GRANDE RONDE MODEL WATERSHED PROGRAM

FY 1998 Habitat Projects

Prepared by:

Grande Ronde Model Watershed Staff

Prepared for:

U.S. Department of Energy
Bonneville Power Administration
Environment, Fish and Wildlife
PO Box 3621
Portland, Oregon 97208

Project Number: 9803800, 9803900, 9804901, 9804900, 9805400, 9803700, 9804000, 980500, 9805300

Contract Numbers: 98AI09684, 98AI09706, 98AI13277, 98AP11687, 98AP13370, 98BI09677, 98BI09711, 98BI11415, 98BI13359

August 1999

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Abstract

The Grande Ronde Model Watershed Program (GRMWP) is the primary entity coordinating habitat restoration on both private and public lands within the Grande Ronde Basin. The Grande Ronde Basin covers approximately 5,300 square miles, containing more than 2600 miles of fish bearing streams, in the Blue Mountains of northeast Oregon. Snake River spring chinook salmon, summer steelhead and bull trout, which are listed under the Endangered Species Act, are present in the basin.

The GRMWP began coordinating restoration projects in 1994. Approximately 215 projects have been implemented through the GRMWP program as of 1998. Nine of these projects were funded in part through the Bonneville Power Administration's 1998 Columbia Basin Fish and Wildlife Program. These nine projects used a variety of methods to enhance and restore watershed conditions. In-stream work to improve fish habitat included construction of hard structures (eg. vortex rock weirs), placement of large woody material and whole trees, gravel bar treatments, and improvements to off-channel rearing habitat; 55 miles of stream were treated. Fish passage was improved at three locations by replacing or removing culverts that blocked fish. Stream riparian conditions were enhanced with exclosure fencing, vegetation planting and thinning, noxious weed control, and floodplain enhancements; 10 miles of stream were directly benefitted with these riparian improvements. Four spring developments were constructed to enhance riparian and stream conditions by providing off stream livestock water sources. Nine spring developments and 1 reservoir were improved with fencing and/or piping to troughs to reduce sediment runoff and restore riparian habitat. Roads were closed or obliterated (8.5 miles) and road drainage was improved (3.4 miles) to reduce sediment delivery to streams. These nine projects cost approximately 1.3 million dollars to implement and monitor. BPA provided 41% of the funding, the remainder was cost shared by county, state, and federal agencies, private landowners, Indian tribes and natural resource interest groups.

Forward

In 1992 the Northwest Power Planning Council and the Governor's office for the state of Oregon selected the Grande Ronde River subbasin as a model watershed program in the state (Section 7.6C Columbia Basin Fish & Wildlife Program). The Grande Ronde Model Watershed Program (GRMWP) is the primary entity coordinating habitat restoration on both private and public lands.

The GRMWP represents a diverse group of participants including private landowners, Indian tribes, environmental groups, elected county officials, natural resource management agencies, and Soil and Water Conservation Districts working cooperatively across jurisdictional boundaries to implement watershed restoration activities for the benefit of salmonid fish and their habitat.

The Grande Ronde Basin covers approximately 5,300 square miles, containing over 2600 miles of fish bearing streams, in the Blue Mountains of northeast Oregon. The Basin contains Snake River spring chinook salmon, summer steelhead and bull trout which are listed under the Endangered Species Act.

The following planning documents provide the foundation for GRMWP staff to work with landowners/managers to develop site specific watershed restoration.

Stream and Riparian Conditions in the Grande Ronde Basin (Huntington 1993)
Grande Ronde Model Watershed Program Operations/Action Plan (1994)
Wallowa County-Nez Perce Tribe Salmon Recovery Plan (1993)
Grande Ronde Ecosystem Diagnosis & Treatment (Mobrand 1997)

The GRMWP has provided leadership and coordination of both public and private resources across the subbasin. The successful partnerships have lead to efficient and effective watershed restoration. Restoration funds acquired through the GRMWP have been leveraged with additional resources from landowners to restore habitat for both anadromous and resident salmonids in the subbasin.

The GRMWP began coordinating restoration projects in 1994. Approximately 215 projects (Figure 1) have been implemented through 1998. Ninety-nine of these projects were funded in part with BPA funds. The GRMWP implemented nine projects in 1998 which included BPA funding. Locations for these 9 projects are highlighted on Figure 1. This report summarizes these projects.

