

RIPPLES in the GRANDE RONDE

SUMMER 2004

RIVERS UNITING NEIGHBORS

VOLUME 3, ISSUE 2

Whole Tree Placement

Richard W. Galloway
&
Jeff Oveson

Many of the lifetime residents in our area remember a much different Upper Grande Ronde River than is seen on a Sunday afternoon drive today.

Research undertaken by the Forest Service in 1991, shows that from 1940 to the early 1990s, the number of pools, those deep-water sections of the river where fish feed, rest and seek shelter, have declined by approximately 80 percent. An assessment done in 1992 (McIntosh 1992), numbered the pools from Fly Creek to Vey Meadows as being seven or less per mile, a number insufficient to accommodate both resident and anadromous fish that inhabit the Grande Ronde.



Pool and gravel bed improvements 04
© Rock Rabbit Photo

The utilization of this reach of the Grande Ronde for timber, transportation, and minerals combined to significantly alter the natural state of the river. In the mid 20th century, rivers were also being altered in the name of flood control, and the upper Grande Ronde was a prime example of the havoc this could cause. Because this reach is relatively flat, it was the

natural place to build a railroad, the requirements of which were removal of trees that stood in the way and the subsequent harvest of trees close to the corridor.

The presence of precious metals in the upper Grande Ronde meant mining, another physical alteration whose effects are still felt. The processes used to extract the valuable minerals from among the indigenous rocks that were part of the

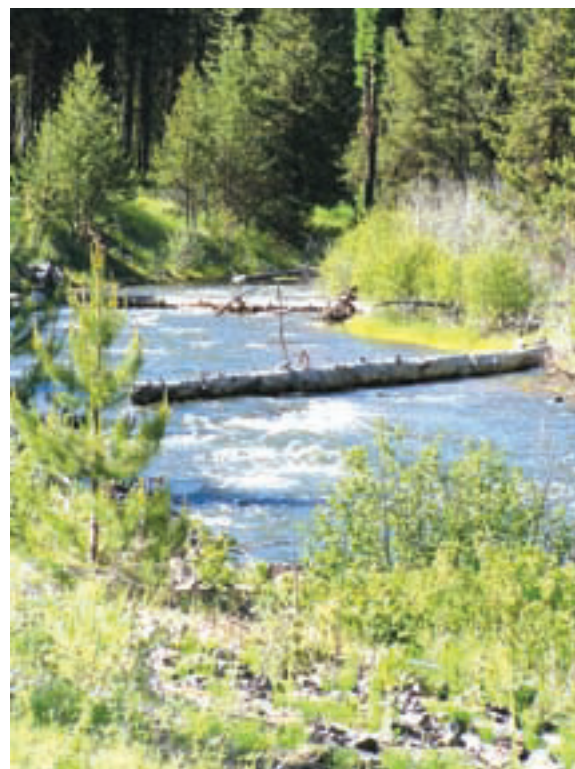
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Two logs cabled together near Vey Meadow
© Rock Rabbit Photo



Helicopter in route with whole trees.
File photo-GRMWP



Logs visible from Forest Road 51
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Melinda S. Eden

NORTHWEST POWER AND CONSERVATION COUNCIL

Richard W. Galloway
&
Jeff Oveson

All else being equal, it is always nice to deal with a local business or person instead of a person from out of the area.

Enter Melinda S. Eden with the Northwest Power and Conservation Council. A Portland native who moved with her family to the East coast when her father joined the Air Force, Melinda is now working with the Council in the Milton-Freewater office. There are 8 members on the council, 2 each from OR, MT, ID and WA. The teams are divided with one member from each state serving on the Fish and Wildlife committee and the other on the Power committee. Melinda was appointed by Governor John Kitzhaber and confirmed by the Oregon State Senate before joining the council in January of 2003 to fill the last year of an unexpired term. Governor Kitzhaber then reappointed her for a three-year term at the end of 2003. Her background as a member of the Oregon Environmental Quality Commission, this commission oversees the Oregon Department of Environmental Quality. She chaired this commission from 1999 until her appointment to the NPCC. Melinda is also a practicing attorney specializing in hazardous substances law.

Melinda is Oregon's Fish and Wildlife committee member, while Gene Derfler is Oregon's representative on the Power Committee.

