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Grande Ronde Basin Fish Habitat Enhancement Project

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GRANDE RONDE BASIN FISH HABITAT ENHANCEMENT PROJECT:

***2002 ANNUAL REPORT
Project No. 198402500
Contract No. 4338***

By

Vance R. McGowan
Fisheries Habitat Biologist

Oregon Department of Fish and Wildlife
107 20th Street
La Grande, OR 97850

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ABSTRACT

On July 1, 1984 the Bonneville Power Administration and the Oregon Department of Fish and Wildlife entered into an agreement to initiate fish habitat enhancement work in the Joseph Creek subbasin of the Grande Ronde River Basin in northeast Oregon. In July of 1985 the Upper and Middle Grande Ronde River, and Catherine Creek subbasins were included in the intergovernmental contract, and on March 1, 1996 the Wallowa River subbasin was added. The primary goal of "***The Grande Ronde Basin Fish Habitat Enhancement Project***" is to create, protect, and restore riparian and instream habitat for anadromous salmonids, thereby maximizing opportunities for natural fish production within the basin. This project provided for implementation of Program Measure 703 (C)(1), Action Item 4.2 of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program (NPPC, 1987), and continues to be implemented as offsite mitigation for mainstem fishery losses caused by the Columbia River hydro-electric system.

All work conducted by the Oregon Department of Fish and Wildlife is on private lands and therefore requires that considerable time be spent developing rapport with landowners to gain acceptance of, and continued cooperation with this program throughout 10-15 year lease periods. This project calls for passive regeneration of habitat, using riparian exclosure fencing as the primary method to restore degraded streams to a normative condition. Active remediation techniques using plantings, off-site water developments, site-specific instream structures, or whole channel alterations are also utilized where applicable. Individual projects contribute to and complement ecosystem and basin-wide watershed restoration efforts that are underway by state, federal, and tribal agencies, and local watershed councils.

Work undertaken during 2002 included: 1) Implementing 1 new fencing project in the Wallowa subbasin that will protect an additional 0.95 miles of stream and 22.9 acres of habitat; 2) Conducting instream work activities in 3 streams to enhance habitat and/or restore natural channel dimensions, patterns or profiles; 3) Planting 31,733 plants along 3.7 stream miles, 4) Establishing 71 new photopoints and retaking 254 existing photopoint pictures; 5) Monitoring stream temperatures at 12 locations on 6 streams; 6) Completing riparian fence, water gap and other maintenance on 100.5 miles of project fences. Since initiation of the project in 1984 over 68.7 miles of anadromous fish bearing streams and 1,933 acres of habitat have been protected, enhanced and maintained.

INTRODUCTION

Background:

It is widely recognized that wild and naturally spawning populations of salmon and steelhead have been at low levels throughout the Columbia River Basin as a result of impaired fish mainstem passage, blocked habitat, habitat degradation, fishing, predation and other factors. Habitat degradation and its causes within the Grande Ronde Basin have been well documented (Anderson and others, 1992; CTUIR, 1984; Henjum and others, 1994; Huntington, 1993; McIntosh and others, 1994; Sedell and Everest, 1991). Listings of Snake River salmonid populations through the Endangered Species Act led to increased efforts to implement ecosystem or watershed based approaches to species recovery within individual subbasins (Anderson and others, 1992; Huntington, 1994; Mobrand and Lestelle, 1997; NMFS, 1997; Wallowa Co.-Nez Perce, 1993). The intent of this project is to work within this framework by providing offsite mitigation for mainstem losses of habitat and fish productivity caused by the construction and operation of eight dams on the Columbia River. This is achieved through coordinated efforts to protect and improve spawning and rearing habitat, and improve fish passage.

Prior to implementation of this project, streams within the Grande Ronde River basin were examined as part of a study funded by Bonneville Power Administration (BPA), and undertaken by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the Oregon Department of Fish and Wildlife (ODFW). The study compiled the basic information necessary to identify, evaluate, prioritize, and recommend site-specific solutions to major problems impacting the anadromous salmonid resources and fisheries, and prepared an integrated overall plan for the study area (CTUIR, 1984). The identification, priority, and implementation of habitat work within these drainages represented a consensus among staff from ODFW, Tribal, and Federal entities (Appendices 1 and 2), and established an initial template from which to pursue fish habitat enhancement projects. In 1996 and beyond, project areas on private lands were re-prioritized based on several factors, including: 1) review of work completed in the basin; 2) review of more recent watershed assessments such as those produced through the Grande Ronde Model Watershed Program or local watershed groups; 3) and continual input from local district fisheries and research biologists.

Fisheries Status:

Historically the Joseph Creek subbasin has been an excellent producer of summer steelhead, and continues to be managed as a wild fishery. Wild summer steelhead spawning ground counts on ODFW index streams (stream reaches that were selected for consistent annual monitoring) began in the 1960's. Redds/mile in this subbasin from 1970 through 1984 indicated severe reductions of returning spawning adults (Figure 1). This downward trend showed signs of improvement from 1985 to 1989 when counts ranged from 8-11 redds/mile. Counts have fluctuated at lower levels since then, but are again showing an upward trend.

Summer steelhead escapement over Lower Granite Dam (which includes all wild and hatchery stocks entering Oregon and Idaho) has fluctuated a great deal but showed substantial improvements after 1981 when fish passage improvements were initiated (Figure 1). Total escapement over Lower Granite has remained in excess of 70,000 fish since 1995, with the 2001 counts being the highest on record. However, counts of the wild portion of the run, which began

in 1994, remain relatively low, averaging only 15.8% of the total run in the last 9 years.

Figure 1. Snake River Summer Steelhead adult counts over Lower Snake River dams, and spawning ground counts in index Joseph subbasin streams, 1960-2002.

SOURCES: Columbia River Fish Runs and Fisheries, 1938-2000, Status Report. ODFW Wallowa District Fisheries Biologists.

NOTES: The 1962-1974 dam counts are at Ice harbour and Little Goose, the 1975-1996 counts are at Lower Granite dam. Counting of wild steelhead separately from hatchery origin began in 1994. Joseph Creek subbasin index steelhead spawning ground counts include Butte, Chesnimnus, Crow, Devil's Run, Elk, McCarty Gulch, Peavine, Swamp, Summit and TNT Gulch Creeks. Joseph Creek subbasin steelhead counts consist solely of wild fish and are considered to be representative of other wild runs in the Grande Ronde Basin.

The Wallowa River subbasin historically supported sockeye, coho, and fall chinook in addition to strong runs of steelhead and spring chinook. However, sockeye and coho are now extinct, and only small numbers of fall chinook remain, which generally spawn lower in the basin.

In the Upper Grande Ronde River drainage historical records also indicate excellent production of both summer steelhead and spring chinook. Redd counts from 1989-2000 indicate that returns to the Upper Grande Ronde River drainage remained well below those observed in the late 1960's and early 1970's (Figure 2). The 1994 and 1995 redd counts were the lowest on record since extensive surveys were initiated in 1986 (Carmichael, 1994). Some improvement occurred in 2001, and counts reached 8.9 redds/mile in 2002, with the majority of those redds occurring in the Minam River, which is in unmanaged wilderness.

Spring chinook escapement over Lower Granite dam (which includes hatchery and wild fish)

follow the same general pattern, with 1995 being the lowest run count on record (Figure 2). Runs over Lower Granite increased to a record high of 175,093 adults and jacks in 2001.

Figure 2. Snake River Spring Chinook adult and jack counts over Lower Snake River dams, and spawning ground counts in index Upper Grande Ronde subbasin streams, 1960-2002.

SOURCES: Columbia River Fish Runs and Fisheries, 1938-2000, Status Report. ODFW La Grande District & Research Fisheries Biologists.

NOTES: Spring chinook dam counts include adults and jacks. Fish passage improvements and smolt transports began after 1981. Streams in this graph include ODFW index spawning ground counts of wild fish in Catherine Creek, the Upper Grande Ronde River, Sheep Creek, Minam and the Little Minam River.

Causes and Consequences of Declines:

There are many reasons for declines of anadromous fish in the Grande Ronde River Basin since the mid-1970's, including: 1) problems with adult and juvenile passage that occurred following construction of 8 Columbia and Snake River dams between 1938-1975 (ODFW/WDF, 1997), 2) Commercial, sport and Tribal demands for the fishery resource, 3) Degradation of spawning and rearing habitat throughout the basin, and 4) A major forest fire, followed by a flash flood event in the Upper Grande Ronde headwaters during peak migration and spawning in August of 1989 resulted in decimation of the adult chinook run and their progeny (Boehne and others, 1989).

Observations in the Grande Ronde River basin indicate optimum spawning and rearing areas for summer steelhead and spring chinook are limited in large portions of these drainages by degradation of riparian and instream habitats (Noll, 1987; Anderson & others, 1992; Huntington, 1994). For example, approximately 70% of the large pool habitat in the mainstem Upper Grande

Ronde River and 26% in Meadow Creek have been lost since 1941 (Sedell and Everest, 1991). The average percent shade cover over low gradient constrained, and low gradient unconstrained streams in the Grande Ronde Basin are 33% and 24%, respectively (Huntington, 1994).

Management practices that have contributed to habitat degradation within project areas include beaver trapping, livestock overgrazing, irrigation diversions and cropland agriculture, timber harvest, road construction, mining, stream channelization, and introduction of exotic species. Several limiting factors associated with instream and riparian habitat degradation have led to reductions in natural production of salmonids in the Grande Ronde River basin, including:

- High summer water temperatures
- Low summer flows
- Loss of riparian vegetation
- Poor instream habitat diversity
- Loss of floodplain connectivity
- Unstable stream channels and sedimentation
- Winter icing
- Loss of fish passage

Considerable effort and money have been invested in trying to resolve mainstem dam passage problems. Tighter restrictions on ocean and river harvest of these stocks have also been implemented, and tribal salmon fishing in the basin ceased almost entirely since 1983. Despite these efforts, salmonid populations continued to decline. The National Marine Fisheries Service listed the Snake River portion of the Columbia River sockeye salmon run as an endangered species in December 1991. The Snake River wild portion of the summer and spring chinook runs were combined and listed as threatened in May 1992, along with the fall chinook. Bull trout and summer steelhead listings followed in 1997 and 1998.

Solutions:

The Grande Ronde Basin Fish Habitat Enhancement Project is a logical and integral part of the species recovery process by implementing projects that establish long term riparian and instream habitat protection, and tributary passage improvement on private lands using riparian lease agreements. Planning for implementation of these projects includes the participation and involvement of private landowners, state and federal agencies, tribes, model watersheds, and watershed councils. Collectively these individual projects contribute to ecosystem and basin-wide watershed restoration and management efforts that are underway by these groups.