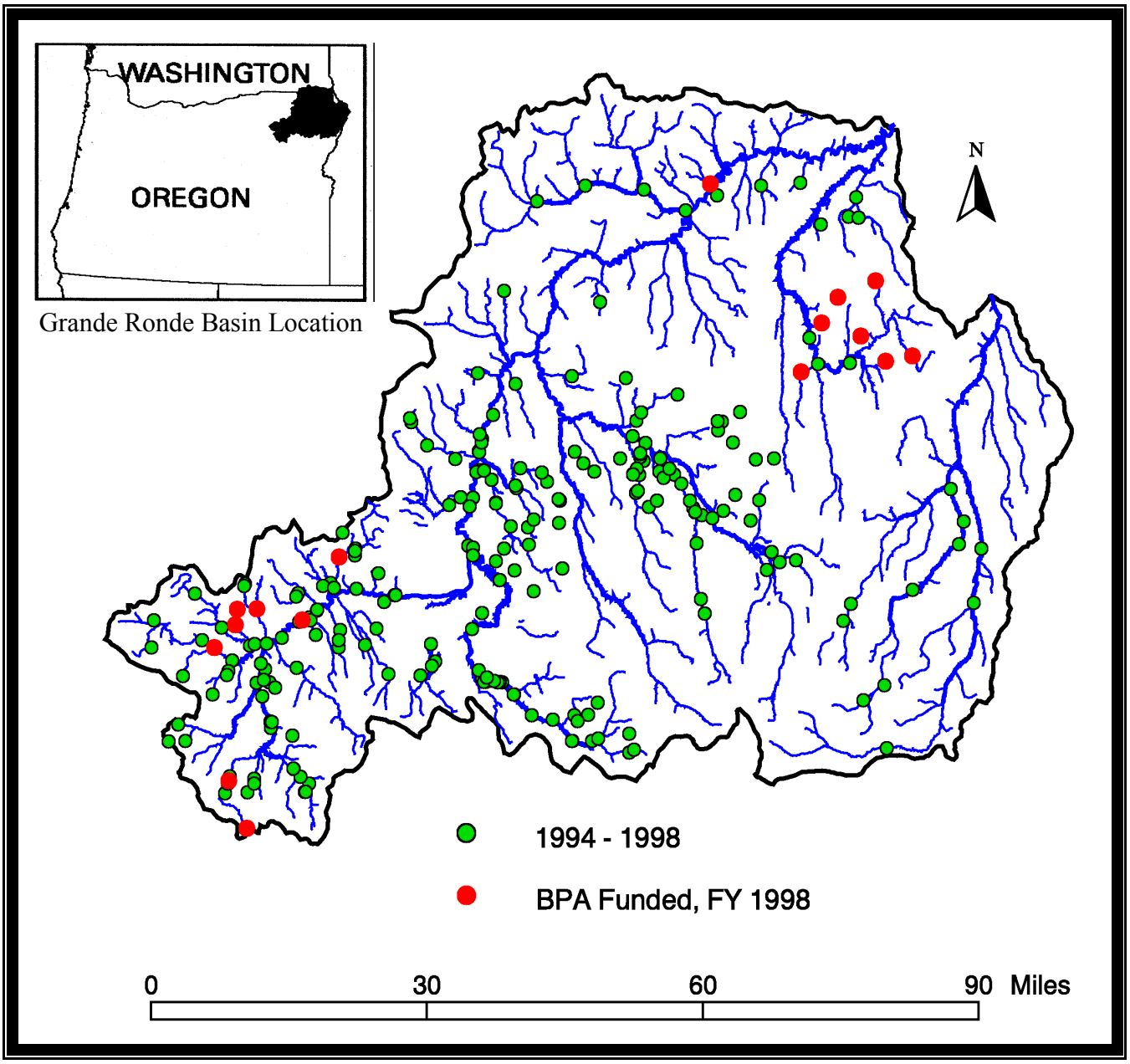
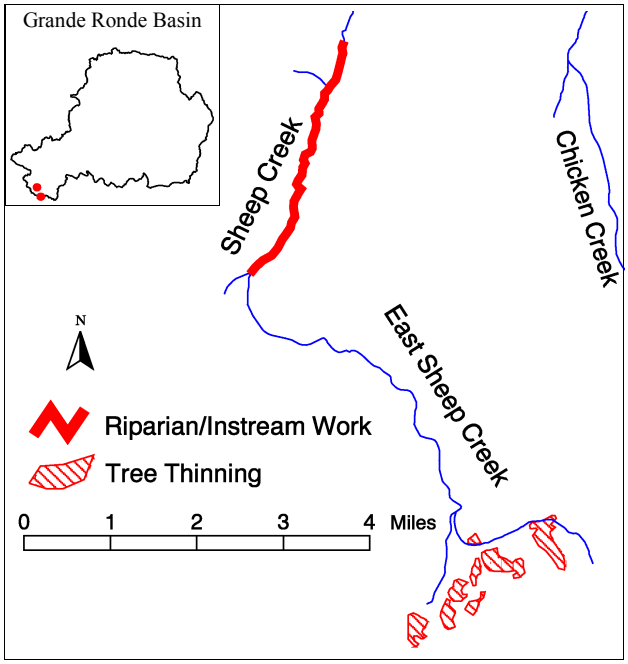


Figure 1. Location of projects funded through the GRMWP during 1994-1998. Individual projects may have multiple work sites shown on map.

1998 GRANDE RONDE MODEL WATERSHED PROJECTS
Budget Summary

BPA Contract #	BPA Project #	Project Name	Total Cost	BPA Funding	Cost Share
98AI09684	9803800	Sheep Creek Watershed Restoration Project	$51,192	$22,566	$28,626
98AI09706	9803900	Five Points Creek Whole Tree Additions	$82,362	$50,000	$32,362
98AI13277	9804901	McIntyre Creek Road Relocation - Phase II	$20,404	$7,500	$12,904
98AP11687	9804900	McIntyre Creek Road Relocation - Phase I	$490,316	$188,000	$302,316
98AP13370	9805400	Joseph Creek Watershed Improvement Project	$73,320	$47,565	$25,755
98BI09677	9803700	Grande Ronde Mainstem Fish Habitat Enhancement Project - Phase I	$218,904	$88,950	$129,954
98BI09711	9804000	Dark Canyon Creek Watershed Restoration Project	$169,945	$55,496	$114,449
98BI11415	9805000	Grouse Creek Culvert Replacement	$144,800	$53,450	$91,350
98BI13359	9805300	Meadow Creek/Cunha Ranches Riparian Restoration	$81,916	$37,296	$44,620
			$1,333,159	$550,823	$782,336

PROJECT: Sheep Creek Watershed Restoration Project
Project 1371 (BPA # 98AI09684 - 98038)



Areas treated with Sheep Creek Watershed Restoration Project.

Sheep Creek, post-project showing addition of large woody material. Photo from USFS.

GRANTEE: USDA Forest Service, La Grande Ranger District

BACKGROUND: The Sheep Creek Watershed Restoration Project is located in the Upper Grande Ronde River subbasin in Union County, Oregon. Sheep Creek is historically known for spring/summer chinook, and summer steelhead populations. Due to past management actions, native shrubs and grasses in isolated locations have been eliminated and need to be restored. Streambank instability and sediment loads are directly related to the loss of soil binding masses. Stream temperatures have also been affected through the loss of stream shade. Riparian and upland forest stands bordering a variety of stream channels, primarily ephemeral and intermittent channels, are overstocked with conifers. This will ultimately reduce the number and size of large wood recruits to the stream channel. Past projects have succeeded in protecting the entire reach of Sheep Creek, in the Sheep Ranch Grazing Allotment, from the impacts of domestic livestock grazing. Livestock water is available at water gaps in the riparian enclosure fence, permitting livestock direct access to the waters of Sheep Creek.

OBJECTIVES: The Sheep Creek Watershed Restoration Project is intended to improve spring/summer chinook salmon and summer steelhead habitat by meeting the following objectives:

1. Reduce sediment loads and movement.
2. Increase bank stability and improve interaction between the channel and floodplain through the exclosure of riparian areas, stopping domestic livestock access.
3. Accelerate the recovery of native riparian vegetation through seeding and planting.
4. Enhance the growth and vigor of riparian and upslope tree stands to provide shade and future sources of large woody debris.