One complex and important project that the Council is working on with the Grande Ronde Model Watershed Program (GRMWP) is Sub Basin Planning (SBP). This is a monumental, basin wide, project being done "from the ground up, with local level planning in each of the 62 sub basins," says Melinda. Each sub basin is represented by a 'lead entity' and the GRMWP is the representative for the Grande Ronde sub basin.

These plans combine the three principle segments of, Inventory, Assessment, and a Management Plan. These three combined are the basis for the Council to make recommendations to the Bonneville Power Administration (BPA) for which

projects to fund. The BPA projects are prioritized for spending between the sub-basins and further within each sub basin. NOAA Fisheries, the regulatory branch of the National Oceanic and Atmospheric Administration charged by congress to develop recovery plans for ESA listed anadromous fish in the Columbia Basin, plans to use the Sub Basin Plan as a major part of their recovery plan for such species as spring Chinook and steelhead.

The SBP for the Grande Ronde sub basin was submitted to the council on May 28 by the GRMWP, with adoption slated for late 2004, or early 2005. The span between submission and adoption allows for review by the ISRP, the council and public comment. In addition the ISRP holds interactive presentations with the lead entities for each sub basin.

The state of Oregon is interested in using the SBP because it will aid them in securing congressional funds available for salmon recovery, and in implementing the Oregon Salmon and Watershed Plan. This document is the guideline for prioritizing watershed restoration investments in Oregon.

The connection between the Council and the GRMWP is a cooperative effort to prioritize efforts and invest BPA Fish and Wildlife funding within the Grande Ronde sub basin. The Nez Perce Tribe is the lead entity in developing a SBP for the Imnaha sub basin. The GRMWP submits proposals to the Council for specific projects within both sub basins, whether for riparian restoration, research, fish passage improvement, flow restoration, sediment reductions, or other habitat or water quality improvement projects.

Each SBP is sent to the Independent Scientific Review Panel, (ISRP) a consortium of scientists from around the Pacific Northwest for review and comment. They provide recommendations for funding which will be taken into consideration as funding decisions are made. Each project is evaluated individually by the Council and the BPA and funding approved based on merit.

The completed sub-basin plans will be used in next spring's (2005) project review process, conducted by the ISRP. The overall plan will be used to aid in the decision of where the dollars will best be spent. Melinda says that in the past the funding has had some issues. "They have been counter perspective, rather than on the ground perspective. They need

Editor's Note

Welcome to the eighth issue of the *Ripples* newsletter published by the Grande Ronde Model Watershed Program. We at *Ripples* strive to highlight local restoration efforts, volunteer opportunities, and educational tips and activities in Wallowa and Union Counties. We want to bring you an informative and engaging newsletter. Feel free to contact us if you have any questions, concerns or suggestions.

– Richard W. Galloway, *Ripples* Editor

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**[http://www.fs.fed.us/pnw/
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to determine if the allocations of funding are accurate across the board."

She gives an example: In the Deschutes sub basin, which is in the same province as the Columbia Plateau, the Yakima sub basin has received a larger percentage of the funding than the Umatilla, Walla Walla or other sub basins.

A long-term goal of Melinda's is to see progress made in her term on the board concerning what she considers the main resource of our area, water. Melinda sees water being used for power, for agriculture, fish habitat and fish migration to and from spawning grounds, and barge passage from ocean ports upstream as far as Lewiston Idaho. There is no perceivable decrease in demand for water by any of these uses in the near future. Global warming predictions, if even only partly true, show a future decrease in water availability, not an increase over the long term in the northwest region of the United States. This is further complicated by consideration of water rights in both the

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Old culvert at corral- file photo GRMWP

The North Fork Clark's Creek Road

*Richard W. Galloway
&
Jeff Oveson*

The spring of 1996 brought a surprise for those who wanted to travel up the North Fork Clark Creek Road. High water had overpowered the work of man, washing out four culverts and taking out about 1,000 feet of roadbed. Many local mushroom hunters, hikers and sightseers were forced to take alternate routes to their favorite locations.

The road is owned by Union County and had moderate to heavy traffic in all but the late winter months. Because it received a lot of use when the roadbed was wet, the condition of the road prior to the flooding was already poor. Sediment from the road surface had been washing into the stream for many years. Previous floods of a smaller nature also moved sediment into the North Fork of Clark Creek as well. High water during normal springs would continue to move this sediment downstream until it reached the middle Grande Ronde River.

