion. This monitoring will be completed by the USFS.
(3) Noxious weeds: Noxious weeds would be monitored, yearly, for three years after project operations. This monitoring will be completed by the USFS.

Budget

Item	Unit Type	Unit Number	Unit Cost	OWEB Funds	External Cash	External In-Kind	Total Costs
Salaries, Wages and Benefits							
Biological Technician (Joe Platz)	Hours	200	$45.00	$0	$9,000	$0	$9,000
Biological Technician	Hours	200	$31.25	$0	$6,250	$0	$6,250
Category Sub-total				$0	$15,250	$0	$15,250
Contracted Services							
Two mini excavators with rotating clam buckets	Hours	430	$110.00	$0	$47,300	$0	$47,300
Category Sub-total				$0	$47,300	$0	$47,300
Travel							
USFS Vehicle	Days	40	$4.30	$0	$0	$172	$172
Truck mileage	Miles	2000	$0.55	$0	$0	$1,100	$1,100
Category Sub-total				$0	$0	$1,272	$1,272
Materials and Supplies							
Trees (FS$)	Each	1650	$100.00	$0	$0	$165,000	$165,000
Native Seed	Pounds	100	$10.00	$0	$0	$1,000	$1,000
Category Sub-total				$0	$0	$166,000	$166,000
Equipment and Software							
			$0	$0	$0	$0	$0
Category Sub-total				$0	$0	$0	$0
Other							
Indirect Costs	Each	1693	$1.00	$0	$1,693	$0	$1,693
Category Sub-total				$0	$1,693	$0	$1,693
Modified Total Direct Cost Amounts				$0	$64,243	$167,272	$231,515
Indirect Costs							
Federally Negotiated Indirect Cost Rate		0%			Indirect Cost Total: $0		
Total				$0	$64,243	$167,272	$231,515

If the budget includes unusually high costs and/or rates, provide justification for those costs and/or rates.

If the budget identifies a contingency amount for specific line item(s) within the Contracted Services and Materials and Supplies budget categories, explain the specific reasons a contingency is needed for each line item. Contingencies are line-item specific and cannot be used for other costs.

Funding and Match

Fund Sources and Amounts

Organization Type	Name	Source Note	Contribution Type	Amount	Description	Status
Federal	US Forest Service	Trees/Seed	In-Kind - Materials	$166,000	Trees/Seed	Secured
Federal	US Forest Service	Vehicle costs	Cash	$1,272	Vehicle costs	Secured
Federal	Bonneville Power Administration	Wood Placement	Cash	$64,243	Tree Placement	Pending
Fund Source Cash Total				**$65,515**	**Fund Source In-Kind Total**	**$166,000**

Match

Contribution Source-Type: Description	Amount
US Forest Service-In-Kind - Materials: Trees/Seed	$0
US Forest Service-Cash: Vehicle costs	$0
Bonneville Power Administration-Cash: Tree Placement	$0
Match Total	**$0**

Do match funding sources have any restrictions on how funds are used, timelines or other limitations that would impact the portion of the project proposed for OWEB funding?

❍ Yes
● No

Do you need state OWEB dollars (not Federal) to match the requirements of any other federal funding you will be using to complete this project?

❍ Yes
● No

Does the non-OWEB funding include NOAA/PCSRF funds?