PROJECT DESCRIPTION: The project will improve 3.6 miles of stream with the following treatments:

1. Closure of water gaps along an existing riparian fence and development of existing perennial springs to supply alternative water sources, through stock troughs.
2. Placement of woody debris in 2.6 miles of stream.
3. Riparian plantings along 0.4 miles of stream.
4. Thinning of 222 acres of overstocked conifer stands bordering 1 mile of stream.

PROJECT MONITORING: The monitoring plan includes:

1. Permanent photographic sites.
2. Monitoring forest stands at 1, 3, 5 and 10 years, following treatment, using a standard Type 10 stand exam to determine the increases in growth rates and crown density.
3. Two permanent channel transects to detect changes in channel morphology.
4. A project completion report to the Grande Ronde Model Watershed Program (GRMWP). Annual project status/monitoring reports to the GRMWP for 5 years following project completion.

START DATE: July 1998
COMPLETION DATE: Project is Active

TOTAL COST: $51,192
BPA COST: $22,566
COST SHARE: $28,626

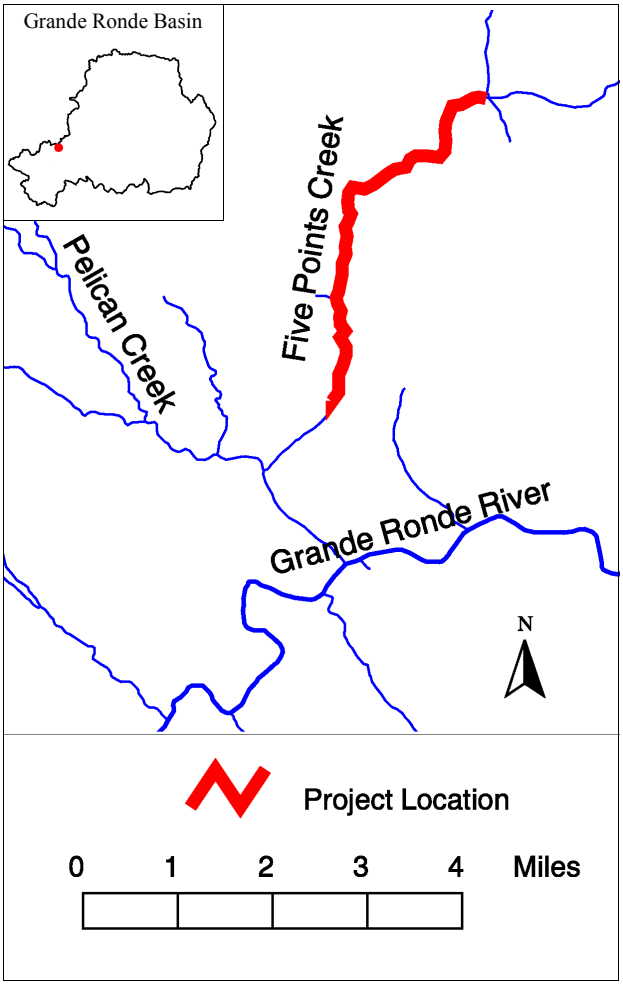
CONTACTS:

Paul Boehne
La Grande Ranger District
3502 Hwy 30
La Grande, OR 97850
(541) 962-8521

Grande Ronde Model Watershed Program
10901 Island Ave.
La Grande, OR 97850
(541) 962-6590

COLLABORATORS: Grande Ronde Model Watershed Program
Bonneville Power Administration
U.S. Forest Service
Trout Unlimited
Grazing Permittee

PROJECT: Five Points Creek Whole Tree Additions
Project 1370 (BPA # 98AI09706 - 98039)



Location of Five Points Creek Whole Tree Additions Project.

Helicopter transporting whole tree for placement in stream.

GRANTEE: USDA Forest Service, La Grande Ranger District

BACKGROUND: This project is located on Five Points Creek within the Upper Grande Ronde River subbasin in Union County, Oregon. The project reach begins 0.5 miles upstream from the Wallowa-Whitman Forest boundary and continues upstream for approximately 4.5 miles to Camp One near the confluence of Five Points Creek and Little John Day Creek.

Salmonid habitat in Five Points Creek has been degraded by past management activities such as riparian area timber removal, channelization, and livestock overgrazing. Current conditions of the system include an over widened channel, reduced sinuosity, lack of structure, and lack of wintering habitat for anadromous and resident fish populations. Timber was removed from the riparian areas in Five Points Creek and tributaries during early railroad logging and more recently as a result of conventional logging and road construction. Large woody debris for future recruitment to the riparian area and stream channel has been reduced. In addition, stream cleaning activities during the 1960's and 70's removed large woody debris from the system.

This project is also associated with the Camp One Restoration Project which took place in 1997. The Camp One Restoration Project consisted of road closures, mitigation measures for off-road vehicle use, and riparian fencing and planting along tributaries of Five Points Creek.

OBJECTIVES: The whole tree additions are intended to improve summer steelhead habitat, spring/summer chinook salmon habitat, and channel characteristics by meeting the following objectives:

1. Enhance bank building processes by improving bank stability and increasing sediment storage capacity of the stream channel and floodplain.
2. Improve interaction between the channel and floodplain.
3. Mimic the natural action of a river to recruit large trees from the riparian area by using whole trees with attached root wads and crowns.
4. Improve water quality and fish habitat in Five Points Creek and the Grande Ronde River by reducing sediment input and transport.

PROJECT DESCRIPTION: This project will increase fish habitat diversity, improve effective hiding cover and increase pool frequencies in 4.5 miles of Five Points Creek by the following:

1. Addition of approximately 50 whole conifer trees with intact limbs and root wads into 4.5 miles of stream channel and floodplain. Due to the location and weight of the trees, poor access, and soils effects, trees will be transported with a helicopter. To minimize potential movement all trees will be secured and stabilized with cable.