Out of basin variables (such as mainstem passage and harvest) are beyond the scope of this project, but the in-basin limiting factors mentioned above can be adequately addressed if proper habitat enhancement techniques are utilized. Drake (1999) concluded that seasonal maximum temperatures and variables related to it explained the distribution and abundance of salmonids in Upper Grande Ronde streams, and that management and restoration activities should focus on reducing stream temperatures. Streams in the John Day basin with greater than 75% shade maintained acceptable stream temperatures for rainbow trout and chinook salmon (Maloney and others, 1999), and the lowest temperatures were observed in streams from ungrazed watersheds. This program primarily relies on restoring natural riparian vegetative recovery, floodplain

connectivity and groundwater interactions, using riparian fencing in streams that have been impacted by livestock grazing. This method has proven to be effective in protecting and restoring streams (Beschta and others, 1991; Chaney and others, 1993; Owens and others, 1996).

In more severely degraded areas, fencing, in combination with placement of instream structures and riparian plantings, can accelerate the natural recovery process (Chaney and others, 1993; ISG, 1996; Huntington, 1994; NMFS, 1997, Roper and others, 1998). In channelized or severely entrenched streams more aggressive action including whole channel alterations or relocations of streams may be required (Rosgen, 1996; Federal Interagency Stream Restoration Group, 1998). The Grande Ronde Basin Fish Habitat Enhancement Project incorporates both passive and active techniques that provide optimum habitats for returning adults and their progeny, and helps achieve the overall goal of maximizing natural anadromous fish production in the Grande Ronde River basin.

DESCRIPTION OF PROJECT AREAS

Five of the ten subbasins within the Grande Ronde Basin are included in the project areas. Not included are the Minam, Lower Grande Ronde, Wenaha, Imnaha, and Inner Snake subbasins. Those subbasins are comprised mostly of Forest Service, National Recreation Area, or Wilderness lands (Figure 3).

JOSEPH CREEK SUBBASIN:

The Joseph Creek subbasin (part of Federal Hydrologic Unit Number 17060106) constitutes a major drainage within the Grande Ronde Basin of northeast Oregon. It drains approximately 635 square miles of the 5,299 square mile Grande Ronde Basin. It contains an estimated 225 miles of anadromous fish habitat, and is managed for wild summer steelhead. It empties into the Grande Ronde River 4.3 miles above the confluence of the Grande Ronde and Snake rivers (Figure 3). Approximately 75 percent of the Joseph Creek subbasin is within the project area. Not included in the project area are lower Joseph Creek in Washington State, and the Cottonwood Creek drainage, which enters Joseph Creek 4.4 miles above Joseph Creek's confluence with the Grande Ronde River (Figure 3).

Within the project area 120.5 miles of stream were identified as in need of habitat enhancement; 75 miles on private land and 45.5 miles on public lands (Appendix 1).

WALLOWA RIVER SUBBASIN:

The Wallowa River subbasin (part of Federal Hydrologic Unit Number 17060105) drains approximately 721 square miles and includes approximately 168 miles of streams used by spring chinook and summer steelhead. It starts at the confluence of the Grande Ronde and Wallowa rivers; 81.4 miles upstream from the confluence of the Grande Ronde and Snake rivers (Figure 3). A large portion of the drainage originates in the northern half of the Eagle Cap Wilderness.

Within the project area 43.0 miles of stream were identified as in need of habitat enhancement, all within private lands (Appendix 1).

UPPER GRANDE RONDE RIVER DRAINAGE:

The Upper Grande Ronde River drainage (Federal Hydrologic Unit Number 17060104) includes the Upper Grande Ronde, Middle Grande Ronde and Catherine Creek subbasins. It drains approximately 1,650 square miles of the 5,299 square mile Grande Ronde Basin, and contains an estimated 660 miles of anadromous fish habitat. It also starts at the confluence of the Grande Ronde and Wallowa rivers at Rondowa (Figure 3), draining the western half of the Eagle Cap Wilderness and the northern portion of the Elkhorn Mountain range.

Within the project area 211.8 miles of stream were identified as in need of habitat enhancement; 116.8 miles on private lands and 95.0 miles on public lands (Appendix 2).

Figure 3. ODFW/BPA Fish Habitat Enhancement Projects in the Grande Ronde River Basin and subbasins of Northeast Oregon.
(Note: See attached *odfw2000map.pdf* file to open map in Adobe Acrobat Reader for higher resolution)

METHODS AND MATERIALS

The goal of this program is to optimize spring/summer chinook and summer steelhead smolt production and survival within the Grande Ronde River Basin using habitat enhancement measures. To accomplish this goal, work will progress in the following phases:

1. IMPLEMENTATION - Prework
2. IMPLEMENTATION - Onsite
3. OPERATIONS and MAINTENANCE
4. MONITORING and EVALUATION

IMPLEMENTATION - Prework:

This is one of the most time-consuming and important phases of the program, in which landowner relations and goals of the project are established, and work activities are scheduled. Prior to project construction the following activities are conducted:

Project Planning

Project planning includes design, layout and mapping of all work to be done onsite, landowner coordination, development of contracts and contract specifications, and obtaining necessary work permits.

Project Preparation

Prior to signing leases or construction contracts, all lease boundaries and work sites must be identified, staked, and agreed upon by the landowner and/or contractor. Work sites may include easements or right-of-ways, fences, livestock watering gaps, instream structures, offsite water developments, planting, and miscellaneous lease or construction related areas.

Riparian Lease Development and Procurement

Riparian lease development and procurement includes meeting with landowners and/or their legal representatives specifically for the purpose of developing an acceptable lease or cooperative agreement text. Lease documents must be signed, notarized, and filed in the county courthouse.

Field Inventories

These may include prework stream surveys, and photographic documentation to provide baseline information on habitat condition and potential for improvement prior to any onsite implementation.

IMPLEMENTATION - Onsite:

Onsite implementation encompasses the actual on-the-ground work phase of the program and may include any or all of the following:

Instream Work

During late summer and early fall when stream flows are lowest, instream structures may be installed in streams at locations pre-selected by fishery biologists and/or hydrologists. Instream structures will be installed to specifically address the factors limiting fish production in each stream reach. Structures of various types may be used to provide optimum pool/riffle ratios, raise stream water tables, collect spawning gravels, and increase the amount of large woody debris; thereby increasing quantity and quality of spawning and rearing habitats. Hard rock structures may be necessary under some circumstances, but bioengineered or other “soft” structures will be the primary methods used to stabilize stream banks. Boulders may be used to create small rearing pools and hiding cover, and may be used as anchor points for cabling large woody debris.

In some cases, such as in artificially channelized reaches, more intensive work may be needed to restore rivers back into a channel functioning at full potential. Work in these reaches will be conducted based on Rosgen (1996) natural channel design methods to restore streams back into their natural dimension, pattern and profile.

Planting

During the early spring, shrub and/or tree species may be planted at pre-selected locations along streams within project areas. Since high summer water temperatures are a major limiting factor, plantings will be made to provide stream shade, thereby reducing summer water temperatures and increasing salmonid utilization of streams. The maximum shade attainable for most streams in project areas is estimated at about 80 percent.

Plantings may also be done in areas of poor bank stability as a preferred alternative to the more costly rock structures. Plantings will be done only after riparian fences have been installed to ensure their protection. During the fall, areas disturbed during implementation activities will be seeded to stabilize soils and discourage weed growth.

Fencing

Degradation of streamside vegetation by domestic livestock has been a major problem within project areas. To provide protection from livestock, and thereby promote rapid recovery of existing and planted vegetation, fences will be constructed along riparian zones within project areas. When negotiating fence locations with landowners, preference will be given to projects where fences are located well outside the normal flood-prone area.

Offsite Water Developments

In an attempt to reduce the number of watering gaps in riparian fences (thereby reducing fence construction and maintenance costs), and to encourage livestock utilization of vegetation away from riparian areas, offsite water sources will be developed.

Miscellaneous Implementation Activities

Cooperator signboards denoting riparian enhancement projects as cooperative efforts between BPA, ODFW and private landowners will be installed at high visibility sites along completed riparian enhancement project areas. Other activities may be required to complete a fish habitat enhancement project and meet landowner needs.

OPERATIONS AND MAINTENANCE:

Operations and maintenance activities will begin the year following implementation and include:

Landowner Coordination

Ongoing coordination and cooperation between the landowners and ODFW is a vital element to ensure long-term project success after the initial implementation is completed.

Fence Maintenance

Biannual inspections of all project areas will be made. Following these inspections all fence maintenance will be done. Stream cross fences and/or water gap cross fences may be installed or removed during these inspections, or at any time during the year to meet landowner needs and to ensure maximum recovery within the projects.

Instream Maintenance

Annual inspections of all instream structures will be done, usually in combination with fence maintenance inspections. Instream structures are generally expected to provide long lasting benefits with low maintenance. Instream structure maintenance will be done on a case-by-case basis, depending on impact of the structure failure on riparian recovery, streambank stability and/or landowner needs.

Revegetation

Replanting and/or seeding of project areas may be necessary to produce adequate stream shading, bank stability, or cover within the 15-year lease period. Events such as severe flooding and bank erosion, or when recovery is unacceptably slow due to lack of parent stock may result in a decision to replant an area.

Miscellaneous Operations & Maintenance Activities

These activities may include vehicle, ATV, and equipment maintenance and repair. Other activities include installing or replacing project signs, and efforts to control wildlife damage.

MONITORING AND EVALUATION:

Whenever possible, some level of monitoring will be established prior to project implementation, and will continue beyond the term of the lease agreement if the landowner is willing. Individual projects will be monitored using one or more of the following methods:

Photopoint Establishment

Photopoint establishment will include locating and placing permanent markers at sites from which photographs can be taken at regular intervals. These photographs are a primary and inexpensive means of documenting physical and biological changes along streams. Also associated with photopoint establishment is development of a photopoint notebook for each project area. These notebooks contain maps of all photopoint locations, instructions on taking the photographs, and labeled slides and prints.

Photopoint Picture Taking

Standardized pictures will be taken from pre-selected photopoints prior to implementation on any project area and then for the next two years immediately following completion of a project. Once these initial photos are obtained the frequency of photopoint picture taking may diminish to once every two to three years.

Habitat Monitoring Transect Establishment

Within selected project areas permanent habitat monitoring transects will be established. Specific measurements will then be taken along each transect to record channel morphology, and vegetative characteristics. These measurements will be repeated at regular intervals and compared with original measurements as a means of quantitatively measuring environmental changes through time.

Habitat Monitoring Transect Data

Immediately after establishing habitat monitoring transects, baseline data will be collected. Data collection will be done on the first year following completion of implementation activities and thereafter at approximately 3 to 5 year intervals.

Thermograph Data Collection and Summarization

Thermographs will be installed at various locations throughout the project area. Thermograph data will be recorded, collected, summarized, and graphed on a regular basis. The purpose of this type of monitoring is to detect changes in stream water temperatures that may occur over the years within fenced-off, recovering riparian areas.

Miscellaneous Monitoring and Evaluation

Miscellaneous monitoring and evaluation activities may include chinook salmon and steelhead redds counts, juvenile fish population surveys, streambank stability surveys, and evaluating riparian vegetative recovery and/or planting success. In stream reaches where an active restoration approach is used Rosgen Level II-IV surveying and monitoring will be done, and in some cases GPS total survey data will be collected.