The Clearwater Biostudy Habitat Assessment done in 1993 identified sedimentation as a problem in many of the tributaries of the Grande Ronde River, such as the North Fork of Clark's Creek, a valued steelhead spawning and rearing stream. This stream is a typical example of the streams in Northeastern Oregon.

After this project was completed in 1996 the following work had been done: the replacement of the undersized culverts that

washed out with those of the proper 5-6 foot diameter, attached flared inlet and outlet chutes and armoring of the banks with large boulders. These methods have prevented future sedimentation problems and lessened the likelihood of future loss of access to points beyond the culvert. Smaller cross drain culverts were placed as needed to keep the off stream side of the road drained and prevent further problems with the road surface. A local hydrologist directed the crew on the proper size of culverts for each specific location.

Rebuilding the roadway in areas that suffered from the worst repeated flood damage with pit run and armoring the streamside of the road with riprap was part of the process to stabilize and reduce sediment from the road. Continued maintenance is the duty of the Union County Public Works department and Boise Building Solutions, a major landowner in the Clark's Creek area. Periodic cleaning of the ditch, cross culverts and grading of the road surface fall under the maintenance category.

The key purpose of these jobs is to keep the road surface in good condition, promoting



*New armored culvert with flares
© Rock Rabbit Photo*

proper drainage during wet times, reducing the sediment load downstream.

The total cost for this project, not including the maintenance that is on going, was \$94,550. This was divided up between Union County, the BPA, FEMA, and Boise Building Solutions.

On your next outing into the mountains near the breaks of the Minam River take a look at how this road has been



*Temporary repairs on roadway.
Note elevation of road above stream.
File photo GRMPW*

improved and think of the work of the Grande Ronde Model Watershed Program and partners, has aided the health of the watershed while maintaining the local public infrastructure.



*Armored culvert with flares and fish weirs
down stream.
© Rock Rabbit Photo*

Corrections:

I regret that in the spring 2004 issue of the Ripples, Mrs. Carmichael was miss-named. Her first name is Lorrie, not Leovone as I reported. Please accept my deepest apology for the error.

Fox Hill

*Richard W. Galloway
&
Lyle A. Kuchenbecker*

When you think of the road up Fox Hill I'm sure you don't envision the Grande Ronde Model Watershed Program as being a part of the process for improving it from a path, to a nice gravel road. Fox Hill Road starts north of La Grande, and provides the quickest access from La Grande to the Mount Emily area. The repairs start about 2 miles from the edge of town and extend for 2 and one half miles beyond.

The GRMWP is involved in many projects in Union and Wallowa County that improve and protect water quality of the water for all uses and from all angles. The Fox Hill Road is one of those projects.

This is a heavily used road by people of all ages because it offers easy access to the Blue Mountains and many recreational activities one can do while there. In the spring this is a favorite mushroom picking area for old and young alike. In the spring and summer the wild flowers are blooming and in the fall it's a place to go play in the first snow of the season.

While the first part of the road is steep it is also on an open ridge and the spring sunshine

clears the snow off early. The view is one of the best around, of the city of La Grande, and the valley. Many families bring their visiting friends and relatives to this area to enjoy the view and to give them an appreciation of beauty in this section of Oregon.

Those with wood stoves also like this area for gathering firewood for the next season. Access to logs for fuel is not difficult and the proximity to town makes it a quick if not painless trip for a few cords of wood.

The common thread to most of these activities though is that they are done early in the spring or late in the fall when conditions are notoriously wet on this mountaintop. Portions of the road are adjacent to Haywire Canyon, a small tributary to the Grande Ronde River. Travel on the road during wet periods caused large quantities of mud to end up in Haywire Canyon and thus washed into the Grande Ronde River.

This portion of the Grande Ronde is a migration route for anadromous steelhead and salmon, (ocean going fish) as well as a rearing habitat for anadromous fish and resident rainbow trout. Sediment is a major problem in the Grande Ronde River, so it is important that the water be as free of sediment as possible. To reduce the sediment load the choices were to either close the road or improve the roadbed so vehicles could use it without producing as much sediment. To provide continued convenient access the

decision was made to improve the road.