PROJECT MONITORING: The project monitoring plan includes:

1. Permanent photo points and numerical tree tags to monitor the effectiveness of the project. Should any logs become dislodged or move into positions that compromise the objectives of the project, they will be adjusted and reattached to boulders or other logs to minimize further movement.
2. Two permanent channel transects to determine changes in channel morphology.
3. A Level II Hankin and Reeves survey will be conducted prior to and after completion of the project.
4. Long term water quality monitoring and stream discharge will continue to be monitored below the project reach.
5. A project completion report to the Grande Ronde Model Watershed Program (GRMWP). Annual project status/monitoring reports to the GRMWP for 5 years following project completion.

START DATE: September 1998
COMPLETION DATE: September 1998

TOTAL COST: $82,362
BPA COST: $50,000
COST SHARE: $32,362

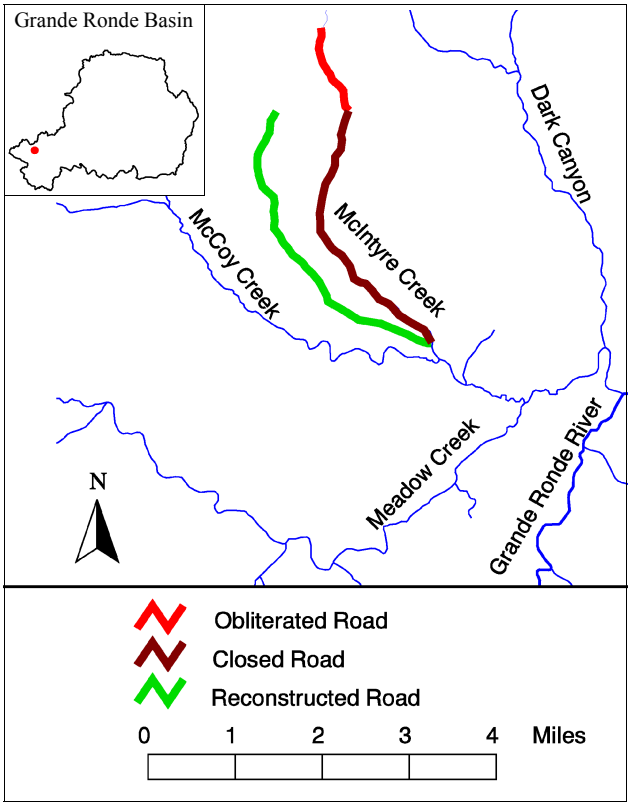
CONTACTS:

Paul Boehne
La Grande Ranger District
3502 Hwy 30
La Grande, OR 97850
(541) 962-8521

Grande Ronde Model Watershed Program
10901 Island Ave.
La Grande, OR 97850
(541) 962-6590

COLLABORATORS: Grande Ronde Model Watershed Program
Bonneville Power Administration
U.S. Forest Service
National Fish & Wildlife Foundation

PROJECT: McIntyre Creek Road Relocation Phase I & II
Projects 1393 & 1407 (BPA # 98AP11687 - 98049 & 98AI13277 - 98049-01)



Location of McIntyre Creek Road Relocation Phase I & II.

McIntyre Creek Road, pre-project. Photo from USFS.

GRANTEE: USDA Forest Service, La Grande Ranger District
Union County Public Works Department

BACKGROUND: This project is located in the McIntyre Creek subwatershed in Union County, Oregon. McIntyre Creek is a tributary of McCoy Creek within the Meadow Creek watershed of the Upper Grande Ronde River subbasin. Summer steelhead inhabit McIntyre Creek and the downstream tributary, McCoy Creek. Summer steelhead utilize McIntyre Creek for spawning and some early season rearing. McIntyre Creek goes dry from mid July to November. Approximately 7.5 miles of McIntyre Creek is useable by summer steelhead.

These two McIntyre Creek Road Relocation projects are part of a 4 phase plan to improve water quality and instream and riparian habitat within the Meadow Creek watershed. Phases I and II address the road work portion of this project. Phase III will complete the remaining planned road work and Phase IV will improve instream and riparian habitat.

The McIntyre Creek Road is located in the floodplain and directly adjacent to McIntyre Creek for approximately 6.7 miles. The original road was constructed in the 1950's and then rocked in the late 1970's to facilitate timber hauling. The road constricts the channel and floodplain of McIntyre Creek resulting in high bedload, poor fish habitat, and poor water quality. Additionally a native surface county road on the

ridge to the west is heavily used and contributes large quantities of sediment to the creek.

OBJECTIVES: Phases I and II of the McIntyre Creek Road Relocation project is intended to improve summer steelhead habitat, channel morphology, riparian vegetation and water quality of McIntyre Creek by meeting the following objectives:

1. Reduce sediment loads in McIntyre Creek by obliterating, closing, and improving roads.
2. Restore floodplain and stream channel interaction through road obliteration and relocation.

PROJECT DESCRIPTION: This project will improve 4.5 miles of McIntyre Creek by implementing the following measures:

1. Close 4.5 miles of draw-bottom road. One mile of this road will be obliterated in Phase II of this project (see item 2 below).
2. Obliterate 1 mile of drawbottom road on Forest Service land. Replace 2 culverts with rocked fords, seed disturbed ground.
3. Reconstruct 3.5 miles of existing county road to improve drainage and reduce sediment delivery to McIntyre Creek.

PROJECT MONITORING: Project effectiveness will be monitored with:

1. A Level II Hankin and Reeves survey prior to and immediately after project completion, and every five years thereafter.
2. Ten permanent photo points
3. Twelve permanent channel transects to determine changes in channel morphology.
4. A project completion report to the Grande Ronde Model Watershed Program (GRMWP). Annual project status/monitoring reports to the GRMWP for 5 years following project completion.

