

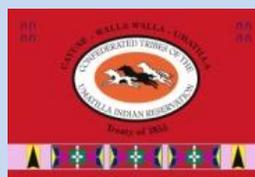
# La Grande Ranger District Aquatics Program 2009-2010 Accomplishment Report



The **Grande Ronde River of Northeast Oregon** traverses forest and grazing lands, eventually draining into the Snake River. The river provides habitat for Snake River spring/ summer chinook, steelhead, and bull trout; all of which are listed as threatened under the Endangered Species Act (ESA) and for redband trout which is listed as a sensitive species. Past land-use activities, such as mining and timber harvest have resulted in a simplified habitat with little habitat complexity for aquatic species, in particular the endangered and sensitive fish species.

The **Aquatics Program at the La Grande Ranger District** is aggressively pursuing the enhancement and restoration of the streams within the Upper Grande Ronde Sub-Basin. A diversity of projects were implemented in 2009 and 2010. Project included: mine tailing removal, floodplain restoration, large wood additions, fencing, road re-contour, erosion control, fish passage, culvert removal, and riparian planting.

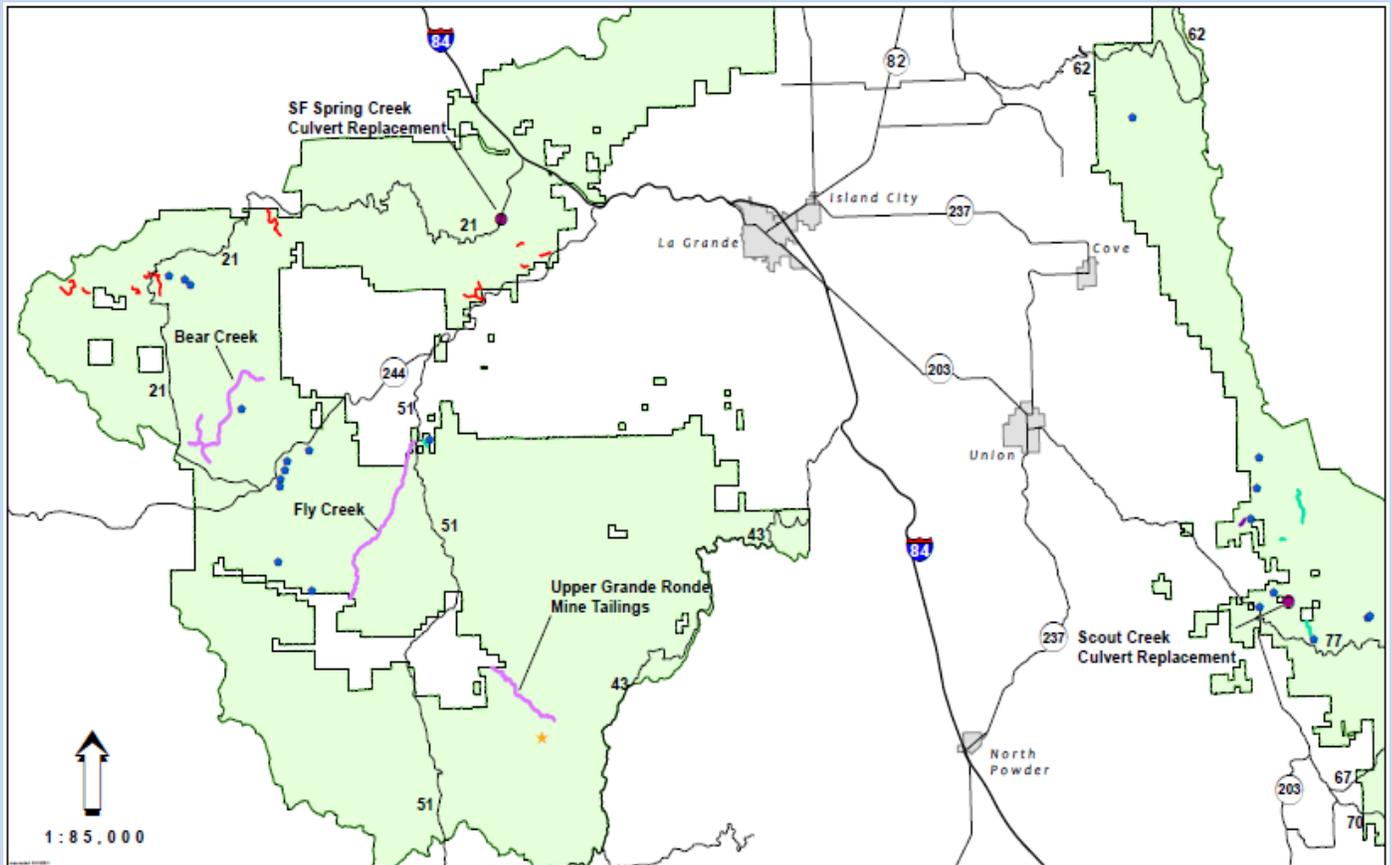
The complex nature of stream restoration and enhancement required collaborative funding and partnership between the **U.S. Forest Service (USFS)**, the **Confederated Tribes of the Umatilla Indian Reserve (CTUIR)**, **Grande Ronde Model Watershed (GRMW)**, the **Bonneville Power Administration (BPA)**, and the **National Wild Turkey Federation**.