RESULTS AND DISCUSSION: FIELD ACTIVITIES

The following field activities were completed in 2002:

IMPLEMENTATION - Prework:

Project Planning

Design and Layout

Work was completed on the designs and budget for the Bear Creek channel realignment project. Particle entrainment calculations were calculated for the proposed for new channel, based on pebble counts, sub-pavement samples and critical sheer stress. In the upper part of the new channel bed load up to 45mm should be mobilized. Bedload material will reduce in size farther downstream where the gradient is less. Preliminary design specifications based on Rosgen techniques were distributed to project partners (CTUIR, NRCS, and the GRMWP) in January for review. Final designs were completed in March 2002. Steve Haddock of Witness Tree Surveying was hired to develop a topographic map showing the location of the new channel.

Aerial photographs of the End Creek/Rice project dating back to 1936 were obtained at the farm service office. A draft OWEB funding proposal for this project was completed and reviewed.

Landowner Coordination

A great deal of time was spent communicating with landowners throughout the project area to develop riparian leases or coop agreements, and plan onsite work, including:

A wetland delineation report was sent to Harry Merlo who is considering building a pond near Beaver Creek.

The biologist spoke with Ken Baker regarding locations of spring development sites and water gaps on the Wallowa River project.

The biologist and Alan Bahn and Alan Gerig of the NRCS met with Joel Rice on End Creek in the Willow Creek watershed. After reviewing our work on recent projects such as Milk Creek, Mr. Rice decided to take End Creek out of the existing farm ditches and restore it into a natural meandering channel. He will likely enroll the property into the federal Wetland Reserve Program.

The biologist and the ODFW Watershed District Manager met with Doug McDaniel to discuss possible enrollment of his leased properties into the federal Conservation Reserve Enhancement Program (CREP).

The biologist met with Phil Sheppard of the Nature Conservancy to discuss restoration alternatives on Camp Creek in the Imnaha subbasin. Fencing, instream work and restoring fish passage are some of the options being considered. Brad Smith (ODFW Enterprise) and Lee Silvey (Western Hydrology) also attended.

Developing Contracts and Contract Specifications

A fence contract for 0.85 miles of fence on the west side of the Wallowa River/Scott project was written. A pre-bid tour was conducted on January 15th and the contract awarded to Straightline Fence Company. Separate contract specifications were written for 0.93 miles along the east side of the Wallowa River/Scott project. A pre-bid tour was conducted on June 11, 2002 and the contract awarded to Badger Fencing. ODFW personnel delivered several loads of fence materials and inspected the work of contractors as the jobs progressed.

Mary Calloway of the North Powder Corrections Facility was contacted to schedule a 10-man prison crew for planting sedge/rush plugs in the new Ladd Creek channel.

The biologist developed construction specifications for the Bear Creek channel realignment project. CTUIR staff sent out request for quotes and administered the contract, which was awarded to AKey Construction.

A contractor was hired to haul in loads of large wood to Ladd Creek using a self-loader, and a track hoe was used to place the wood to enhance habitat in the newly constructed channel.

Obtaining Work Permits

The biologist assisted CTUIR staff with preparation of the biological assessment for the Longley Meadows (Bear Creek) project. Biological Opinions from NMFS and USFWS were received in July 2002 for the McCoy Meadows and Longley Meadows projects. The opinions concurred with our original determinations of affects for steelhead, chinook and bull trout.

Instream permits for placing large wood in Beaver Creek were submitted to the Division of State Lands. The USACE was contacted to determine if the work fell within the Regional General Permit for placing large wood.

Project Preparation

The biologist attended planning meetings and assisted with contract implementation of the Ladd Creek channel relocation project. Recommendations were given on channel pattern and profile, and the best places to deposit excavated materials.

Matt and Laura Mahrt visited with ODFW, CTUIR and NRCS staff on the McCoy Meadows job site to discuss configurations of floodplain ponds and how to improve habitat for birds, reptiles and amphibians.

National Geodetic Society data sheets for established benchmarks near McCoy Creek were reviewed and were located onsite. The benchmarks were used to establish control points for conducting a GPS survey of the new McCoy Creek channel. Steve Haddock of Witness Tree Surveying assisted us with initial set up.

Stakeout of the centerline, 25-foot offsets, and curve radius points on the Longley Meadows/Bear Creek channel relocation project was completed. The Trimble total station GPS was used to complete the task. A total of 1.03 miles of channel was staked, flagged and painted. Grasses along the channel were mowed prior to construction to make staking more visible.

ODFW and CTUIR staff picked up old fence materials where excavation spoils would be placed.

Two spring development sites were located on the Wallowa River/Scott project. ODFW personnel also placed several yards of river rock at a spring to improve cattle and vehicle access to one pasture.

Riparian Lease Development and Procurement

Copies of before/after photopoint pictures illustrating the results of the project on Fly Creek were mailed to Fred Smith. The lease agreement was going to expire in March 2002, but Mr. Smith decided to extend the agreement for another ten years. He also expressed interest in fencing some additional nearby tributaries.

Steve McClelland of Boise Cascade Corporation was contacted to discuss renewing the lease agreement on Swamp Creek that expired in September 2001. A draft lease agreement was mailed for him to review.

The lease agreement on the Sheep Creek/BLM project expired in April 2002, but BLM staff indicated they would be willing to continue with the agreement indefinitely. We met onsite on Sheep Creek in November to discuss lease renewal options. The BLM is very interested in continuing to exclude cattle with a lease or other means on this property. However, one complicating issue is that the BLM/Vey-Schiller property boundary intersects the stream channel several times, and another is that new fences on the other 3 property boundaries may need to be constructed.

The lease agreement for the Sheep Creek/Vey-Schiller project also expired in April 2002. Marylyn Schiller indicated they would be willing to discuss renewing the agreement, but had some reservations as to how successful the project has been. We made several attempts to contact her by phone and by letter, but she did not respond and did not appear to be interested in continuing with our program. Schiller's cattle were allowed to severely graze both the BLM and Schiller portions of the stream this fall. The BLM indicated they would contact the Schiller's in order to resolve the problem.

Steve Corey, an attorney representing Mike Warn, called to inform us that Mr. Warn had purchased the Meadow and McCoy creek properties, formerly owned by Alta Cunha Ranches. Copies of the existing lease for Meadow Creek, and a draft lease for a potential project on McCoy Creek were sent to them. The biologist later met with Mr. Warn who was agreeable to continuing with the existing lease agreement on Meadow Creek and possibly sign up the property on McCoy Creek. Monty Evans, the cattle manager, also attended the meeting. They appeared willing to work directly only with one or two agencies (ODFW and ODF), and not with the CTUIR, NRCS or others who have been involved in these projects in the past.

John Habberstad was contacted regarding the status of the Meadow Creek project. Mr. Habberstad indicated he intends to sign up the project into the CREP program.

The biologist and Mike Burton of the NRCS met with Steve Stanhope on Clarks Creek. Mr. Stanhope is considering fencing a mile of the creek and entering the property into the CREP

program. We also conducted a stream habitat inventory on one section of stream, and identified areas to enhance stream conditions by placing large wood. ODFW agreed to assist with placement of large wood in the creek in 2003.

The biologist met with Shauna Mosgrove to discuss signing of the Jordan Creek lease and other related projects.

A draft lease and cooperative agreement was sent to Phil Shepard of the Nature Conservancy for a potential project on Camp Creek in Wallowa County.

The lease agreement for the Wallowa River/Scott project was filed with the Wallowa County Courthouse.

IMPLEMENTATION - Onsite:

Onsite implementation encompasses the actual on-the-ground work phase of the program and included the following:

Instream Work

Ladd Creek

The biologist assisted with contract inspection on the Ladd Creek/Tule Lake channel relocation project. Under a separate contract, ODFW placed large wood in Reaches 2 and 3 of the new Ladd Creek channel. Wood was placed at a total of 17 sites, primarily on outside bends in pool sections. Many of the pieces were placed revetment style to reduce chances of erosion and provide instream cover for salmonids (Figure 4). Some wood was also placed on the floodplain. A total of 69 large pieces of wood and 23 small pieces were placed.

McCoy Meadows

The biologist assisted CTUIR and NRCS staff with contract implementation and inspection of the McCoy Meadows restoration project (Figure 5).

Work was completed using a tracked excavator, a D6 cat, a paddle wheel scraper, and water truck. Restoration activities included:

- Constructing two diversion structures at channel crossover points.
- Diverting 4,440 feet of McCoy Creek from the channelized section into 9,180 feet of new channel.
- Installing 2 upstream V log weirs where stream stage recorders were installed.
- Constructing 6 floodplain ponds in the upper meadow and 5 ponds in the lower meadow.
- Using excavated material to fill approximately 1/3 of the channelized reach to prevent recapture of the stream in the old channel.
- Retaining three portions of old channel to remain as backwater habitat.
- Installing a new culvert under McIntyre Road to divert a channelized roadside spring, thus blending it back into the lower meadow area where it naturally would have occurred.
- Collecting elevation data around the new bridge and vicinity to determine the need for overflow culverts, and collecting extensive GPS monitoring data (see M&E section).

Figure 4. Placement of large and small wood on the new Ladd Creek channel, Site 14, June 6, 2002. Wood was placed in a variety of configurations, including in-channel revetment style and scattered on the floodplain. The wood embedded along the banks will provide instream cover and bank stability, while the floodplain wood will help catch sediment during out of bank flow events and provide micro sites for tree or shrub plantings.

Figure 5. Aerial photograph of the lower end of the McCoy Meadows channel relocation project, September 18, 2002.

Milk Creek

On July 24-25, 2002 one hundred thirty six pieces of large and small wood, and 53 boulders were placed at 13 sites in Milk Creek using a tracked excavator (Figure 6). The purpose of the wood and boulder additions was to: 1) assist in maintaining bank stability on outside bends of the stream, 2) provide complex instream habitat for chinook and steelhead, 3) provide overhanging cover and shade, 4) and provide vertical grade control (Table 1).

TABLE 1: Instream Work completed on Milk Creek, July 25, 2002.								
Type of Work Completed								
Station	Location	RWR	LWD	SWD	Boulders	Cross Vanes	Other	OBJECTIVES*
0+60	Pool 1	3	0	5	3	0		BS, IC, S
1+17	Pool 2	3	0	10	3	0	Bankfull bench	BS, IC, S
1+71	Pool 3	2	0	3	3	0		BS, IC, S
2+37	Pool 4	3	0	10	0	0		BS, IC, S
3+18	Pool 5	0	2	0	2	0		IC, S
3+85	Pool 6	6	0	9	0	0		BS, IC, S
4+61	Pool 7	0	0	5	3	0		IC, S
5+50	Pool 8	4	0	18	1	0		BS, IC, S
6+50	Pool 9	0	2	13	0	0		IC, S
7+04	Pool 10	0	2	7	1	0		IC, S
7+83	Pool 11	0	0	8	10	1	10 boulders in CV	S, GC
8+60	Pools 12-14	0	7	4	27	1	13 boulders in CV	BS, IC, S, GC
10+22	Pools 15-16	0	10	0	0	0		IC, S
	Totals	21	23	92	53	2		

Notes: RWR = large tree stems with rootwads, placed revetment style
 LWD = large wood >12 inch diameter with or without rootwads
 SWD = small wood <12 inches without rootwads

Objectives* BS = bank stability (lateral)
 IC = instream cover
 S = shade/ overhanging cover
 GC = grade control (vertical)

Figure 6. Milk Creek at station 8+60, July 25, 2002. Whole trees were installed to provide instream habitat and overhanging cover and shade. The boulder cross vane structure was set to elevate the streambed 5 inches, and provide vertical stability after a headcut began to migrate upstream through this section last spring. Compared to many other rock structures it also has a more natural appearance. Two steelhead redds were found about 100 ft. downstream of this site in April.