START DATE: June 1998
COMPLETION DATE: Project is active

TOTAL COST: $510,720
BPA COST: $195,500
COST SHARE: $315,220

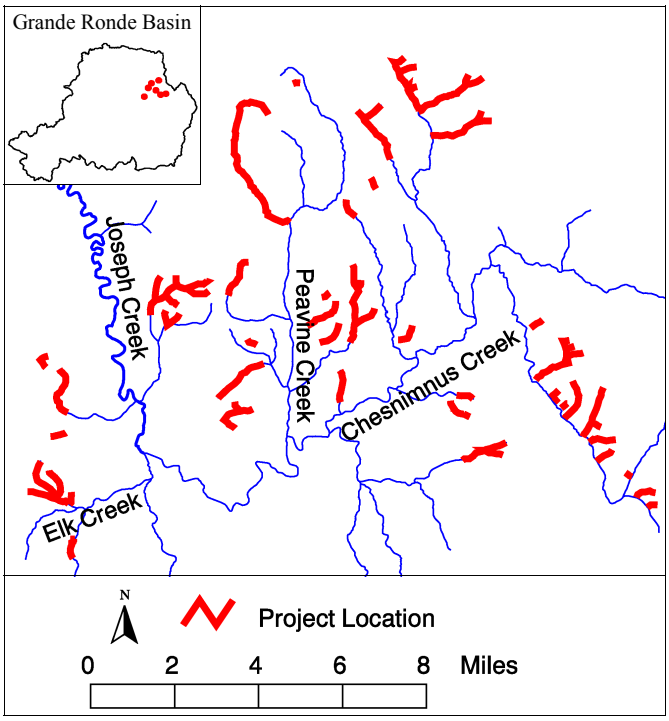
CONTACTS:

Larry Monical
La Grande Ranger District
3502 Hwy 30
La Grande, OR 97850
(541) 962-8521

Grande Ronde Model Watershed Program
10901 Island Ave.
La Grande, OR 97850
(541) 962-6590

COLLABORATORS: Grande Ronde Model Watershed Program
Bonneville Power Administration
U.S. Forest Service
Union County Public Works Department
Oregon Dept. of Environmental Quality
Confederated Tribes of the Umatilla Indian Reservation

PROJECT: Joseph Creek Watershed Improvement Project
Project 1412 (BPA # 98AP13370 - 98054)



Location of Joseph Creek Watershed Improvement Project.

Pre-project, stream lacking large woody material and structure. Photo from USFS.

GRANTEE: USDA Forest Service, Wallowa Valley Ranger District

BACKGROUND: This project is located in the Joseph Creek watershed of the Lower Grande Ronde River subbasin in Wallowa County, Oregon. The watershed currently does not support spring chinook salmon and it is uncertain if it supported salmon populations in the past. Joseph Creek is estimated to support 6-8 percent of the current steelhead capacity in the Grande Ronde Basin. The *GRMWP Operations Action Plan, (May 1994),* the *Stream and Riparian Conditions in the Grande Ronde Basin, p 56, (Huntington 1993)*, and the *Wallowa County-Nez Perce Tribe Salmon Recovery Plan, (August 1993)* indicate high water temperatures, degraded riparian vegetation, streambank erosion, low summer flows and low pool abundance are limiting distribution and abundance of salmonids within the Joseph Creek drainage.

OBJECTIVES: The overall objective of the project is to improve the water quality within perennial fish-bearing streams by inputting large woody material (LWM) and constructing livestock exclosure fencing on headwater and mainstem stream systems. Specific project objectives are:

1. Improve streambank stability (fencing)
2. Increase riparian vegetation (fencing)
3. Improve the capture, storage and safe release of water within the watershed (LWM)
4. Increased pool development (LWM)
5. Increased trapping of sediment (LWM)

PROJECT DESCRIPTION: This project will:

1. Construct 4 miles of livestock exclosure fence to protect 8 springs, 1 reservoir with associated springs, and 1 mile of stream (West Fork Peavine Creek and headwaters of Devils Run Creek.)
2. Install water troughs at 6 of the fenced springs and relocate 1 trough.
3. Place large woody material in 40 miles of ephemeral, intermittent, perennial non-fish bearing and fish bearing streams.

PROJECT MONITORING: Project effectiveness monitoring will include:

1. Permanent photo point sites.
2. A project completion report to the Grande Ronde Model Watershed Program (GRMWP). Annual project status/monitoring reports to the GRMWP for 5 years following project completion.

START DATE: April 1999
COMPLETION DATE: Project is Active

TOTAL COST: $73,320
BPA COST: $47,565
COST SHARE: $25,755

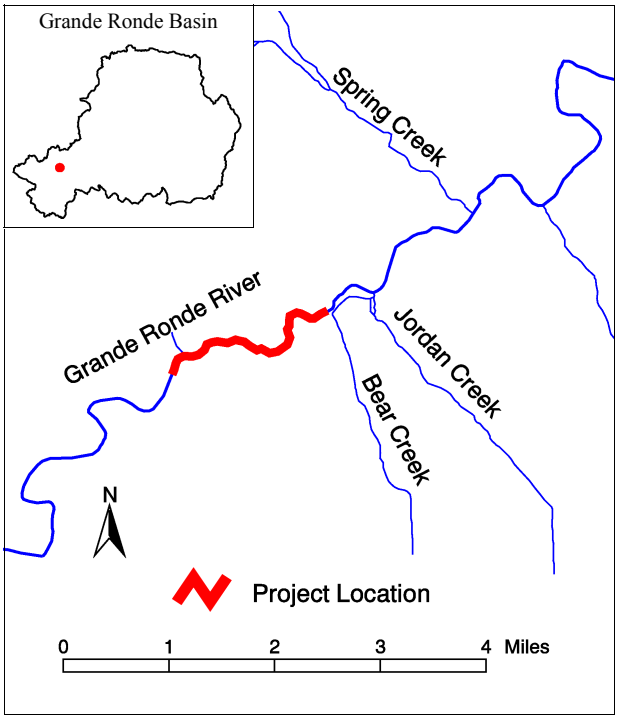
CONTACTS:

Joe Platz
Wallowa Valley Ranger District
88401 Hwy 82
Enterprise, OR 97828
(541) 426-4978

Grande Ronde Model Watershed Program
10901 Island Ave.
La Grande, OR 97850
(541) 962-6590

COLLABORATORS: Grande Ronde Model Watershed Program
Bonneville Power Administration
U.S. Forest Service
Grazing Permittee

PROJECT: Grande Ronde Mainstem Fish Habitat Enhancement Project-Phase I
Project 1375 (BPA # 98BI09677 - 98037)



Location of Grande Ronde Mainstem Fish Habitat Enhancement Project - Phase I.

Post-project: Vortex rock weir with 2 root wads.