The old native material road had no rock base, little drainage and in places was immediately next to the stream. In some places the stream was actually higher than the road and often the road became the steam bed.

This project work consisted of several activates. Union County Public Works



Rip rap between Fox Hill Road and steam.
© Rock Rabbit Photo

employees did the work. Culverts with armored headwalls to prevent erosion around the pipe were installed in strategic locations to drain excess spring run off and water from natural springs.

Whenever possible the county plan moved the road as far from the stream as feasible. By adding base to the road the driving surface was raised above the normal spring water level, reducing the mud, and

the sediment that reached the Grande Ronde River. The base of pit run basalt rock is 18 inches deep and

the road base is 4 inches of gravel for a smooth driving surface. The road was widened to 24 feet, allowing for easy passage of two-way traffic, making this a safer road."

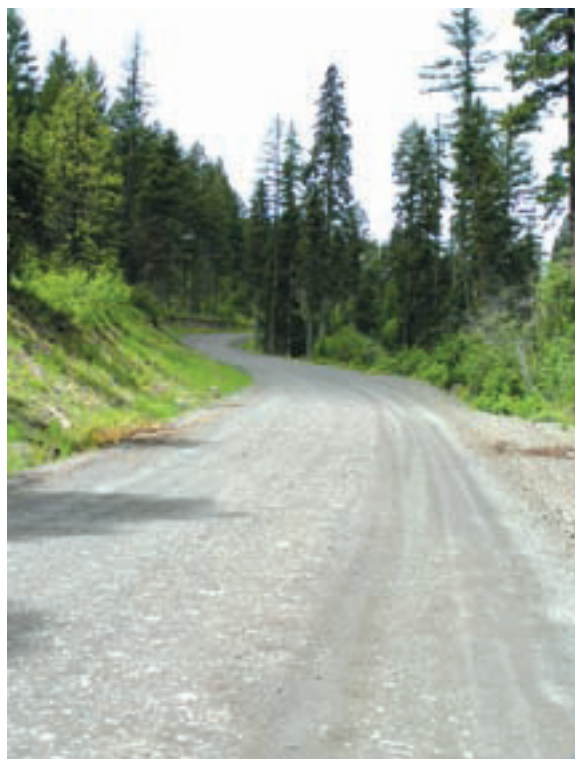
Union County Public Works maintains the road as needed along with cleaning the culverts to maintain the proper drainage.

The total cost of the project was \$169,000, cost-shared by Union County (51%), Watershed Health Program (35%), and the Bonneville Power Administration (14%).

The next time you are out looking for mushrooms, hauling wood or just enjoying nature on Fox Hill Road think of all the people involved in making Fox Hill a better road, better for fish and safer for users, give them a nod of thanks.



The Old Fox Hill road.
File Photo GRMWP



The new and improved Fox Hill road.
© Rock Rabbit Photo

Catherine Creek— Swackhammer

*Richard W. Galloway
&
Lyle A. Kuchenbecker*

The Catherine Creek/ Swackhammer Fish Passage and Erosion Mitigation project is being planned for completion in July of 2005. The project will improve fish passage through the Swackhammer irrigation diversion structure and reduce stream bank erosion below the structure.

The project is located on Catherine Creek, just east of Union Oregon, on highway 203. An old irrigation diversion structure was replaced in 1995. The new structure however, has failed to meet some of the desired objectives of that reconstruction. The project is sponsored by the Grande Ronde Model Watershed Program and is being coordinated with the Swackhammer ditch irrigators, Oregon Department of Fish and Wildlife (ODFW), NOAA Fisheries, U.S. Fish and Wildlife Service and the Oregon Department of State Lands. The Bureau of Reclamation has provided the engineering services.

Project activities include modifications to the concrete diversion structure, construction of in-channel rock structures, partial removal of a gravel bar; ditch deepening, removal and reinstallation of the fish screen and modification to a City of Union waterline. In-stream work must be completed during an in-stream work period, which is July 1 to July 31st. However, work beyond the stream channel can be accomplished before or after that window of opportunity. Due to the irrigation activities of the structure this work will probably be undertaken in late September or October, after the irrigation season.



*Swackhammer construction, 1995
File photo GRMWP*

There are required Endangered Species Act consultations with NOAA Fisheries, and the US Fish and Wildlife Service. Permits will be acquired from the Army Corps of Engineers, and the Oregon Department of State Lands.