# Project Summary

1. Upper Grande Ronde River Mine Tailings Restoration
2. Fly Creek Restoration
3. Bear Creek Restoration
4. Camp Carson Restoration
5. Scout Creek Culvert Replacement
6. Spring Creek Culvert Replacement
7. Riparian Fencing and Water Development
8. Large Woody Material Placement in Headwater Streams
9. Watershed Related Road Obliteration

# Project Locations



## UPPER GRANDE RONDE RIVER MINE TAILINGS RESTORATION PROJECT

The Upper Grande Ronde River Mine Tailings Restoration Project was the most extensive project of the period. The influential impact on this section of river was the historic gold mining activities associated with Camp Carson Mining District. The mine tailings left behind from the gold dredge operation covered the Upper Grande Ronde River floodplain for 2.5 miles. As a result, aquatic habitat exhibited poor riparian growing conditions, hindered floodplain connection and functionality, a constrained stream channel, and reduced habitat diversity and complexity.



Dredge Mining Results (c.1939)



Mine Tailings in Floodplain

### *Restoration Objectives*

- Improve floodplain connectivity
- Improve water capture, storage, and safe release within the floodplain
- Increase quantity and quality of pools
- Increase fish cover and spawning gravel recruitment
- Improve habitat complexity, forage availability, and stream shading
- Increase the number of large and medium pieces of large woody structure in streams

### Removing Mine Tailings From Floodplain



Before



After

### Restoration Treatments

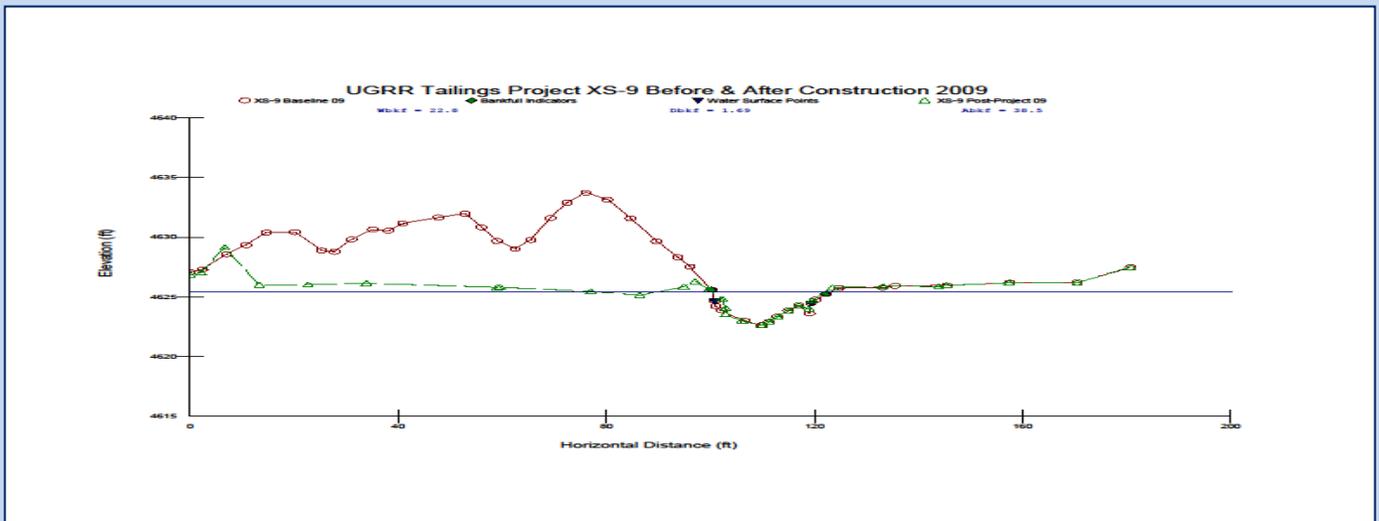
- Relocated 5,000 dump truck loads of mine tailings
- Restored 2.5 miles of floodplain
- Established 4 side channels
- Placed large wood/ boulder additions along 5 miles of river channel
- Partially removed/modified 44 old sill log structures
- Removed and re-contoured 7 stream side dispersed camping sites
- Established and defined 17 new dispersed camping sites
- Seeded and mulched 5 miles of stream bank and re-contoured slopes
- Planted 2 miles of stream bank with deciduous and conifer species
- Obliterated and re-contoured 15 miles of stream bottom road
- Closed 4 miles of OHV trails