GRANTEE: USDA Forest Service, La Grande Ranger District

BACKGROUND: This project is located on a low gradient reach of the upper Grande Ronde River along outlet fans of Bear and Jordan Creek in Union County, Oregon. The project encompasses both U.S. Forest Service and privately owned lands. Low gradient reaches in this area of the Grande Ronde mainstem are limited and provide key holding and rearing habitat for spring chinook salmon and steelhead. The stream reach is functioning below normal due to past activities such as logging and grazing practices, stream channelization, and railroad and road construction. The *GRMWP Operations Action Plan, (May 1994)*, the *Stream and Riparian Conditions in the Grande Ronde Basin, p 38, (Huntington 1993)*, and the *Application of the Ecosystem Diagnosis and Treatment Method to the Grande Ronde Model Watershed Project, (Mobrand 1997)* identified the following limiting conditions for salmon production on this reach of the Grande Ronde River: substandard riparian conditions, high summer water temperatures, loss in habitat diversity, channel and bank de-stabilization and low summer flows. An aggressive approach to habitat improvement was proposed for this project due to the critically low numbers of spring chinook in the Grande Ronde mainstem drainage and the potential value of the habitat in the reach.

OBJECTIVES: The project objectives are to increase and enhance juvenile spring chinook salmon winter rearing habitat, juvenile steelhead year-round rearing habitat and adult chinook and steelhead holding habitat, by meeting the following specific objectives:

1. Increase pool frequency and riparian large woody debris.
2. Deepen and add woody debris to off-channel rearing habitat.

3. Increase streambank stability.
4. Promote river narrowing by improving stream width to depth ratios.
5. Enhance natural river sinuosity where practical.
6. Reestablish the natural connection of the river to the floodplain.
7. Eliminate erosive concentration of overland and out-of-bank flows along historical logging railroad grade.
8. Protect and reestablish riparian and floodplain vegetation.
9. Reduce human caused riparian and floodplain degradation and vandalism.

PROJECT DESCRIPTION: This phase of the project will enhance 2 miles of the Grande Ronde River. Instream measures include the following:

1. Place 40 whole tree root wads into 1.5 miles of stream.
2. Add large woody material to 5 established rock weirs and 5 new vortex rock weirs.
3. Construct 5 vortex rock weirs, 10 rock veins, and 3 rock barbs.
4. Treat 2 gravel bars and 2 critical bank areas, improve 2 off-channel rearing areas and 1 major sinuosity site.
5. Plant over 4,900 feet of hardwood cuttings, shrubs and trees.

Off-stream actions include:

1. Construct riparian exclosure fence to protect 1.2 miles of stream.
2. Construct riparian pasture fence to benefit 237 acres and 1.2 miles of stream.
3. Reconnect the river to the floodplain at a major overflow site through the removal of a portion of a dike, filling a critical scour eroding section, placing a rock apron and rebuilding a short section of railroad grade.
4. Reconnect pre-existing channels and swales along railroad grade to reestablish natural overland and channel flow patterns.
5. Construct off-stream livestock/wildlife water developments, including 1 spring development or well, 1 mile of pipeline and 4 troughs.
6. Block roads and implement other measures to eliminate recreational vehicle access and camping in the riparian area along the river.

PROJECT MONITORING: Monitoring will be done cooperatively by U.S. Forest Service, Oregon Dept. of Fish and Wildlife and local landowners. The monitoring plan includes:

1. Survey 4 channel cross sections prior to project and re-survey during the 5th and 10th year after project completion.
2. Permanent photographic points.
3. Hankin and Reeves stream survey completed prior to project installation and during the 2nd, 5th and 10th year following implementation.
4. Snorkel sampling prior to project installation, the following year after implementation and every other year there after to the 10th year.
5. A project completion report to the Grande Ronde Model Watershed Program (GRMWP). Annual project status/monitoring reports to the GRMWP for 5 years following project completion.

START DATE: July, 1998
COMPLETION DATE: Project is Active

TOTAL COST: $218,904
BPA COST: $ 88,950
COST SHARE: $129,954

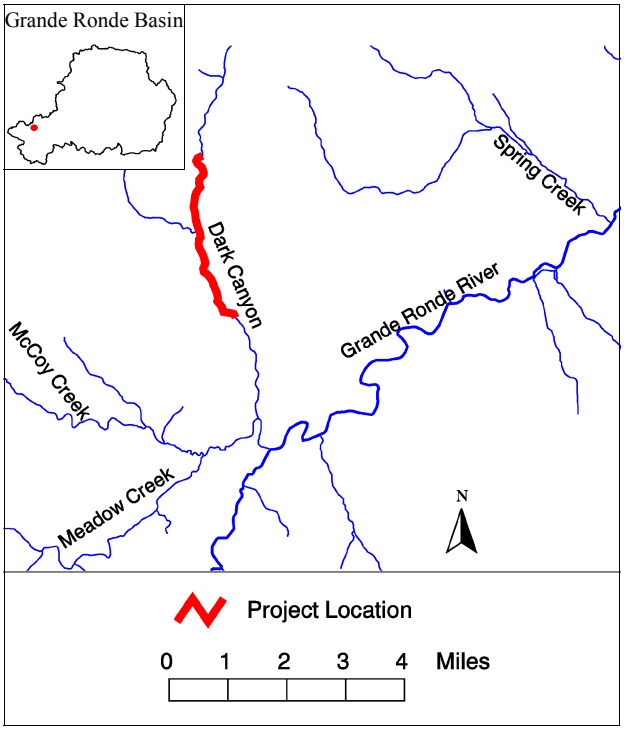
CONTACTS:

Paul Boehne
La Grande Ranger District
3502 Hwy 30
La Grande, OR 97850
(541) 962-8521

Grande Ronde Model Watershed Program
10901 Island Ave.
La Grande, OR 97850
(541) 962-6590

COLLABORATORS:
Grande Ronde Model Watershed Program
Bonneville Power Administration
U.S. Forest Service
Confederated Tribes of the Umatilla Indian Reservation
National Fish & Wildlife Foundation
Natural Resources Conservation Service
Oregon Dept. of Fish and Wildlife
Private Landowners

PROJECT: Dark Canyon Creek Watershed Restoration Project
Project 1369 (BPA # 98BI09711 - 98040)



Location of Dark Canyon Creek Watershed Restoration Project.

During project: Recontouring drawbottom road. Photo from USFS.