The changes are being made to increase the efficiency of the water diversion, aid juvenile fish passage, stop Catherine Creek channel movement, and change bed load additions downstream.

Construction work in 1995 replaces an old concrete dam with a concrete weir system intended to provide year-round fish passage for migration adult salmon and steelhead, as well as juvenile fish. The original concrete structure required a gravel push-up dam to be installed annually to allow water to be diverted into the Swackhammer ditch as stream flows decreased during the summer. Fish passage was impaired as a result.

The construction of the weir system partially addressed the fish passage problem,



*Swackhammer, post 1995 construction
File photo GRMWP*

but due to design problems, did not provide for sufficient water diversion and caused accelerated gravel accumulation in a bar below the structure. The bar has continued to grow, forcing stream flow into the north stream bank, causing accelerate stream bank erosion and reducing channel flow capacity. If the gravel bar continues to enlarge an extreme high flow event could overtop the stream banks.

Nearly 20 feet of bank have been removed in places, but the process has slowed down for now. The potential still exists for substantial erosion during extreme high flow however. A permanent change is needed and will be put in place as work progresses.

Modifications to the concrete structure include adding two more weir walls and changing the configuration of the three



*Current view of weir and ditch
© Rock Rabbit Photo*

existing walls. Narrower slots in the walls (six feet) will be cut, replacing the current seventeen-foot wide slots. This will increase the water diverted into the ditch without installing boards to raise the level of the upstream wall. The additional walls will decrease the vertical jump distance for juvenile fish from approximately eighteen inches to six inches, providing optimum fish passage at all stream flows.

Additional in-channel rock placement and partial removal of the gravel bar will redirect stream flow through the center of the structure and through the center of the channel below the structure. The danger of flooding will be minimized by removing some material from the center of the stream.

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*Swackhammer, downstream view of channel
and weirs.
© Rock Rabbit Photo*

Urban Update – A Salmon Party!

Katie Lazich

Tired of Barney? Have a salmon theme birthday party. Make T-shirts by rolling a salmon in paint and then pressing it onto a plain T-shirt. Everyone who attends the party either dresses up as a salmon, something the salmon eats or something that eats salmon – limit your number of humans! Buy plastic fish and perform salmon counts in your pool. Instead of gifts ask everyone to do something that will assist salmon survival – plant a tree in a riparian area, stay on trails, reduce water usage, choose wind powered electricity, buy a salmon license plate, volunteer on a restoration project, donate to a restoration organization.

Spring Chinook Salmon return to their home streams or home hatcheries to spawn the next generation. Their journey is miraculous. Salmon return to the stream they were spawned in and it is believed they find their stream by smelling their way home. Here is a website to study the salmon life cycle, www.streamnet.org/pub_ed/ff/Factsheets/Lifecycle.html

A website about the current status of Chinook salmon can be found at www.nmfs.noaa.gov/prot_res/species/fish/chinook_salmon.html

The hatchery and the wild salmon must both travel the streams and rivers to the ocean and back again to their place of origination. The salmon that arrive in the Grande Ronde each spring have maneuvered 8 major dams, avoided predators in the rivers and the oceans, avoided nets in both the ocean and the rivers, reached the ocean in time with their bodies ability to utilize salt water instead of fresh water and reached their spawning place before they ran out of energy (they don't eat on the return trip!). Both need cool water temperatures, clean clear water, places to hide, and options to get around human built obstacles.

Increasing numbers of retuning wild and hatchery fish are a good indication that the health of our watershed is improving.

The greater the returns of both the more we can assume our habitat restoration projects and water quality improvements are making a difference.

Here are some classroom activities or summer birthday party games for you to enjoy!

1. Return Home – Materials – large roll of paper or old sheet(s) (big enough for students to crawl on), variety of strong smelling items, blindfolds, markers.

Draw a variety of rivers, streams and tributaries which all lead to the ocean. Suggestion, draw one or two major rivers leaving the ocean and many smaller rivers and streams that empty into each other and one of the main rivers. Set-up a course of smelly objects that lead from spawning locations to the ocean. Blindfold students. Students start in the ocean and are given their “stream smell”. They then must follow their smell all the way to their spawning location. (This is made more difficult by increasing the number of different smells and spawning locations.)