Large Wood/Boulder Additions

Total cost: \$720,057 (funded by USFS (35% ARRA funds), BPA, and CTUIR).

Several monitoring techniques have been employed to track restoration effectiveness. These include: 1) Photo point observation, 2) Cross section analysis, 3) Longitudinal profile analysis, 4) Stream survey comparisons, 5) Plant survival surveys, 6) stream temperature and 7) noxious weed monitoring. In addition, Oregon Department of Fish and Wildlife (ODFW), CTUIR, and/or Oregon Water Resources Department conduct spring/ summer Chinook redd monitoring, early life history research, temperature and stream flow monitoring within the project area.



**Pre/Post Cross Section Comparison**

## FLY CREEK RESTORATION PROJECT

The Fly Creek Restoration Project involved the restoration of 8 miles of stream. Historic timber harvest removed the large conifers from the valley bottom greatly reducing the future recruitment of large wood. An abandoned road was used to harvest and transport trees out of the area in the 1970s. In addition, a splash dam from the early 1900s was located on Fly Creek at approximate river mile 2.0. This was likely the beginning of the removal of large conifers from the valley bottom.



Riparian Planting Enclosure



Planted Cuttings

### *Objectives*

- Improve water capture, storage, and safe release
- Increase quantity and quality of pools
- Increase fish cover and spawning gravel recruitment
- Improve habitat complexity, forage availability, and stream shading
- Increase the number of large and medium pieces of large woody structure in streams
- Decrease bankfull width to depth ratios

### *Restoration Treatments*

- Placed large wood/ boulder additions along 6 miles of stream channel
  - Wood and boulders were placed by a helicopter and excavator
  - Thirteen old sill log structures were partially removed/modified
  - Obliterated, re-contoured, and seeded 3 miles of stream bottom road
  - Planted 2.5 miles of re-contoured stream bank with deciduous and conifer species
  - Installed 500 protective enclosures for riparian seedlings
  - Removed 1 stream side recreation site
- Total cost: \$408,242 (funded by USFS (31% ARRA funds), BPA, and National Wild Turkey Federation).



Site #29 Before (July 2009)



Site #29 After (May 2010)

### Monitoring

- Crosssections: Crosssections have been established on Upper Fly Creek. They will be repeated in 2011.
- Stream Survey: Fly Creek was surveyed in 2009 (Pre project) and 2010 (Post Survey), which indicated: (1) Pools increased by 7; (2) Residual pool depth increased by .19 feet; (3) Medium and large size wood classes increased by 176 and 15 pieces, respectively; (4) The amount of wood per mile increased for both medium and large wood classes by 22 per mile and 2 per mile, respectively.