❍ Yes
● No

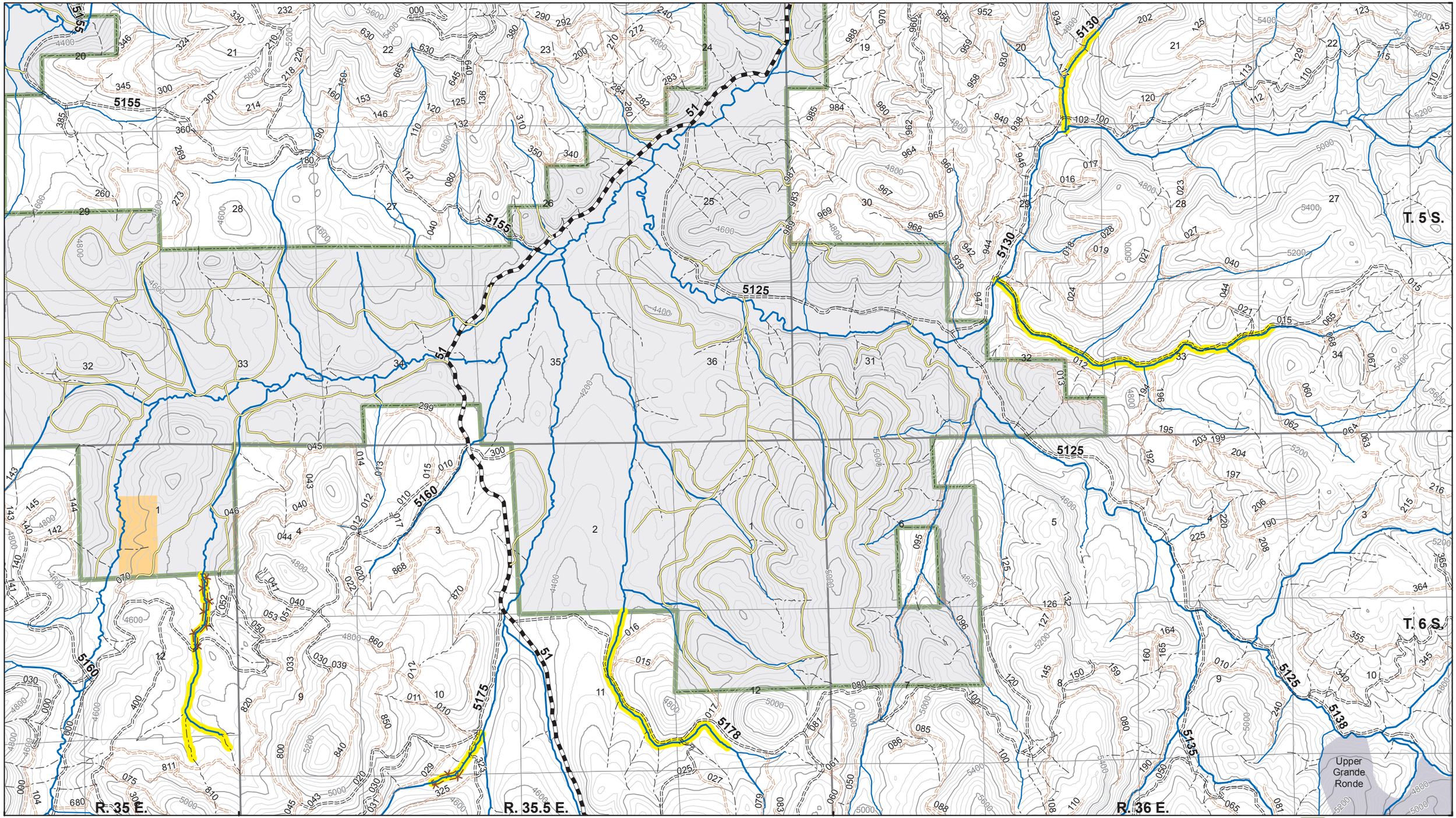
Uploads

Bids: HeadwaterInitiative_SmStream_072018.pdf **- Project Map**

Bids: Headwaters power point.pdf **- Power point**

Permit Page

Project Activity Requiring a Permit or License	Name of Permit or License	Entity Issuing Permit or License	Status
Instream Wood Placement	Regional General Permit (RGP-4)	Army Corps of Engineers	Will be a programmatic permit - March 2019
Instream wood placement	General Permit (GP)	Department of State Lands	Will be a programmatic permit- March 2019.
Entire Project	NEPA - signed Decision Memo	USFS	Will be completed by June of 2019.
Entire Project	ESA concurrence (ARBOII)	UFFWS & NOAA	Will be programmatic (March 2019)



Date: 7/24/2018

Headwaters Initiative
Small Stream Restoration

1:36,000

0 0.25 0.5 1 1.5 Miles

40 Foot Contour Interval

Restoration Proposal
- In Stream Wood Placement/Planting
- Proposed Exclosure Fence

Streams by Class
- 1
- 3
- 4

Existing Roads; OPML
- 1 - BASIC CUSTODIAL CARE (CLOSED)
- 2 - HIGH CLEARANCE VEHICLES
- 5 - HIGH DEGREE OF USER COMFORT
- Other Non USFS Roads

- Ranger District
- Roadless
- Bureau of Land Management
- Private Land
- U.S. Forest Service
- Undetermined