2. Hooks and Ladders (Adopted from Project Wild) – Materials – jump rope, bases or pieces of carpet for safe areas, markers for out of bounds and to mark the upstream and down stream areas. This is a form of a tag which teaches students about the salmon life cycle. Set up playing area outside with the following, a downstream area with a turbine (jump rope operated by two students), an upstream area with a fish ladder (a narrow area all “salmon” must pass through, the turbine operators can become obstacles the salmon must leap frog over), predator wildlife in the ocean and the river, fishermen, and safe zones (representing areas with deep pools with down wood cover). (The object will be for students (salmon) to make their way from the beginning place (spawning stream) to the ocean and then back again. If they are caught by a predator, they become predators themselves.

3. Pass the Jug – (Adopted from Conserve Water Educator's Guide). Materials – jug, water, a cup for every participant. A version of this activity which simulates water shortages and teaches students about water rights can be found at www.sd5.k12.mt.us/glaciareft/jug912.htm. The extension with the fish bowl at the end of the line is especially pertinent to the discussion about

salmon.

Teacher Topics and Learning Links

Katie Lazich

Want to increase your knowledge of watersheds or integrate knowledge about your natural surroundings into your classroom? Here are some summer trainings to check out. Some have graduate credit or CEU's available!

Nixyaawii Teachers Institute, June 21 - 25, 2004, Tamastlikt Cultural Institute, Mission, OR

Oregon State University and the Confederated Tribes of the Umatilla Indian Reservation invite middle school teachers (emphasis on 7th grade teachers) from Walla Walla, Grande Ronde, Umatilla and John Day Basins to sign-up for the Nixyaawii Institute. This Nixyaawii Teachers Institute combines water & air shed science with tribal culture and language, supporting Oregon State Benchmark Standards. Oregon State University is offering graduate level course credits for completion of this 5 day course. The Tribes will also host exhibition style drumming & dancing along with dinner, longhouse style for all registered participants and their families. Please contact Alanna Nanegos at 541-966-2352 for registration forms or additional information.

2nd Annual 2004 Water Quality Monitoring Workshop – July 13-14, Canby Grove Conference Center, OR. Learn about monitoring the “most frequently listed” TMDL Water Quality indicators (bacteria, dissolved oxygen, temperature and turbidity) as well as aquatic macro invertebrates.

www.pnwwaterweb.com/vol_mon04.htm.

Siskiyou Field Institute – Field-based Natural History Courses in and about the Klamath-Siskiyou. Located in northern California and southern Oregon, the Klamath-Siskiyou is known for its emerald-green wild rivers, unique biodiversity, geologic formations, and rugged mountain system. Multi-day and single-day courses such as Botany for Beginners, Salmon Snorkeling, and Nature Writing. www.siskiyou.org/sfi

continued: Catherine Creek- Swackhammer

Adopt-A-Watershed - July 17-24, 2004, Bass Lake, CA. The 2004-2005 West Coast Leadership Development Program kicks off with the Summer Leadership Institute in July 2004. The Spring Retreat will be held at Sequoia Seminar in the Santa Cruz Mountains, April 28-May 1, 2005.
<http://www.adopt-a-watershed.org>

North Cascades Institute - 72 Natural History Seminars running throughout the year beginning this summer. Seminars area available for credit. www.ncascades.org

Earth Watch - Fellowships for K-12 educators to join two-week field expeditions. Projects range from archeological digs in Peru, to habitat studies in Oregon, to running transects through reefs in the Bahamas. Awards range from partial to full grants toward a project's Share of Cost (SOC).
<http://www.earthwatch.org/education/educator/fellowships.html>

Audubon Expedition Institute - Ecological Teaching and Learning M.S. program in both the Northeastern U.S. and the Pacific Northwest. Accredited through Lesley University, this 18-month program is designed for professional educators interested in integrating ecological concepts into the curriculum.
http://home.acadia.net/userpages/croraven/etl/etl_home.htm

A "J hook," constructed of boulders, will be installed above the concrete structure, extending out into the stream from the north bank. A channel-spanning rock vane will be constructed approximately 200 feet below the concrete structure. These structures are designed to move the water flow toward the center of the stream and direct most of the flow down the south side of the channel, which is protected by large rock armoring. This will prevent further bank erosion on the north stream bank. Willows and cottonwoods will re-establish naturally along the north stream bank, further stabilizing the eroding banks.