Site #29 Evidence of Pool Formation (July 2010)

- Photo points: Photo points were established prior to and after project completion on structure sites, road re-contour segments, and planting areas.
- Noxious Weeds: Noxious weeds were surveyed in 2010. There was little to no increase in the amount of area where noxious weeds were present prior to project implementation.
- Stocking surveys: Stocking surveys occurred on planted seedlings. Results after the 1<sup>st</sup> growing season consisted of: (1) Cuttings had an average survival rate of 57%. (2) Deciduous seedlings had an average survival rate of 90%. (3) Conifer seedlings had an average survival rate of 95%. The deciduous seedling survival rate after two growing seasons (in the upper mile of Fly Creek (RM 7 – 8)) had a survival rate of 73%.

## BEAR CREEK RESTORATION PROJECT

The Bear Creek Restoration Project took place on 7 stream miles within the Starkey Experimental Forest. A railroad grade, which later became a stream bottom road, restricted the channel, reduced floodplain function, and interfered with natural hydrologic conditions. Overstory timber harvest and past grazing practices also influenced habitat conditions. Restoration objectives were similar to the Upper Grande Ronde River and Fly Creek Restoration Projects.



Stream Side Road Before



Road Re-Contoured

### *Restoration Treatments*

- Placed large wood/ boulder additions along 7 miles of stream channel
  - Wood and boulders were placed by a helicopter and excavator
  - Re-contoured and seeded 3 miles of stream bottom road to promote a connected, functioning floodplain
  - Removed 5 culverts
  - Constructed .4 mile of drift fence
  - Constructed .5 mile of livestock trail out of the riparian zone
- 
- Total cost: \$346,384 (funded by USFS (32% ARRA funds) and BPA).

### **Monitoring**

The Fly Creek Restoration Project and this project have similar monitoring protocol.

## CAMP CARSON RESTORATION PROJECT



Before



After



Removing Non-Functioning Pipe System

The Camp Carson Mine involved extensive gold mining from 1867 to 1941. Intermittent mining occurred from 1941 to 1983. As a result, the mine area was left barren with top soil removed, mercury waste left behind, and erosion concerns. The Grande Ronde River (prime spring/ summer chinook habitat) is located .75 mile downstream of the mine area. Past restoration efforts occurred to address erosion concerns. These included hillslope terracing, pipe installation to reduce erosion, seeding, planting and limited large wood placement. These restoration efforts improved conditions at the site.

However, there were still areas on the hillslope that lacked conifer vegetation and erosion was still occurring.

Project activities in 2010 involved placing brush and installing water bars on the hillslope to prevent erosion and provide microsites for conifer establishment. A non-functioning pipe system was removed, wood was placed within an incising intermittent channel, and motor vehicle access was blocked by a boulder barrier. Seven acres of slope stabilization was accomplished.

- Total Cost was \$25,000 (funded by USFS (100% ARRA funds)).

## SCOUT CREEK AND SPRING CREEK CULVERTS



Scout Creek Culvert



Scout Creek Replacement Structure

The Scout Creek and Spring Creek Culverts were replaced to improve fish passage, improve the natural flow pattern, and reduce the risk of culvert failure. Both culverts replaced round culvert pipes with native streambed, concrete box culverts. The new box culverts are designed to pass 100 year flood events.

- Total cost: \$327,558 (funded by BPA and USFS (38% ARRA funds))

## RIPARIAN FENCING AND WATER DEVELOPMENT PROJECTS

The riparian fencing and water development project was implemented to exclude or reduce the time that livestock spend in riparian areas. The project involved the installation of enclosures and/ or riparian pasture fences and spring developments. Livestock grazing management in riparian areas is important to improve and maintain stream and riparian ecosystem condition.



Buck and Pole Fence



Installed Off-Channel Water Source

### *Restoration Accomplishments*

- Development of 20 off- channel water sources.
- Construction of 6 miles of enclosure and/ or riparian pasture fence

- Total cost: \$207,109 (funded by BPA and USFS)

## LARGE WOOD PLACEMENT IN HEADWATER STREAMS

Large Wood Placement in Headwater Streams involved placing wood into the stream channel and riparian area to: (1) discourage livestock use and access, (2) reduce erosion potential, (3) improve bank stability and (4) encourage growth of riparian vegetation. An excavator and/or hand placement was used to complete wood placement in 3 miles of streams.