Bear Creek

The Bear Creek channel realignment project was started in late November 2002. A tracked excavator, two 10-yard dump trucks, and small cat were used to complete the work. A total of 300 yards of rock was hauled in for grade control structures. By the end of December about 2,500 feet of the channel and floodplain was excavated, and the project was about 50% complete (Figure 7). ODFW personnel installed 200 feet of buried 5-inch irrigation pipe at upper end of the constructed channel, and began wetting the new channel. Hay bales were placed into riffle sections to help retain water and sub-irrigate the meadow.

Figure 7. Construction of the new channel on Bear Creek at station 27+55, December 2002. The tracked excavator bulks out spoils and cuts final grade on stream features in this pool section. Dump trucks haul the material away, which will be used to fill the old channel. The D2 cat does final shaping on the floodplain areas above the bankfull elevations (indicated by the red flags).

Planting

ODFW personnel collected willow and dogwood cuttings for the Ladd Creek channel relocation project. A total of 3,099 willows and 254 dogwood cuttings were stored and conditioned. CTUIR and Salmon Corps collected an additional 10,000 cuttings. ODFW and CTUIR personnel, the North Powder Corrections Facility and Salmon Corps combined efforts to plant approximately 3 miles of newly constructed, raw stream channel in April 2002. A total of 31,733 trees and shrubs were planted, which was the largest planting effort undertaken by any of the habitat programs in the basin (Table 2, Figure 8). Areas above flood stage were surveyed and pin flagged to aid in determining appropriate wet or dry sites for upland or wetland species.

All scarred areas from construction activities on the McCoy Meadows project, and the finished sections of the new Bear Creek channel were seeded using several hundred pounds of riparian seed mix. A harrow towed behind an ATV was used to help bury the seed. Scarred areas were seeded on Milk Creek with 15 lbs. of riparian seed mix.

Figure 8. Stinger planting of willows on Ladd Creek, April 24, 2002. ODFW personnel used the Kubota tractor with backhoe/stinger attachment to plant approximately 10,000 willow poles along the new channel.

TABLE 2. Riparian Plantings in Grande Ronde Basin Streams, 2002. *				
Plant Type/Method				
Species	Rooted Stock	18" Cuttings	3-4 ft. Poles-stinger	Live Plugs- shovel
Alder	250			
Big Sage	250			
Chokecherry	300			
Cottonwood	300			
Dogwood	1,030	254		
Greasewood	1,600			
Elderberry	150			
Hawthorne	250			
Rose	1,550			
Sedge/Rush				10,000
Snowberry	250			
Willow	2,450	3,099	10,000	
Totals	8,380	3,353	10,000	10,000

**Due to the size of the Ladd Creek project this was the only stream planted in 2002.*

Fencing

A summary of all Grande Ronde Basin Fish Habitat Enhancement Projects is listed in Table 3, which shows a total of 108.7 miles of riparian fences constructed that protect 68.8 miles of stream and 1933 acres of habitat. Individual projects may be located on the project map (Figure 3) by cross-referencing using the GRMWP Project Number.

The Wallowa River/Scott fencing project was completed under two contracts. During construction ODFW personnel installed 400 feet of temporary electric fence to keep cattle away from one of the ranch houses, and delivered fence materials to the job sites. ODFW personnel also improved access to sites by using the tractor to blade out stream crossings and adding rock where needed. ODFW built the three new water gaps and 2 boundary cross fences, and installed 4 step styles to make access easier for the landowners and fishermen.

A total of 1.95 miles of fence was constructed protecting 0.9 miles of the Wallowa River, 0.1 mile of Parsnip Creek, and 22.9 acres of riparian habitat.

Offsite Water Developments

ODFW personnel constructed 2 solar powered spring developments on the northwest and southwest corners of the Wallowa River/Scott project. Another water trough was purchased for an offsite water source at the Hook residence, eliminating the need for a water gap in that area.

TABLE 3. Summary of Projects Completed or in progress by the ODFW/BPA Grande Ronde Basin Fish Habitat Enhancement Project, 1985 – 2002.

<u>UPPER GRANDE RONDE:</u>		GRMWP	Year	Stream	Acres	Fence	Spring
Stream	Landowner	Project #	Built	Miles	Protected	Miles	Devel.
Bear Creek	Alta Cunha Ranches		2002-03	1.03	CREP	CREP	0
Beaver Creek	Clark/Crown Pacific	1095,1120	1993-94	6.0	243.6	11.5	0
Coon Ck. Tributary	Warren*	1440	1998	0.25	2.1	0.5	0
Dobbin Creek	Rynearson*	1508	1999	0.4	4.4	0.4	0
Eaton Creek	Sunderman*	1515	1999	0.5	160.0	0.5	0
Fir Creek	Wyland*	1528	1997	0.4	3.0	0.8	0
Fly Cr.	Smith	1123	1987	1.2	14.8	1.7	0
Grande Ronde R.	Smidtt*	1516	1999	0.5	6.0	0.2	0
Ladd Creek	ODFW/LMWA		2002	3.7	WRP	n/a	0
Little Cr.	Kerr*	1365	1998	0.25	5.0	0.4	0
McCoy McIntyre Cr	Misener/Tipperman	1117	1988	2.8	231.9	3.35	3
Meadow Cr.	Alta Cunha Ranches	1406	1998-99	1.8	149.8	3.5	0
Meadow Cr.	B.M.C.B.A.	1114	1990	0.4	6.6	1.1	0
Meadow Cr.	Habberstad	1550	2000	1.1	0.0	0.0	0
Meadow Cr.	Misener/Tipperman	1115	1988	2.7	256.5	5.3	3
Meadow Cr.	Waite	1116	1989	1.2	19.7	2.6	1
Milk Creek	Hall Ranch*	1558	2000-01	0.24	1.5	0.25	0
Sheep Cr.	BLM	1112	1988	0.7	12.8	0.8	0
Sheep Cr.	Vey	1113	1987-88	4.3	54.7	6.0	4
U.G.R. River	Bowman/Hoeft	1118	1991	1.5	37.8	3.2	1
U.G.R. River	Crown Pacific	1321	1997	5.2	179.7	5.1	2
U.G.R. River	Delve	1119	1991	0.5	7.0	0.9	2

Whiskey Cr.	Courtney	1121	1991-92	3.3	35.0	5.6	3
Whiskey Cr.	Hampton	1122	1990-91	1.5	15.2	3.0	0
Subtotals:				41.5	1,447.1	57.3	19
<u>JOSEPH CREEK SUBBASIN:</u>							
Butte Cr.	McDaniel	1128	1990-91	2.7	29.7	5.3	1
Chesnimnus Cr.	McDaniel	1130	1992	3.8	130.1	8.1	0
Chesnimnus Cr.	Yost	1133	1986-87	3.0	41.8	5.6	0
Crow Cr.	Buhler/Buckhorn Rchs	1125	1989	0.8	7.4	1.5	0
Crow Cr.	Fleshman	1126	1988	1.2	10.5	2.4	2
Elk Cr.	Birkmaier (expired)	1134	1986	0.6	7.7	1.4	0
Pine Cr.	McDaniel	1131	1991	1.5	43.5	3.2	0
Salmon Cr.	McClaran	1127	1989	0.7	7.0	1.4	0
Salmon Cr.	McDaniel	1129	1990	1.6	45.5	3.2	0
Swamp Cr.	Boise Cascade	1124	1987	2.6	48.6	5.0	5
Swamp Cr.	Olsen (expired)	1132	1985	2.4	16.2	4.4	0
Subtotals:				20.9	388.0	41.5	8
<u>WALLOWA SUBBASIN:</u>							
Stream	Landowner		Year Built	Stream Miles	Acres Protected	Fence Miles	Spring Devel.
Hurricane Cr.	Irby	1443	1998	0.7	20.3	0.6	0
Hurricane & tribs.	Jones	1337	1997	0.8	9.0	1.3	2
Parsnip Cr.	Scott		2001	0.06	0.7	0.15	0
Wallowa River	Burrows*	1442	1998	0.06	0.3	0.06	0
Wallowa River	Cox	1442	1998	0.4	4.7	0.4	0
Wallowa River	Johnson	1442	1998	0.1	1.3	0.1	1
Wallowa River	McCrae	1442	1998	0.2	2.8	0.2	0
Wallowa River	Scott		2001-02	0.9	22.2	1.8	2
Wallowa River	Wiseman	1441	1998	0.7	8.1	0.7	2
Whiskey Cr.	Cox	1517	1999	0.2	3.6	0.4	0
Subtotals:				4.1	73.0	5.7	5
<u>NORTH FORK JOHN DAY:</u>							
Camas Creek	Pendleton Ranches	N/A	1995	2.25	27.3	4.1	0
GRAND TOTALS:				68.8	1,933.4	108.7	34

* Indicates a 10-15 year cooperative agreement, landowner does project maintenance. GRMWP Project Numbers are cross-referenced on Figure 3 map.

Miscellaneous Implementation Activities

On July 15th –17th 2002 ODFW and CTUIR personnel conducted fish salvage operations in the lower mile of McCoy Creek (Figure 9). The effort was necessary to prevent fish stranding when diverting water from the old channelized section into the new constructed channel. A total of 161 salmonids (Table 4) were captured and transported to refuge areas. The number captured was considerably less than what we projected based on the population estimates ODFW completed 2 weeks earlier (see M&E section). Our strategy of waiting until later in the instream work window before moving the fish seems to have allowed many of them to move out of the area on their own. The unusually hot weather and warm stream temperatures probably led to considerable migration of fish out of the area. Despite the harsh conditions, only 5 mortalities to salmonids occurred, or 3.1%.

TABLE 4. Results of fish salvage prior to diversion of water into the new channel on

McCoy Creek, July 15-17, 2002.						
Section	Section length	No. of Age 0+ Rb/std	No. of Age 1+ Rb/std	No. of Age 2+ Rb/std	No. of Age 0+ Chs	Estimated No. of non-salmonids*
Lower diversion to mouth	2,000 ft.	76	20	4	1	1,443
Culverts to lower diversion	1,600 ft.	18	18	0	1	529
Upper diversion to culverts	900 ft.	18	5	0	0	329
TOTALS:	4,500 ft.	112	43	4	2	2,301

*Calculations are based on samples sections that showed salmonids made up 7% of the total fish population.

Figure 9. McCoy Creek downstream of the triple culvert, July 17, 2002. ODFW and CTUIR crews used block nets and electroshockers to conduct fish salvage operations in the lower 4,500 feet of stream, prior to diverting water from the old channelized reach into the new channel.