Swackhammer spring flow 2004
© Rock Rabbit Photo

The Swackhammer ditch will be lowered by one foot at the head of the ditch, tapering out at 400 feet down the flow line. The fish screen will be lowered to match the new ditch elevation. Modifications to the concrete weir walls and the ditch work will allow adequate water diversion without the use of the splashboards irritators utilized in the past to raise the water levels upstream of the diversion structure.

The job of monitoring the project and compiling a completion report is the responsibility of the GRMWP. Covered in these reports will be the status of the steam bank erosion, reestablishment of vegetation on stream bank. The GRMWP will continue to monitor how well the diversion structure functions.

These few minor modifications will greatly increase the efficiency of the Swackhammer project and help improve our fish runs for generations.

Darrell Dyke at the Bureau of Reclamation in La Grande did the design work for this project. Lyle Kuchenbecker of the Grande Ronde Model Watershed Program is the project planner, project leader and handles all administrative work for the project.



Swackhammer, post 1995 construction
File photo GRMWP

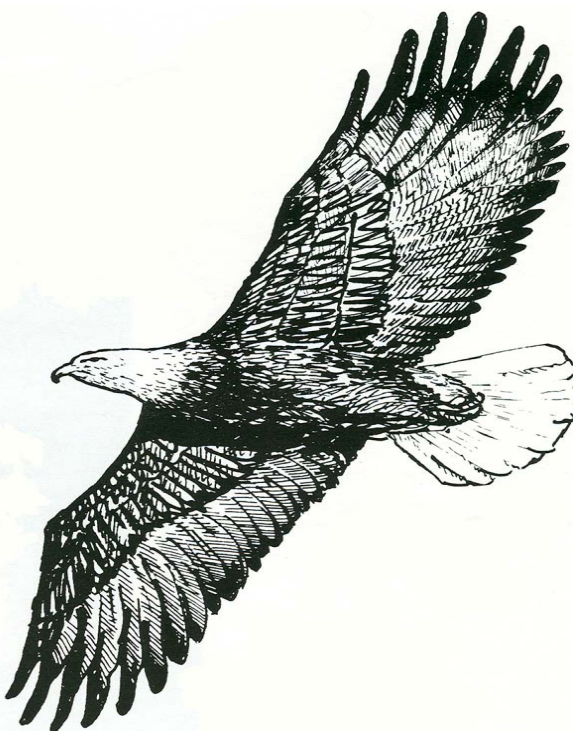
Continued: Melinda S. Eden

United States and Canada. Many of these water rights are for consumptive use of the water from the Columbia basin. Many see this as a conflict between those uses and the needs of fish and other aquatic and terrestrial species. Others see those water rights as essential for a productive and healthy regional economy.

"It will take a supreme effort by all involved to see that everyone benefits. This is going to be a long term and ongoing project," says Melinda.

All we can do is see that the money is allocated in the best possible way to protect listed and unlisted species. There is a statue that requires the BPA to protect, mitigate and enhance species under the BPA range of control. This basically means all species that are affected by the water flows used by the BPA, hydroelectric system.

More information about what Melinda's duties with the Council can be obtained by contacting her office at 410 N. Main, PO Box 645, Milton-Freewater, OR 97862-0645. Or by phone at 541-938-5333. The web site is <http://www.nwcouncil.org>



Continued: Whole Tree Project

makeup of the area lead to a dearth of gravels, that strata in which anadromous fish such as steelhead and Chinook sweep out of place called a redd in which to lay their eggs. The oversized stones, or cobbles, are not conducive to successful redd building, nor do they contribute to the riparian complexity ideal for this type of river by leaving fertile places for the growth and development of riparian species such as red ozier dogwood, willow, cottonwood and the myriad other plants so valuable to the health of a riparian and stream in general.

Channelization, done in the name of flood control to protect downstream towns and nearby highways by allowing the spring high flows to escape the basin easily and quickly, contributed even more to the reduction of the number of pools in the Grande Ronde.

Hydrologists have determined that it is desirable to keep the depth-to-width ratio in a stream at the less than 10 to 1 range. There must be variations in the width of the stream as well. In 1995 when the Grande Ronde River Fish Habitat Restoration Project was undertaken, many short reaches of the river, were in the 15 to 1 range.