GRANTEE: USDA Forest Service, La Grande Ranger District

BACKGROUND: This project is located in and along Dark Canyon Creek, a tributary of Meadow Creek, within the Upper Grande Ronde River subbasin in Union County, Oregon. The treatment area provides spawning and rearing habitat for summer steelhead, and potentially redband trout. Salmonid habitat within and above the project reach has been degraded by past management activities. Large woody debris for future recruitment to the stream channel from the riparian area has been greatly reduced. Past timber harvest has resulted in regenerated conifer stands that are overcrowded and need thinning. A draw-bottom road has channelized the stream, reducing effective floodplain area and restricting the interaction between the stream and riparian area. Dark Canyon Creek was also impacted by the construction and use of a splash dam in the early 1900's. Large woody debris and boulders were removed from the channel, thereby removing much needed sediment retaining and habitat forming structure.

OBJECTIVES: This project is intended to improve salmonid habitat (specifically for federally listed summer steelhead), channel characteristics, and water quality by meeting the following objectives:

1. Increase in-channel habitat diversity.
2. Reduce sediment input and transport by improving bank stability and increasing sediment storage capacity of the stream channel.
3. Mimic the natural action of a river to recruit large trees from the riparian area.

4. Enhance the growth and vigor of riparian tree stands to provide shade and future sources of large woody debris in a faster time frame.
5. Increase connectivity of the stream channel with the floodplain.
6. Improve runoff timing and magnitude by manipulating canopy coverage of young conifer stands.

PROJECT DESCRIPTION: The project will improve salmonid habitat with the following treatments:

1. Place approximately 56 large trees (including root wads) in 3.5 miles of Dark Canyon Creek with a helicopter.
2. Construct 8 rock vortex weirs to encourage narrowing of the width to depth ratio.
3. Revegetate 2 miles of stream reach with riparian plantings.
4. Deactivate, re-contour and plant 3 miles of draw bottom road.
5. Thin approximately 300 acres, 150 acres upslope, and 150 acres in the riparian zone. Cut material will be added to the stream channels to increase sediment storage.

PROJECT MONITORING: The monitoring plan includes:

1. Two permanent channel transects to determine changes in channel morphology.
2. Ten permanent photographic points
3. A Level II Hankin and Reeves stream survey after project completion and every five years there after.
4. Stand exams of thinning treatments at years at 1, 3, 5,and 10.
5. A project completion report to the Grande Ronde Model Watershed Program (GRMWP). Annual project status/monitoring reports to the GRMWP for 5 years following project completion.

START DATE: June 1998
COMPLETION DATE: Project is Active

TOTAL COST: $169,945
BPA COST: $ 55,496
COST SHARE: $114,449

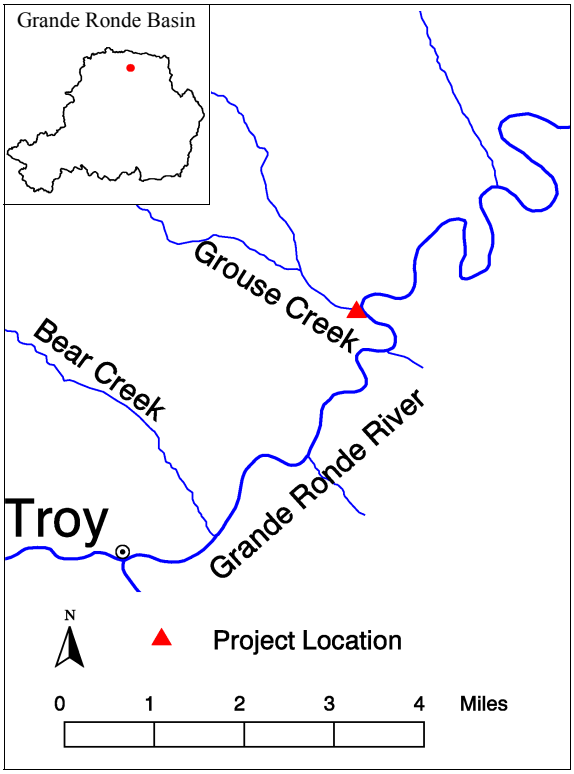
CONTACTS:

Paul Boehne
La Grande Ranger District
3502 Hwy 30
La Grande, OR 97850
(541) 962-8521

Grande Ronde Model Watershed Program
10901 Island Ave.
La Grande, OR 97850
(541) 962-6590

COLLABORATORS: Grande Ronde Model Watershed Program
Bonneville Power Administration
U.S. Forest Service
National Fish & Wildlife Foundation

PROJECT: Grouse Creek Culvert Replacement
Project 1395 (BPA # 98BI11415 - 98050)



Location of Grouse Creek Culvert Replacement.

Pre-project: Grouse Creek, looking downstream at County Road with 2 culverts. Photo from Anderson Perry & Assoc.

Post-project: Showing bottomless arch culvert.

GRANTEE: Wallowa County Public Works Department

BACKGROUND: This project is located at a county road crossing on Grouse Creek, just upstream of its confluence with the Grande Ronde River in Wallowa County, Oregon. In 1996 the culvert on County Road #569 (the Troy road) was blown out by high volumes of water and debris. Because the road provides vital access to the town of Troy, Oregon, the culvert was immediately replaced to its pre-flood condition with FEMA funding. Flood water in January 1997 nearly overtopped the new roadway, prompting the county to add a second culvert for overflow relief. The Grouse Creek culvert has been recognized as a fish barrier by the Oregon Department of Fish and Wildlife (ODFW) and the Oregon Department of Transportation's Salmon Restoration Plan (a component of the Oregon Plan). The current installation has a 3-foot drop from an 8-foot diameter culvert onto large riprap. Flow dissipates into the Grande Ronde River through alluvial deposits resulting from the 1996 and 1997 flood events. This can be very detrimental for fish passage during

low flows when the outfall pool is minimal and the water falls directly onto the riprap. Under certain flow regimes, adult steelhead are unable to make the jump and then successfully swim to the upstream end of the culvert. Juvenile chinook and steelhead are also generally excluded from entering Grouse Creek to rear.

OBJECTIVES: The primary objective is to provide passage for adult summer steelhead to spawn in Grouse Creek. A secondary objective is to provide access to the Grouse Creek drainage for juvenile steelhead and chinook, and bull trout.