ODFW fish habitat crews also assisted with fish salvage efforts on Ladd Creek in October 2002, prior to diverting water from the old channelized section to the new channel. No salmonids were found.

OPERATIONS AND MAINTENANCE:

Landowner Coordination

The biologist met with Norm Kerr on Little Creek to discuss benefits and potential problems related to beavers that have built several dams on his fenced off property. Mr. Kerr was generally very pleased with the results of the project, but an upstream landowner was concerned about flooding and potential shifts in the stream channel resulting from the beaver dams.

The biologist and watershed manager met with Doug McDaniel to discuss fence maintenance needs and recent cattle trespass problems on Salmon Creek. Mr. McDaniel is also considering entering the leased Salmon, Butte, and Chesnimnus creek properties into the CREP program.

Project personnel met with Paul Yost and discussed fence maintenance needs on Chesnimnus Creek. Mr. Yost did not renew the lease on his project, which expired in March 2001; however, he has for the most part kept cattle out of the creek. We agreed to assist with minor maintenance on his fences as long as he continues to keep cattle out. We also met with Doug McDaniel to identify fence and water gap maintenance needs for this season.

The biologist met with Rex Christensen to discuss instream work options for Beaver Creek. A follow-up letter was sent to him outlining fill/removal permit procedures and time frames.

Instream Maintenance

Large wood placed on the Meadow Creek/Habberstad project in 2000 was inspected during high flows. All structures were functioning as planned, and photopoints were retaken.

Revegetation

Table 2 summarizes revegetation and new project planting activities undertaken in 2002. Selection of revegetation sites was based on the need to improve bank stability, accelerate shade recovery, or to provide future large woody debris.

Fence Maintenance

Routine maintenance inspections of a total of 100.5 miles of project fence were completed in the spring, that included: 54.4 miles in the Upper Grande Ronde River drainage; 37.8 miles in the Joseph Creek subbasin; 4.2 miles in the Wallowa subbasin; and 4.1 miles in the Camas Creek drainage. A total of 321 stream cross fences and 145 watering gaps were inspected and maintained in the spring and fall. Inspections for trespass cattle were conducted weekly. Aerial flights were conducted to identify problem areas.

Maintenance of stream cross fences included removal of these structures in the fall to prevent damage from icing and high flows, and reinstallation and repair in the spring after flows subside. Maintenance of water gaps consisted of ensuring that all entry gates, escape gates and fence

structures were functioning properly. Routine maintenance of the main fence lines included removing fallen trees, repairing and tightening wires, and repairing structures.

No significant flooding occurred this year, so the time spent on spring maintenance was below average. Cattle trespass problems were unusually high again this year due to the extremely dry summer. Projects that required significant amounts of labor and materials in 2002 included:

Upper Grande Ronde subbasin

Maintenance work included: removing 30 trees from the Whiskey Creek, Beaver Creek and Upper Grande Ronde River fences, and repairing several broken wires; a rim rock anchor was repaired on the Grande Ronde River/Merlo fence; two cross fences were repaired on Camas Creek and trespass cattle chased out of the exclosures; water gaps on Whiskey Creek and the Upper Grande Ronde River were repaired, stays were straightened, and 2 structures were rebuilt; a water gap cross fence on the McCoy Creek/Tipperman property was rebuilt after instream work activities were completed; solar pumps and panels were reinstalled and maintained on the Grande Ronde River.

Joseph and Wallowa subbasins

Enterprise Screens personnel spent the month of September repairing water gaps, cross fences, gates and completing routine maintenance of mainline fences on Chesnimnus Creek (Yost and McDaniel properties). A wire water gap was converted to electric on Chesnimnus Creek. Water gaps on Salmon Creek were strengthened to prevent cattle trespass problems. Modifications to an existing water gap and associated main fences on Swamp Creek were completed, 12 downed trees were removed, and a gate was repaired. Minor fence repairs were made on the Wallowa River/Wiseman project.

Miscellaneous Operations & Maintenance Activities

The Kubota tractor, ATV's and dump truck were serviced. Lights were repaired on utility trailers. The ½ ton pickup truck and one of the ¾ ton pickup trucks were stripped down and returned to the state motor pool. The two new replacement pickup trucks were equipped with electric trailer brake controls, radios, racks, winches, bed liners, and toolboxes. One of the vehicle winches was sent in for repairs. Repairs to the fence wire roller and chainsaws were completed. The Topcon laser level was sent in for repairs.

MONITORING AND EVALUATION:

Photopoint Establishment

Seventeen pre and post-project photopoints were established at the instream wood sites on Ladd Creek and an additional 12 were established at cross section sites. Three photopoints were established at the instream wood placement sites on Beaver Creek. Six photopoints were established on the Wallowa River/Scott project. Sixteen photopoints were taken of wood placement sites on Milk Creek. Eight photopoints were established on the Bear Creek/Alta Cunha Ranches project.

Photopoint Picture Taking

Two hundred fifty four of a total of 345 photopoint pictures were retaken in 2002. All photopoint pictures were processed, labeled, and filed in permanent notebooks.

Habitat Monitoring Transect Establishment and Data Summarization

Editing and entering previously collected transect data (from 1988-2001) on McCoy, Sheep, Chesnimnus and Elk creeks continued throughout this report period. We consulted with other individuals familiar with using Dbase software to discuss various programming problems. About 75% of the data is proofed and ready for summarization. Graphing of cross sections of data collected in 1988 and 2000 on Sheep Creek was started.

Two longitudinal profiles and 4 cross sections (Rosgen Level III surveys) were established on reaches 1 and 3 of the new Ladd Creek channel. All sample sites were identified with permanent benchmarks and photopoints were taken at each site.

Two Rosgen type cross sections were resurveyed on the new Milk Creek channel. As expected, some lateral erosion (up to 1.3 feet) occurred on the pool cross section. The riffle cross-section showed only very slight erosion, averaging about 0.10 feet across the bankfull area (Figures 10 & 11). No instream structures were placed at either site at time of construction in 2000. The lateral erosion on outside bends was typical of what occurred on about 50% of the pools, while head cutting occurred only in one riffle throughout the 1,300 ft. reach. Based on this information, instream work conducted in 2002 using large wood and boulders addressed these concerns (see Instream Work section).

The entire McCoy Meadows project was surveyed using the Trimble total station GPS. The survey took 7 days to complete. Over 10,000 data points were collected that included: the thalweg, left and right waters edges, and top of banks for 2.5 miles of new channel; 4 cross sections (2 pools, 2 riffles); waters edges and depths of floodplain ponds; roads, dykes and other general topographic points. The data represents "as built" conditions before any winter/spring floods have moved through the system, and will be repeated in 2003 to monitor channel movement.

Milk Creek at 2+38 **Cross Section 1, POOL #4, 2002**

Figure 10. Pool cross section before and after first flood event illustrating some aggradation of the bed and lateral erosion of the

bank.

Figure 11. Riffle cross section before and after first flood events showing very little change in bed or banks.

Thermograph Data Collection and Summarization

Hourly temperature data have been recorded, collected, summarized and graphed from thermographs in Sheep and McCoy creeks since 1988; from Salmon Creek since 1991; Beaver and Camas creeks beginning in 1994; and Meadow Creek starting in 2000.

Twelve thermographs on Beaver, Camas, McCoy, Meadow, Salmon and Sheep creeks were downloaded and redeployed in the spring and fall. Problems encountered during the 2002 data collection period included: The lower thermograph near the old mouth of McCoy Creek was dewatered during the channel construction process and later moved to a new site at river mile 0.38 and; the lower thermograph on Camas Creek was relocated to a more suitable site 100 yards downstream after becoming dewatered and recording air temperatures from July 16 to August 20, 2002.

On August 2, 2002 both thermographs on Sheep Creek were removed after the landowner, John Schiller, notified us we would no longer have access on the property. This ends the 15-year study on this stream.

Thermograph Data Analysis

It is important to keep in mind tolerances of salmonids to changes in water temperatures as we analyze the data. The upper lethal limit for chinook salmon has been reported as 26.2°C, and the lower lethal limit at 0.8°C. Upper and lower lethal limits for steelhead are 23.9°C and 0.0°C (Meehan, 1991). The Independent Scientific Group (ISG, 1996) also reviewed available information and concluded that the thermal requirements for chinook salmon are approximately as follows:

LIFE STAGE	TEMPERATURE			
	Optimum	Range	Stressful	Lethal*
Adult migration and spawning	50 °F (10 °C)	46.4 -55.4 °F (8 -13 °C)	>60 °F (>15.6 °C)	>70 °F (>21 °C)
Incubation	<50 °F (<10 °C)	46.4 -53.6 °F (8-12 °C)	>56 °F (>13.3 °C)	>60 °F (>15.6 °C)
Juvenile rearing	59 °F (15 °C)	53.6-62.6 °F (12-17 °C)	>65 °F (>18.3 °C)	>77 °F (>25 °C)

* *Lethal is for 1-week exposures, higher temperatures may be tolerated for shorter exposure times.*

The ISG also concluded that other salmonid species are not markedly different. Salmonid populations are able to respond to temperature changes by moving upstream or downstream to find thermal refuges. Warming of streams, however, may concentrate salmonids into small areas where they may be more susceptible to predation (see 1998 Annual, Appx. 3), or lead to invasion of non-native species (Ebersole and others, 1994). In 1996 the Oregon Department of Environmental Quality (ODEQ), in accordance with an Environmental Protection Agency mandate, listed water quality limited streams in the state. The “303(d)” list included guidelines for stream temperatures; streams whose 7-day average of the daily maximum temperatures exceeded 17.8° Celsius (64° Fahrenheit) were listed as being thermally polluted, and are considered to have sub-lethal temperatures for salmonids and other cold-water species.

Analysis of summer stream temperature data by site are summarized below:

Salmon Creek:

Thermographs were installed at two sites in 1991. The upper site is located at the upstream end of the McDaniel property at RM 2.4. The lower site is near the mouth at RM 0.1, on the McClaran property. Riparian fencing at the upper site was completed in 1990; the lower site was fenced in 1989.

Salmon Creek has consistently shown cooling of stream temperatures as water travels downstream through the riparian corridor. In 1992, comparison of upper and lower summer mean weekly maximum temperatures showed an average cooling of 1.69°C at the lower (downstream) thermograph. In the summer of 2002 the average was 3.13°C cooler at the lower end (Figure 12). Over the last ten years of data collection lower Salmon Creek has averaged 2.64°C cooler (Figure 13). Temperature fluctuations from 1992-2002 averaged 6.1°C at the lower site compared to 9.3°C at the upper site, indicating cooler, stable, and more favorable conditions in the lower reaches. Salmon Creek is a small mid-elevation stream, and despite some large floods in 1996 and 1997, the vegetation is now in better condition to prevent damage from high flows, and there has been a considerable increase in the amount of shade along this reach. The stream channel has narrowed and deepened, reducing the stream water surface area and amount of solar radiation reaching the creek. There are also inputs of ground water from some springs that were also fenced off in 1990, which are also becoming more shaded.