### *Headwater Projects*

- Upper Scout Creek
- Lick Creek and a Tributary
- Last Chance Creek
- A Tributary to Little Catherine Creek



Placing Wood with Mini-Excavator

- Total cost: \$4,000 (USFS (7% ARRA funds) and BPA)

## WATERSHED RELATED ROAD OBLITERATION AND RE-CONTOURING PROJECTS

Watershed related road obliteration and re-contouring projects were typically located in the headwater reaches of the Upper Grande Ronde and Meadow Creek Watersheds. The objectives were to: Improve capture, storage and safe release of water; restore natural hydrologic processes; reduce road density, and restore natural vegetation.

### *Accomplishments*

- 8.2 miles road obliterated/ re-contoured
- 9 culverts removed
- Total Cost - \$32,884 - (funded by USFS)



Ripping Tool on Excavator



Road Obliteration

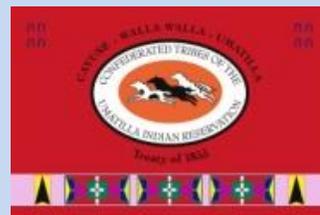
## Two Year Combined Accomplishments

- 50,000 cubic yards mine tailings removed (5000 dump trucks)
- 21 miles of woody debris placements to improve in-stream fish habitat
- Partially removed/ modified 57 old sill log structures
- 4 miles of OHV routs closed and re-contoured
- 5 miles of riparian habitat planted
- 19 miles of riparian habitat seeded
- 500 woody vegetation exclosures constructed
- 8.5 miles of floodplain restoration
- 25 dispersed recreation sites removed or re-located
- 20 off channel water sources developed for livestock
- 6 miles of riparian exclosure and/ or riparian pasture fences constructed
- 17 culverts removed or replaced to facilitate fish passage
- 7 acres of slope stabilized
- 9.7 miles of road obliterated or re-contoured



## 2009 and 2010 La Grande Ranger District Stream Restoration Funding

Total Cost	=	\$2,080,884
BPA	-	\$1,055,000
USFS	-	\$923,968 (\$648,942 were ARRA funds)
CTUIR	-	\$98,916
NWTF	-	\$3,000



# Future Projects

## 2011

1. Upper Grande Ronde Woody Debris Project
2. South Fork Catherine Creek Floodplain Restoration Project
3. Antler Spring exclosure
4. Dark Canyon and Jordan Creek Culvert Replacements
5. Dark Canyon dispersed recreation rehabilitation
6. Tributaries to Little Catherine Creek and Lick Creek woody debris projects
7. Plant 10.5 miles of seedlings on Fly Creek, Bear Creek, and UGR
8. Plant 7 acres seedlings at Camp Carson
9. Construct 900 exclosure fences on Bear Creek and UGR
10. Construct 6 ponds
11. Install 1 solar well

\*Funding for items 7 – 11 are a part of the costs associated in the above accomplishment report.

## 2012

1. Meadow Creek Large Woody Debris Project
2. Battle Creek Restoration Project
3. Little Beaver Creek Woody Debris Project
4. North Fork Catherine Creek Ford Replacement
5. Chicken Creek Culvert Replacement

## 2013

1. Sheep Creek Large Wood and Planting Project
2. Corral Creek road relocation, obliteration, etc.
3. Headwaters to North Fork Clark Creek Woody Debris Project
4. South Fork Catherine Creek Ditch Rehabilitation
5. Replace/ Remove 5 Culverts

## 2014 - 2018

1. Lower Grande Ronde large wood
2. Five Points Creek Floodplain and Large Wood Restoration Project
3. Dark Canyon barrier removal and wood placement
4. North Fork Catherine Creek Large Wood Restoration Project
5. East Fork Sheep Creek Road Reconstruction Project
6. Little Indian Creek Large Wood Restoration Project
7. Limber Jim Wood Restoration
8. Small Headwater Stream/ Meadow Restoration
9. Beaver Creek Large Wood and Recreation Rehabilitation Project
10. Warm Springs Road Relocation
11. Chicken Creek Riparian Planting
12. Syrup Creek Floodplain Restoration
13. Replace/ Remove 18 Culverts
14. Riparian Dispersed Recreation Site Rehabilitation
15. Rehabilitate Head-Cut on Little Fly
16. Five Point Creek Dam Removal Project
17. Pelican Creek Restoration Project



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