PROJECT DESCRIPTION: The project will improve fish access to 6-7 miles of Grouse Creek by:

1. Replacing the existing culverts with a single bottomless multiplate arch culvert. This culvert will accommodate higher flows and provide a natural stream bottom and gradient to facilitate fish passage. The culvert will be designed to handle 100 year peak flows.
2. Realigning and raising the road to match the pre-flood road grade.

PROJECT MONITORING: Project monitoring will include:

1. ODFW will conduct semi-annual monitoring for fish passage.
2. A project completion report to the Grande Ronde Model Watershed Program (GRMWP). Annual project status/monitoring reports to the GRMWP for 5 years following project completion.

START DATE: July 1998
COMPLETION DATE: Project work is completed, budget is not finalized.

TOTAL COST: $144,800
BPA COST: $ 53,450
COST SHARE: $ 91,350

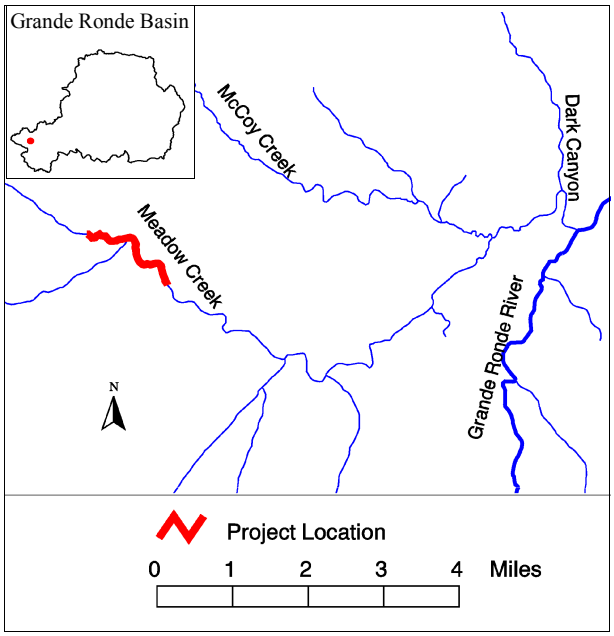
CONTACTS:

Randy Strohm
Wallowa Co. Public Works Dept.
619 Marr Pond Road
Enterprise, OR 97828
(541) 426-3332

Grande Ronde Model Watershed Program
10901 Island Ave.
La Grande, OR 97850
(541) 962-6590

COLLABORATORS: Grande Ronde Model Watershed Program
Bonneville Power Administration
Governor's Watershed Enhancement Board
Wallowa County Public Works Department

PROJECT: Meadow Creek/Cunha Ranches Riparian Restoration
Project 1406(BPA # 98BI13359 - 98053)



Location of Meadow Creek/Cunha Ranches Riparian Restoration Project.

Meadow Creek during project: showing railroad grade removal and lack of riparian vegetation. Photo from ODFW.

GRANTEE: Oregon Department of Fish and Wildlife

BACKGROUND: This project is located on Meadow Creek downstream of the Starkey Experimental Forest in Union County, Oregon. Meadow Creek historically has been a productive steelhead stream. The presence of spring chinook has also been documented (juvenile spring chinook found by Oregon Dept. Fish and Wildlife (ODFW) in 1988). Management practices over the years that have contributed to habitat degradation within the Meadow Creek system include livestock over-grazing, inappropriate timber harvest practices, road construction, and the construction of a railroad grade that constrains flow and prevents the stream from interacting with the floodplain. Much of the large conifer overstory within the floodplain was harvested or removed during construction of the railroad. Excessive bank erosion is due to both lack of vegetation as well as poor floodplain function from the channel being artificially constrained. Meadow Creek exhibits high summer water temperatures, winter icing, unstable streambanks, and poor riparian and instream habitat diversity. Large woody debris and complex pool habitat are at low levels and the stream is artificially constrained in many places from the old railroad grade. This project compliments ongoing restoration efforts on Meadow Creek within the Starkey Experimental Forest and ODFW/BPA projects along 4.3 miles of stream on 3 different downstream properties.

OBJECTIVES: The primary objectives are to restore degraded riparian and floodplain habitat and improve instream habitat diversity and water quality for summer steelhead and spring chinook. Specific project objectives are:

1. Reduce high summer water temperatures and winter icing.
2. Increase summer flows, streambank stability, and instream habitat diversity (complex pool habitat).

3. Improve riparian conditions (both overstory and understory components).

PROJECT DESCRIPTION: This project will address many of the factors limiting salmonid production in 1.8 miles of Meadow Creek through a combination of passive and active restoration techniques. These include:

1. Construction of 3.8 mile riparian exclosure fence along Meadow Creek to protect 1.8 miles of stream and approximately 136 acres of instream, riparian and upland habitat. Livestock will be excluded for at least 15 years.
2. Planting the riparian area with native trees, shrubs, or grasses to accelerate recovery.
3. Removing approximately 2,100 ft. of old railroad grade that restricts floodplain function.
4. Improving a rock crossing to reduce local sediment input.
5. Placing large woody debris and whole trees with root wads to help create complex holding/rearing pools. Large wood will be cabled into place to prevent downstream migration onto adjacent lands.

PROJECT MONITORING: Project monitoring will include:

1. Permanent photo point sites
2. Stream thermographs.
3. Annual steelhead spawning surveys and aquatic habitat surveys.
4. A project completion report will be submitted to the Grande Ronde Model Watershed Program (GRMWP). Annual project status/monitoring reports will be submitted to the GRMWP for 5 years following project completion.

START DATE: August 1998
COMPLETION DATE: Project is Active

TOTAL COST: $81,916
BPA COST: $37,296
COST SHARE: $44,620

CONTACTS:

Vance McGowan
Oregon Dept. Fish and Wildlife
107 20th St.
La Grande, OR 97850
(541) 963-7186

Grande Ronde Model Watershed Program
10901 Island Ave.
La Grande, OR 97850
(541) 962-6590

COLLABORATORS: Grande Ronde Model Watershed Program
Bonneville Power Administration
Oregon Dept. of Fish and Wildlife
Confederated Tribes of the Umatilla Indian Reservation
Natural Resources Conservation Service
Private Landowner