Figure 12. Mean weekly summer temperature data on Salmon Creek in 2002, at RM 2.4 (Upper) and RM 0.1 (Lower).

Figure 13. Mean summer maximum temperatures on Salmon Creek, 1992-2002, at RM 2.4 (Upper) and RM 0.1 (Lower).

McCoy Creek:

Two thermographs were installed in 1988 on the Misener/Tipperman property; riparian fencing was constructed in the same year. The lower site is located near the mouth of McCoy Creek, and the upper site was originally about 1.6 miles upstream, at the transition from a meadow to a canyon reach. After channel relocations in 1997 and 2002 the upper site is now at R.M. 2.5.

In 1988, the first year of data collection, summer mean weekly maximum temperatures at the lower (downstream) site averaged 3.70°C warmer than the upper site. In 2002 the lower thermistor was not operating during the summer when the channel was being relocated (Figure 14). It took several weeks for the stream to charge the water table and finally reach the confluence of Meadow Creek at its new location (Figure 5). Over the last 14 years of data collection mean summer maximum temperatures in lower McCoy Creek have averaged 2.4 °C warmer (Figure 15). Temperature fluctuations from 1988-2001 averaged 10.2 °C at the lower site compared to 7.3 °C at the upper site, indicating cooler, stable, and more favorable summer conditions in the upper reaches. Flow entering the upper site is draining a hillslope constrained reach with higher percentage of canopy and shade, while the lower site runs through a lower gradient meadow section where streamside vegetation and groundwater recharge have not yet reached its potential.

In 1997 the McCoy Meadows channel relocation project was implemented in the upper half of the meadow (RM 0.8 to RM 1.5), which diverted the channel into one of the pre-1970 channels. We reported some cooling occurring in this reach (see 1997 Annual Report), but the stream warmed back up rapidly by the time it reaches the lower thermograph at the mouth. In 2002 the

lower 0.8 miles of the straight stream channel was diverted into 1.5 miles constructed meandering channel, and we will continue to monitor temperature trends.

Figure 14. Summer temperature data on McCoy Creek in 2002, at RM 2.5 (Upper) and RM 0.0 (Lower).

Figure 15. Mean summer maximum temperatures on McCoy Creek, 1998-2002, at RM 2.5 (Upper) and RM 0.0 (Lower).

Sheep Creek:

Thermographs were installed in 1988 on the Vey property and fencing was completed the same year. The upper site was located at RM 6.7 near the U.S. Forest property boundary. The lower site is located 4.3 miles downstream at RM 2.4 and about 100 feet upstream from the bridge along F.S. Road 51.

Comparison of summer mean weekly maximum temperatures shows that lower Sheep Creek averaged 1.46°C warmer than the upper site in 1988 when the project was initiated, and 0.85 °C warmer in 2002 (Figure 16). Data collected over the 15-year period showed moderate and consistent warming downstream, averaging 1.6°C higher at the lower thermograph (Figure 17), while the regression lines indicate a very slight cooling at both sites over the study period. Daily fluctuations at both sights are moderate compared to other sites, averaging 8.4 °C at the upper site, and slightly less at 8.1 °C at the lower site. Figure 18 illustrates a typical winter during which the stream freezes over for about 3 months.

Sheep Creek is a high elevation, very sinuous, low gradient stream where the dominant vegetation is sedges and rushes. Very little improvement in shade has been measured (only a 1% increase from 1988 to 2000), and with long winters and a short growing season, very few willows reach heights above 5 feet. Most planted lodgepole pines are doing well, but will not reach shade-producing height for several more years. Unfortunately, data collection ceased in mid-August after the landowner (Schiller) denied future access to the property.

Figure 16. Summer temperatures on Sheep Creek in 2002 at RM 6.7 (Upper) and RM 2.4 (Lower).

Figure 17. Mean summer maximum temperatures on Sheep Creek, 1998-2002, at RM 6.7 (Upper) and RM 2.4 (Lower).

Figure 18. Winter temperatures on Sheep Creek in 2002 at RM 6.7 (Upper) and RM 2.4 (Lower).

Beaver Creek:

ODFW installed Hobo Temp thermographs at the mouth of Beaver Creek, and at the Crown-Pacific/ U.S. Forest Service property boundary at RM 5.9 in July 1994. These were replaced in November 1994 with Unidata Starlogger thermographs that also recorded ambient air temperature. Riparian fencing was completed on the lower half of the study area in 1993, and on the upper half in 1994.

Comparison of Beaver Creek mean weekly maximum water temperatures in 2002 showed continued warming of water moving downstream, similar to what has been observed in past years (Figure 19). Data collected over the 9-year period continues to show significant warming, averaging 4.0°C warmer at the lower thermograph (Figure 20). Daily temperature fluctuations at the upper site averaged 4.5 °C compared to 8.2 °C at the lower site. Stream temperatures at the Upper Beaver Creek site are one of the few places we have monitored that generally stays within the ODEQ water quality standard of 17.8°C. The standard was only exceeded in 4 weeks of the 26 week period, in what was a warmer than average summer. A large portion of the upper drainage is within the protected City of La Grande watershed.

Figure 19. Summer temperatures on Beaver Creek in 2002, at RM 5.9 (Upper) and RM 0.0 (Lower).

Figure 20. Mean summer maximum temperatures on Beaver Creek, 1994-2002, at RM 5.9 (Upper) and RM 0.0 (Lower).

Camas Creek:

Permanent Unidata Starlogger thermographs were placed at the upper and lower ends of the project area in May of 1995, recording stream and ambient air temperatures. Riparian corridor fencing was completed in 1995. The upper site is located about 0.3 miles downstream of Lehman Hot Springs Road at RM 29.6; the lower site is about 2.8 miles downstream at RM 26.8 at the Pendleton Ranches/Forest Service property boundary. Comparison of summer mean weekly maximum temperatures showed that the lower Camas Creek site in 2002 averaged 0.37°C cooler than the upper site (Figure 21), but the lower thermistor was dewatered for about 5 weeks in mid-summer. The probe was relocated to a more suitable site in late August. Mean summer maximum temperatures at the lower site averaged slightly cooler (0.28°C) than the upper site throughout the 9-year period, but no consistent pattern of either cooling or warming has developed (Figure 22). Daily fluctuations average 9.6 °C at the upper site and 8.8 °C at the lower site during the 9-year period.

Figure 21. Summer temperature data on Camas Creek in 2002, at RM 29.6 (Upper) and RM 26.8 (Lower).

Figure 22. Mean summer maximum temperatures on Camas Creek, 1994-2002 at RM 29.6 (Upper) and RM 26.8 (Lower).

Meadow Creek

Permanent Unidata Starlogger thermographs were installed at the upper and lower ends of the Alta Cunha Ranches projects at river miles 10.3 and 8.7 in May of 1999. Both units were set up to record water and ambient air temperatures. The 2000 data indicated slightly (0.20°C) cooler water at the downstream end of the project. In 2002 the lower site averaged 1.59°C cooler at the lower site (Figure 23). Mean summer maximum temperatures at the lower site averaged 0.99°C cooler than the upper site throughout the 3-year period (Figure 24). Daily temperature fluctuations at the lower site averaged 8.4°C , versus 9.3°C at the upper site.

Figure 23. Summer temperature data on Meadow Creek in 2002, at RM 10.3 (Upper) and RM 8.7 (Lower).

Figure 24. Mean summer maximum temperatures on Meadow Creek, 1999-2002 at RM 10.3 (Upper) and RM 8.7 (Lower).

Miscellaneous Monitoring & Evaluation Activities

Groundwater Wells

ODFW, CTUIR and NRCS personnel spent 1 week installing a series of groundwater wells on the Bear Cr/Longley Meadows project. Wells were set at depths of 8-10 feet using the Kubota tractor with backhoe attachment, and hand augers. Data collected from these wells was used to aid in determining the thalweg elevations of the proposed new Bear Creek channel, and to insure that we avoid perching the new channel, ending up with a dewatered stream during summer base flows. The data will also be used to compare existing groundwater elevations to post-project elevations, and determine if we are able to raise the water table above the base levels resulting from a deeply incised channel. A total of 17 wells were installed and data collected on a weekly basis. The wells were set up in grid fashion to include two cross sections and a longitudinal (down valley) pattern (Figure 25). In addition, water surface elevations in the existing (channelized) Bear Creek and the Grande Ronde River were collected. All wells were surveyed in and tied into the topographic survey previously completed.

Peak groundwater elevations occurred in March for most of the wells (Figure 26). Lowest groundwater elevations generally occurred in October to November. Despite the fact that we sunk the wells 8-10 feet below the surrounding ground, many of them (wells 1-10) dried out by mid-summer, so it was not possible to determine the maximum fluctuation. Wells that were farther away from the incised channel or closer to the existing wetland complex to the east stayed wet and fluctuated to a lesser extent.

Figure 25. Location of groundwater wells installed along Bear Creek in January 2001.

Figure 26. Pre-project groundwater and surface water elevations in Longley Meadows.

Spawning Surveys

Steelhead redd counts were completed on 29.1 miles of streams (Table 2). Redd counts averaged

1.82 redds/mile in 2002, compared to 1.27 redds/mile in 2001. Whiskey and Little Whiskey Creek redd counts were the highest recorded since counts began in 1993, and have generally shown an upward trend since restoration work was initiated (Figure 27). Also noteworthy was that 2 of the 3 redds on Milk Creek were found in the new channel that first received water in July 2001. Surveys on Bear and Jordan creeks were added this year. Neither stream had been surveyed in many years.

TABLE 5. Summary of Steelhead Spawning Surveys in Upper Grande Ronde Basin Streams, 2002.

STREAM	REACH	Location (River Miles)	No. Redds	Miles Surveyed	Redds/mile	Live Fish
Bear Cr	Above hwy 244 to Hopp boundary	0.5-1.8	3	1.3	2.3	0
Jordan Cr	Mouth to Rankin	0.0-1.4	6	1.4	4.3	1
McCoy Cr	F.S. 21 Rd to Cunha boundary (index +)	7.0-10.0	5	3.0	1.7	0
McCoy Cr	Cunha to Snow boundary	3.0-7.0	3	4.0	0.8	0
McCoy Cr	Snow to upper Tipperman boundary	2.0-3.0	3	1.0	3.0	0
McCoy Cr	Upper Tipperman to Mouth	0.0-2.0	4	2.0	2.0	0
Meadow Cr	F.S. index to Cunha boundary	10.3-17.5	4	7.2	0.5	7
Meadow Cr	Cunha boundary to Troutman (lower 0.3 miles)	6.7-10.3	4	3.6	1.1	0
Milk Cr	Mouth to Corrals	0.0-1.0	3	1.0	3.0	2 live, 1 carcass
Little Whiskey Cr	Upper Courtney to mouth	0.0-1.0	5	1.0	5.0	
Whiskey	Upper Courtney to mouth	0.0-3.6	13	3.6	3.6	9 live, 1 carcass
TOTALS:			53	29.1	1.82	11

Figure 27. Redd counts on Whiskey Creek and Little Whiskey Creek, 1993-2002.