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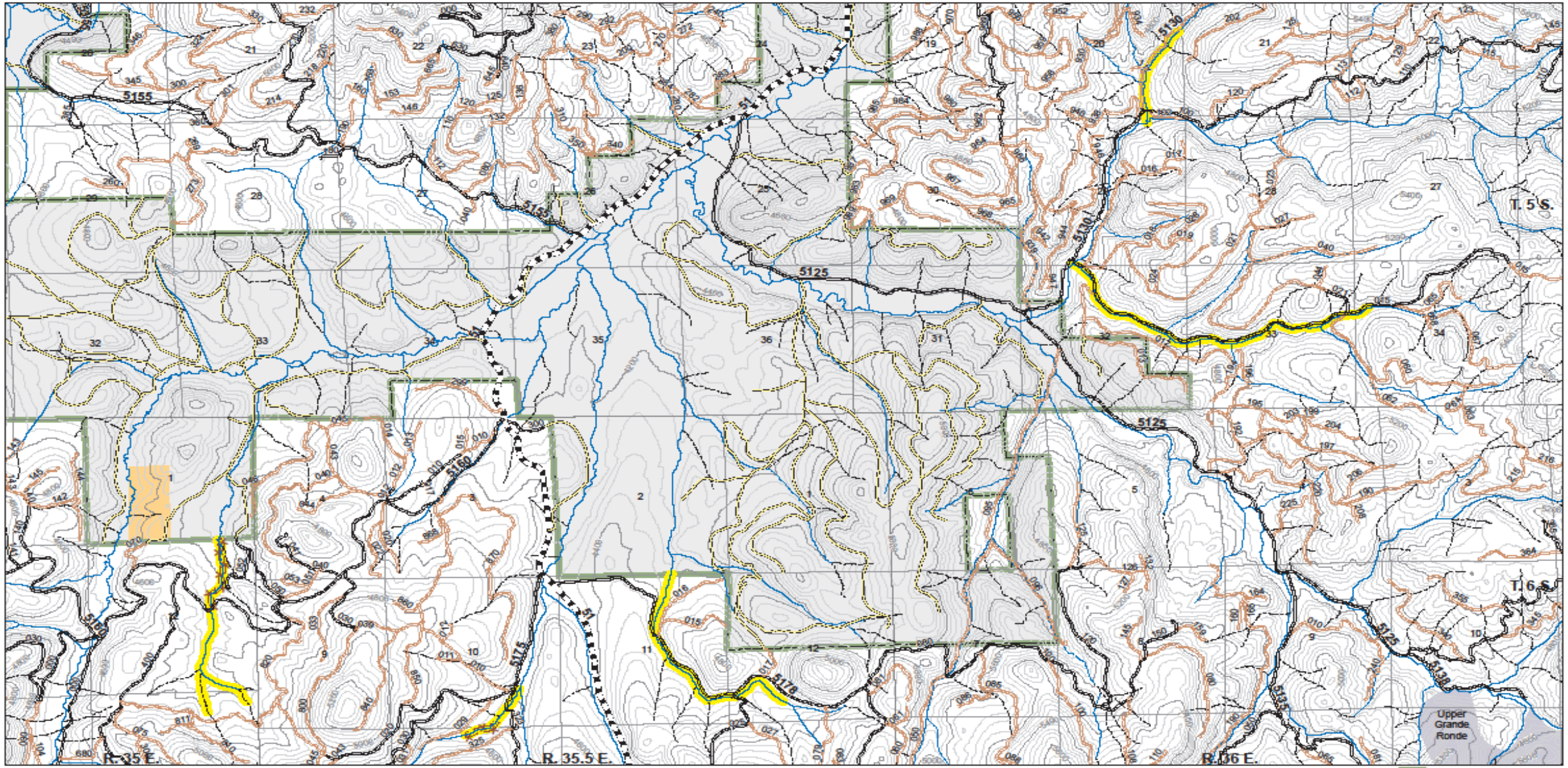
Headwaters Small Stream Restoration



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PROJECT OBJECTIVES

- Activate side channel scrolls
- Increase floodplain engagement
- Increase deciduous riparian vegetation
- Raise water tables

EXISTING CONDITION: (Dry Creek, S Fk Limber Jim, N Fk Limber Jim, N Fk West Chicken, Sheep Creek Trib.)

Impacted through:

(1) Roading
(2) Timber harvest
(3) Livestock grazing

* The North Fork West Chicken Creek and Sheep Creek tributary are still grazed.

Past restoration included:

- Culvert was removed on South Fork Limber Jim in 2017
- Culvert replaced on North Fork Limber Jim in 2017.
- Road has been closed on Sheep Creek Tributary.
- A portion of North Fork West Chicken is excluded to livestock.
- South Fork, North Fork Limber Jim, and Dry Creeks are excluded from livestock.

Proposed project

- Project involves 6.7 miles of headwater streams within Tier 1 and 2 watersheds.
- Streams include: Dry Creek (1.6 miles), S Fk Limber Jim (2.2 miles), N Fk Limber Jim (.7 mile), Sheep Creek Trib. (1.7 miles).
- ~ 30 – 40 channel spanning debris jams per mile (similar to Chicken and Limber Jim but smaller wood).
- All trees will be felled and will involve 5 logs (9” – 12” dbh) and racking material.
- Whole trees will be placed in between sites.
- All wood and racking material will be taken from on site in dense stands adjacent to the stream (will leave trees that will provide future woody debris).
- And average of 250 trees (9” – 12” dbh) will be placed per mile.
- Mini excavators will be used to construct the structures.

Sheep Creek Trib. Livestock Use

Monitoring/Budget

Proposed Monitoring

- Drone flights (pre and post)
- Planting survival
- Structure photo points

Cost Estimate

- BPA: $95,000

QUESTIONS