The Whole Tree Project implemented in 1997, was designed to improve salmonid fish habitat diversity by the placing whole trees in the river. The trees would have the root wads and crowns just as they would if nature had placed them in the stream. Designed to utilize the hydraulic power of the river itself to create the channel diversity and complexity, creating scour holes and intermittent pools to go with the propensity of riffles already existent in this reach of the river.

Because there were no trees of the right size, in the right places, or near the streams, the crews used helicopters to bring them in from nearby slopes. Using conventional skidding equipment would have increased the erosion and sedimentation problems by the very nature of the skid trails left when bringing the logs to the rivers edge. Trees in the 20 to 30-inch diameter and over 50 feet tall were chosen as the desired components since they were long enough to reach from bank to bank and large enough to stay in place and not wash downstream during the next high flow period. After a helicopter had lifted the 12,000 to 24,000 pound trees to

the stream, they were positioned with a tracked excavator. Cable and rebar ~~tattle tails~~ kept to a minimum to mimic nature and allow the stream to make natural placement and adjustment.

The branches on the trees help gather up other floating items and also create a natural hiding place for fish. By reducing water velocity, a large tree or other piece of large woody debris (LWD) allows sediment and bed load to slow naturally and drop to the river bottom. This creates graduated gravel beds for spawning. The change in flow patterns tends to create pools associated with LWD, and reduces channel width making it more likely that riparian hardwoods will be able to shade more of the stream. The shade will cool down the stream temperatures and give the fish increased hiding locations in the shadows.



Tree with limbs to catch debris.
© Rock Rabbit Photo

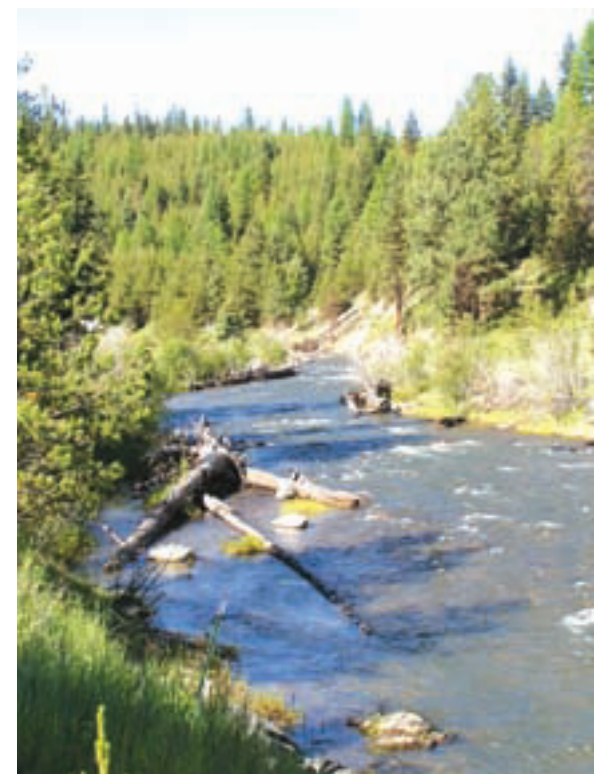
Everyone who fishes knows that cover and food are the prime motivators for fish. More pools translate into more places for both, and greater numbers of fish result.

The fish species in the Upper Grande Ronde include bull trout, and resident red band and rainbow trout along with the adult and juvenile steelhead, juvenile and spring Chinook salmon. The tree project has improved both summer and winter habitat for all species.

Various hydrologists, biologists, botanists, even cultural resource personnel were all involved in this project before and after the process of placing the logs in the stream.

Past practices are always undergoing review and revision. This is a normal process and will happen in the future even when we are using what is considered state of the art methods to repair the “damage” done by prior practices. The proponents of the activities that have reduced morphological function in the upper Grande Ronde over the years more than likely had no idea how their actions would affect the river. Today, though the increased understanding of hydrology, fisheries biology and the other sciences that are involved with the interaction of the two, we realize what we can do and should not do to alter our streams and rivers.

Enjoy the changes that have come about on the Upper Grande Ronde and show your children so they can watch the process and explain what is happening and has happened with confidence that it will again be changed in their lifetime as well.



Channel change visible from FR 51
© Rock Rabbit Photo