Fish Population Estimates

ODFW personnel repeated electroshocking surveys on McCoy Creek on July 1-2, 2002 (Table 6). Population estimates of juvenile Rb/St were relatively high in 1997, but have leveled off since then. Rb/St made up 7.1% of the total fish population in 2002. Summaries of all data from 1997-2002 are shown in Figure 28.

TABLE 6. Fish Population Estimates in three 50 meter ODFW Monitoring Stations in McCoy Creek, July 2, 2002.							
SPECIES	SAMPLE SECTION				SPECIES		
	F-1 (RM 1.4)	F-2 (RM 0.9)	FS-1 (RM 0.7)	FS-2 (RM 0.2)	Totals	FISH/m ²	COMP.
Rb/St	2	0	51	27	80	0.13	7.1%
Sculpin	6	0	118	53	177	0.29	15.7%
Dace	49	0	63	130	242	0.40	21.4%
Shiner	159	0	52	82	294	0.49	25.9%
Sucker	18	0	4	44	66	0.11	5.8%
Pikeminnow	23	0	2	105	131	0.22	11.5%
Bullhead	0	0	0	0	0	0.00	0.0%
Chiselmouth	11	0	5	125	141	0.23	12.5%
Other	0	0	0	0	0	0.00	0.0%
Totals	269	0	296	566	1,131	1.87	100%

Figure 28. Fish population estimates and densities of Rb/St and other species in McCoy Creek, 1997-2002.

Misc. Channel Morphology

Toe pins that were installed at the mouth of McCoy and Meadow creeks in 2000 were resurveyed to monitor for channel aggradation/degradation. No significant changes occurred.

Habitat Monitoring Workshop

The La Grande District fisheries biologist assisted with organizing an Oregon State University workshop on “Monitoring Habitat Restoration Projects in Interior Watersheds: How Do We Know We Are Making a Difference?” on November 11-13, 2002. The National Oceanic and Atmospheric Administration, the Northwest Power Planning Council and the Oregon Watershed Enhancement Board sponsored the workshop. The workshop was in response to numerous requests from managers and biologists working in the Columbia Basin, and was partially intended to help BPA project sponsors improve the M&E component of their projects. We learned that different levels of monitoring (Tier 1-3) are required at various scales (local, watershed, subbasin, regional, etc.). But how much M&E should be done at the project level is still a point of confusion since there is a large gap in the expectations of the Independent Scientific Review Panel (ISRP) who review the projects, and BPA who is responsible for funding the projects. The topic continues to be discussed in various regional forums. Meanwhile, we will continue to improve the M&E component of our project within budgetary

constraints.

RESULTS AND DISCUSSION: PROGRAM ADMINISTRATION

Administrative activities during 2002 included preparation of reports and data summaries, budget preparation and purchases, program development, and personnel hiring and supervision.

Reports and Data Summaries

Quarterly and annual progress reports for the Grande Ronde Basin Fish Habitat Enhancement program were prepared and submitted to BPA and others. The 2002 Annual was posted on the BPA web site.

Fish habitat implementation summaries were completed, and the project database updated.

Budgets/Purchases

Considerable time was spent obtaining quotes for construction materials, purchasing supplies, receiving material shipments, working on the Statement of Work and Budget, and tracking project expenditures from various sources of funds (BPA, Grande Ronde Model Watershed Program, OWEB, and ODFW Fish Restoration & Enhancement, Oregon Wildlife Heritage Foundation).

Major purchases this year included: fence materials and field supplies; AutoDesk software; a new 6-wheel drive ATV was purchased and an old 2-wheel drive ATV traded in; the 1994 Ford ½ ton pickup truck was returned to the State Motor Pool and replaced with a 1-ton Ford truck more suitable for towing large loads; the 1994 Ford ¾ ton was returned to the State Motor Pool and replaced with a Dodge ¾ ton extended cab; GPS laser equipment was purchased for the Trimble total station GPS. Additional fence materials were purchased using ODFW Fish Restoration and Enhancement and Oregon Wildlife Heritage Foundation funds.

Program Development

The monitoring and evaluation component of the project was updated in the FY 2002-04 proposal.

The ODFW Grande Ronde Watershed District Manager completed the FY2002 Statement of Work and Budget, for the March 1, 2002 to February 28, 2003 contract period. In June BPA approved a budget of \$349,386, but a signed contract was not received until December 2002. Our BPA contracting officer also informed us that we could no longer carry over contract dollars into the next contract year.

Personnel

Interviews were conducted for hiring a limited duration Experimental Biology Aid. Scott Stennfeld was hired to fill this position. Jon Fritz was hired on June 5th to fill the vacant seasonal EBA position.

Russ Powell interviewed for, and accepted the Fish Habitat Biologist position in John Day in May 2002. A job announcement to refill his vacant Technician II position was distributed and interviews were conducted in October, but the job was not filled due to lack of qualified applicants. Scott Stennfeld was assigned those duties in a work out of class assignment.

Gerry Martin and Tim Caswell from the ODFW Enterprise Screens Shop were hired to conduct

fence maintenance during the month of September.

Contract Administration

Badger Fencing completed the east side of the Wallowa River and Parsnip Creek fence contract in August. A total of 0.93 miles of fence and 12 gates were built, and 2,157 feet of old fence removed for the total cost of \$8,949.10.

Straightline Fence completed the west side of the Wallowa River fence contract in September. A total of 1.02 miles of fence and 12 gates were constructed, and 2,350 feet of old fence removed for the cost of \$7708.60.

The biologist attended a pre-bid tour for Phase 3 work on the McCoy Meadows Restoration Project on the Tipperman property. The CTUIR and NRCS administered the contract and ODFW personnel helped with contract inspection.

K. C. Coe Construction completed placing large wood and boulders on Milk Creek for the approximate cost of \$1,800. Oregon State Forestry personnel administered the contract using OWEB funds.

AKey Construction was hired under an equipment rental contract to construct the new Bear Creek channel. The CTUIR administered the contract using GRMWP funds, and ODFW did most of the onsite supervision.

INTERAGENCY COORDINATION & EDUCATION

Communication, education, coordination and cost sharing of habitat enhancement activities were completed by actively pursuing opportunities to work with and learn from personnel involved with other agencies, organizations and programs.

INTERAGENCY COORDINATION:

Information, materials or assistance was provided to members of various agencies or programs, including:

- The biologist wrote a memo comparing various restoration techniques and costs for Steve Donovan of Ducks Unlimited and OWEB technical committee members.
- The biologist met with Chuck LeBold, an engineer working for the Wallowa-Whitman NF to discuss project development and designs on Milk Creek. Mr. LeBold will be implementing a similar project on McIntyre Creek, upstream of the McCoy Meadows project.
- Copies of fence specifications were given to the manager of the Ladd Marsh Wildlife Area for a wildlife fence on Glass Hill.
- Photopoint pictures were sent to Tim Bailey, ODFW Pendleton, for use in a presentation he gave to the Independent Multidisciplinary Science Team for Oregon.
- GPS data collected on the Grande Ronde River/Longley Meadows project was sent to CTUIR and USFS staff.

Meetings were attended to provide technical input on:

- The biologist attended a GRMWP technical review meeting and provided details for the Longley Meadows/Bear Creek channel relocation project.
- The biologist and technician toured various active and passive habitat restoration projects in Pendleton.
- Various staff from the USFS La Grande Ranger District, Oregon Department of Transportation, and NRCS toured the Bear Creek channel realignment project.

Other agencies, organizations, groups or individuals that worked cooperatively, or provided assistance or materials to this project, included:

- Darrel Dyke, a Bureau of Reclamation engineer working with the GRMWP assisted us with groundwater well set up and data interpretation. Mr. Dyke provided technical input on what changes we might expect in the groundwater tables after Bear Creek is diverted into the new channel, and what elevation to set the stream bottom to so that we maintain a wetted channel throughout most of the summer.
- Cathy Nowak of Cattracks, Inc. assisted with establishing monitoring sites and conducting Rosgen Level 3 surveys on Ladd Creek.
- Ladd Marsh Wildlife Area provided several lengths of 5-inch irrigation pipe and a NMFS approved screen for use on Bear Creek.
- The USFS La Grande Ranger District donated a used Hilte drill to the project.
- Scott Hartell of the Union County Planning office was contacted regarding how to report and handle a rural dumpsite.

EDUCATION:

The following educational activities were undertaken during 2002:

- The biologist attended a 1-day Hazardous Materials refresher course.
- Ettiene Johnson of the Union Soil & Water Conservation District contacted us to discuss use of solar powered pumps for offsite spring developments.
- The technician gave a slide show on BPA funded riparian enhancement projects to the La Grande Kiwanis club.
- The technician gave a talk to Cove Elementary students on the importance of riparian habitats.
- The biologist toured restoration projects with GRMWP and Portland State University staff and students who were participating in a “Perspectives in Watershed Health” class.
- The biologist gave a presentation on the Milk Creek/Hall Ranch active restoration project for the Eastern Oregon Agricultural Research Center field day: “Cattle, Wildlife, and Economics-Do the Pieces of the Puzzle Fit Together”. The same presentation was later given to the Independent Multidisciplinary Science Team and watershed council members who were reviewing and reporting on eastside restoration projects.
- Information on the McCoy Meadows project was provided to ODFW staff for an article that appeared in the “Inside Tracks” newsletter.

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APPENDIX 1. -Anadromous fish streams within the Joseph Creek and Wallowa River subbasins with highest priority for habitat improvement.

Miles of Riparian Improvement

<u>Joseph Creek:</u>		Stream Miles Needing Work				Fencing:		Planting:		No. of Instream Structures	
Stream	Species	Priority	Public	Private	Total	Public	Private	Public	Private	Public	Private
Peavine Creek	Stld	1	8.0	0.0	8.0	4.5	0.0	4.5	0.0	43	0
Elk Creek	Stld	2	3.5	5.0	8.5	3.5	5.0	3.5	5.0	25	35
Chesnimnus Creek	Stld	3	12.0	8.0	20.0	12.0	8.0	8.0	4.0	60	40
Crow Creek	Stld	4	1.0	13.0	14.0	1.0	13.0	0.0	10.0	10	50
Swamp Creek	Stld	5	5.0	10.0	15.0	5.0	10.0	2.5	5.0	10	20
Pine Cr. System	Stld	6	2.0	20.0	22.0	2.0	18.0	2.0	18.0	10	40
Devil's Run Creek	Stld	7	5.0	0.0	5.0	2.0	0.0	2.0	0.0	10	10
Davis Creek	Stld	8	7.0	3.0	10.0	7.0	3.0	4.0	3.0	10	0
Butte Creek	Stld	9	0.0	4.0	4.0	0.0	4.0	0.0	3.0	0	10
TNT Gulch	Stld	10	2.0	0.0	2.0	2.0	0.0	2.0	0.0	10	0
Joseph Creek	Stld	11	0.0	12.0	12.0	0.0	12.0	0.0	12.0	0	80
Subbasin Totals			45.0	75.0	120.5	39.0	73.0	28.5	60.0	188	285
<u>Wallowa River:</u>											
Whiskey Creek	Stld	1	0.0	7.0	7.0	0.0	6.5	0.0	5.5	0.0	26
Prairie Creek	Ch, Stld	2	0.0	10.0	10.0	0.0	9.5	0.0	8.0	0.0	37
Trout Creek	Stld	3	0.0	14.0	14.0	0.0	13.5	0.0	11.0	0.0	52
Dry Creek	Stld	4	0.0	8.0	8.0	0.0	7.5	0.0	6.0	0.0	30
Rock Creek	Stld	5	0.0	3.0	3.0	0.0	3.0	0.0	2.5	0.0	11
Parsnip Creek	Stld	6	0.0	1.0	1.0	0.0	1.0	0.0	1.0	0.0	4
Subbasin Totals			0.0	43.0	43.0	0.0	41.0	0.0	34.0	0.0	160

SOURCE: Confederated Tribes of the Umatilla Indian Reservation, 1984. Grande Ronde River Basin: Recommended Salmon and Steelhead Habitat Improvement Measures, 92 pp.

APPENDIX 2. -Anadromous fish streams within the Upper Grande Ronde drainage with highest priority for habitat improvement.
Miles of Riparian Improvement

<u>Upper Grande Ronde:</u>		Stream Miles Needing Work				Fencing:		Planting:		No. of Instream Structures	
Stream	Species	Priority	Public	Private	Total	Public	Private	Public	Private	Public	Private
Grande Ronde River	Ch, Stld	1	6.0	5.0	11.0	2.0	5.0	1.0	4.0	130	175
Sheep Creek	Ch, Stld	2	7.0	5.0	12.0	1.0	5.0	0.5	2.5	210	175
Fly Creek	Stld	3	6.0	6.0	12.0	1.0	5.0	0.5	3.0	180	180
Spring Creek	Stld	4	5.0	0.0	5.0	1.0	0.0	2.5	0.0	150	0
S.F. Spring Creek	Stld	5	3.0	0.0	3.0	1.0	0.0	1.5	0.0	90	0
N.F. Spring Creek	Ch, Stld	6	3.0	0.0	3.0	0.0	0.0	0.0	0.0	90	0
McCoy Creek	Stld	7	4.0	7.0	11.0	1.0	7.0	3.0	4.0	120	210
Rock Creek	Stld	8	0.0	6.0	6.0	0.0	8.0	0.0	3.0	0	90
Dark Canyon Creek	Stld	9	1.0	2.5	3.5	0.0	2.5	0.0	0.0	15	38
Meadow Creek	Stld	10	7.0	7.0	14.0	1.0	7.0	0.5	0.5	210	210
Indian Creek	Ch, Stld	11	1.0	5.0	6.0	0.5	3.5	0.0	0.0	30	150
Chicken Creek	Ch, Stld	12	5.0	2.0	7.0	1.0	1.0	0.0	1.0	75	70
Catherine Creek	Ch, Stld	13	0.0	5.0	5.0	0.0	4.0	0.0	0.0	0	150
Beaver Creek	Stld	14	1.5	5.0	6.5	0.0	3.0	0.0	0.0	45	150
Five Points Creek	Stld	15	5.5	0.5	6.0	0.0	0.5	0.0	0.5	165	15
Clark Creek	Ch, Stld	16	0.0	6.0	6.0	0.0	4.0	0.0	3.0	0	180
Little Catherine Creek	Stld	17	1.0	4.0	5.0	0.0	2.0	0.0	1.5	15	60
Bear Creek	Stld	18	5.0	0.5	5.5	0.0	0.0	0.0	0.0	75	8
Limber Jim Creek	Ch, Stld	19	2.0	0.3	2.3	0.0	0.0	1.0	0.3	30	5
Pelican Creek	Stld	20	3.0	0.5	3.5	0.0	0.0	0.0	0.0	45	8
Peet Creek	Stld	21	2.0	1.0	3.0	0.0	0.0	1.0	0.5	60	30
Little Fly Creek	Stld	22	3.0	2.5	5.5	0.0	0.0	0.0	1.0	90	75
Whiskey Creek	Stld	23	1.0	8.0	9.0	0.0	4.0	0.0	2.0	15	120
Jordan Creek	Stld	24	2.0	8.0	10.0	0.0	4.0	0.0	2.0	30	120
N.F. Limber Jim Cr.	Stld	25	2.0	0.0	2.0	0.0	0.0	0.0	0.0	30	0
McIntyre Creek	Stld	26	2.5	5.0	7.5	1.0	3.0	1.0	5.0	75	150
Waucup Creek	Stld	27	5.0	0.0	5.0	0.0	0.0	1.0	0.0	150	0
Burnt Corral Cr.	Stld	28	6.0	0.2	6.2	0.0	0.0	0.0	0.0	90	4
Lookout Creek	Stld	29	3.5	0.8	4.3	0.0	0.0	0.0	0.0	53	24
Little Dark Canyon Cr.	Stld	30	2.0	0.0	2.0	0.0	0.0	0.0	0.0	60	0
Phillips Creek	Stld	31	0.0	6.0	6.0	0.0	2.0	0.0	0.0	0	180
Gordon Creek	Stld	32	0.0	7.0	7.0	0.0	4.0	0.0	2.0	0	210
Dry Creek	Stld	33	0.0	8.0	8.0	0.0	6.0	0.0	4.0	0	240
Cabin Creek	Stld	34	0.0	3.0	3.0	0.0	2.0	0.0	0.0	0	90
Drainage Totals			95.0	116.8	211.8	10.5	82.5	13.5	39.8	2,328	3,117

APPENDIX 3-Newspaper article, The Observer, July 31, 2002.

THE OBSERVER

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SECTION

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PORTRAITS

WEDNESDAY, JULY 31, 2002

Oregon
Department of
Fish and Wildlife
employees work
together to trap
fish in McCoy
Creek. The fish
were
transplanted
upstream when
water was
diverted from
the old ditch into
the new
meandering
creek bed.

Photo/GRANDE RONDE MODEL WATERSHED

Riparian Renewal

Grande Ronde Model Watershed projects
enhance stream health and habitat

By Alice Perry Linker
Observer Staff Writer

As you wade through high grasses and wildflowers along the creek bank on a summer morning, it's hard to imagine that this stream is only one year old.

Milk Creek is really much older, but during modern times and until a year ago, it flowed as an open ditch along Highway 203 a few miles from Catherine Creek State Park.

In an ambitious project, several agencies brought together engineering and environmental expertise to create a meandering creek bordered by grasses and wildflowers and flowing through a

meadow on Oregon State University's experimental Hall Ranch.

The fish are returning. Several adult and juvenile steelhead have been spotted and at least two redds (nests) have been seen. Rick Wagner, project manager from the Oregon Department of Forestry, said earlier this year he discovered a "big adult" upstream from the project.

The new stream bed on the Hall Ranch has caught the attention of a private landowner whose property lies upstream from the ranch. With the upstream landowner's improvement of his reach, the creek will be restored by next summer from the headwaters to

the confluence with Catherine Creek.

Such riparian projects are funded in Union and Wallowa counties from federal and state grants administered by the Grande Ronde Model Watershed, a 10-year-old organization of landowners, conservationists and public officials who bring together diverse perspectives about the Grande Ronde River Basin.

Several miles away from Milk Creek, on Mark Tipperman's 2,500-acre property in the Meadow Creek watershed, agencies will complete a stream restoration project begun several years ago with the cooperation of the Confederated Tribes of the Umatilla Indian Reservation, the Oregon Department of Fish and Wildlife, the U.S. Natural Resources Conservation Service and other environmental agencies.

This summer, in preparation for opening a new meandering channel of McCoy Creek, ODFW trapped fish from the "old" creek channel and released them in Meadow Creek and upstream on McCoy.

Tipperman said the project was a 70 percent-25 percent cost share, with him paying 25 percent, but he has listed his property under the federal wetlands reserve program, which provides funding in exchange for the landowner reclaiming and conserving wetlands.

"When we bought the property, we didn't think about relocating the creek," Tipperman said. "We assumed with fencing, the riparian area would recover, but we learned that would be a long, long recovery, if ever."

McCoy and other creeks within the Meadow Creek Watershed are gradually returning to their natural state, attracting fish and other wildlife.

RIPARIAN RESTORATION projects within the Grande Ronde and Wallowa valleys are almost routine today, but only 10 years ago, ranchers, landowners, conservationists and county officials had a difficult time coming together in agreement on projects.

Union County Commissioner John Howard and former Wallowa County Commissioner Pat Wortman were the driving forces behind the founding of the Grande Ronde Model Watershed.

Steve McClure, another Union County commissioner, recalls the Herculean efforts of the core group.

"There were days when that group could not agree on anything, except to meet again," McClure said. "I remember saying to John, 'You might as well give up. This isn't going to work.'"

Standing on the bank of the Grande Ronde River, Mike Burton talks about the way large root wads can provide shade for salmon and steelhead. His presentation took place about three years ago during a tour.

The Observer/ALICE PERRY LINKER

Although Howard prefers to talk about watershed successes, he agreed that, "It was hard in the beginning."

"There was the trust factor," he said. "Both sides — some thought we weren't moving fast enough; others thought we were moving too fast. The goal was to bring people together."

John Harrison of the power planning council agreed that progress in the early days came at a snail's pace.

"It's a slow and difficult process," he said about riparian restoration. "It affects lives and livelihoods. People like Pat Wortman were dedicated to making this thing a success and didn't give up in the face of landowners who were simply distrustful of government."

"This was the right thing to do: Improve habitat while improving the local economy. Very difficult."

The Grande Ronde organization came into existence following a 1980 directive from Congress to protect and enhance fish and wildlife habitat. The Northwest Power Planning Council was given the authority to "repair the damage done by the dams" in the Columbia River Basin, Harrison said.

Watershed planning councils were formed, with the Grande Ronde as one of the first models. Patty Perry was hired as the first director. Her work and that of current director Jeff Oveson received praise.

"The Grande Ronde Model

Watershed is kind of the model of the models," said Joe DeHerrera of the Bonneville Power Administration. "They're probably the largest, the most thorough and seem to do an excellent job."

Since the Grande Ronde organization developed, many other watershed councils have been created throughout the Columbia Basin.

The instream and streamside projects take place on private and public property, and the U.S. Forest Service takes a substantial share of riparian restoration dollars.

But private landowners are important, too, and like the Tipperman ranch, the Cunha ranch has participated in major riparian projects, especially along the Grande Ronde River.

Each fall, the model watershed board rates

and awards federal and state dollars to riparian projects. Among the approximately 14 programs funded for the current year is one that will install solar powered water pumps to provide drinking water containers for cattle on Bill White's Catherine Creek ranch.

Howard said one of his goals was to involve the counties' private landowners.

"We wanted to be proactive, rather than reactive," he said. "There was quite a bit of coaching going on — a lot of sideline work. By the second year the group began to jell."

Grasses and wildflowers flourish along the banks of Milk Creek, a year after they were planted.

The Observer/ALICE PERRY LINKER

Rick Wagner of the Oregon Department of Forestry looks at the condition of Milk Creek a year after restoration.

The Observer/ALICE PERRY LINKER