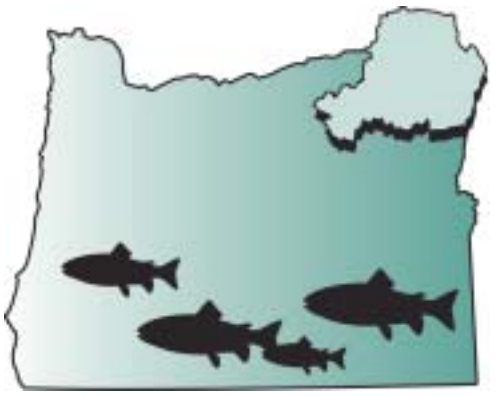


Ripples in the Grande Ronde

Winter 2007

RIVERS UNITING NEIGHBORS · QUARTERLY NEWS FROM THE GRANDE RONDE MODEL WATERSHED

Rocky roads

Shaw Creek gets a lift

by Jeff Oveson, Executive Director
Grande Ronde Model Watershed

It seems to be the method by which roads were located in this basin and hundreds of others. Since European settlers began their effort to settle and prosper in the rough and rugged West, roads were a critical staple of the infrastructure that would be needed to utilize the vast store of natural resources that awaited the adventurous, the capitalists, the weary families that had crossed the plains and mountains, and the foolhardy.

Like water, many roads followed the path of least resistance, which happened to be alongside water – the streams and rivers that seemed to run down every draw and canyon. The tendency to locate roads in this manner was understandable, given that the grade alongside streams made for a gentler climb and safer descent than would be faced by carving a road straight up the side of a mountain.

Two early examples of draw-bottom roads to be found in the Grande Ronde Basin are the toll road constructed along the bottom of Pyles Canyon near Union, and the Tollgate Road, which coursed for the main part along Phillips Creek. Tollgate Road left Phillips Creek a few miles above Elgin and continued to Summerville, while the Lincton Road connected the town of Elgin to Tollgate by completing the route along the lower end of Phillips Creek. These roads were all constructed in the 1860s and were often subject to the whims of nearby streams, as mentioned in "Wagon Roads in Union County, Oregon," on *Oregon Genealogy.com*, and as noted in the following sentence about one of those earlier streamside roads, *"…was washed out for some distance by freshets in 1884 and was never rebuilt."*

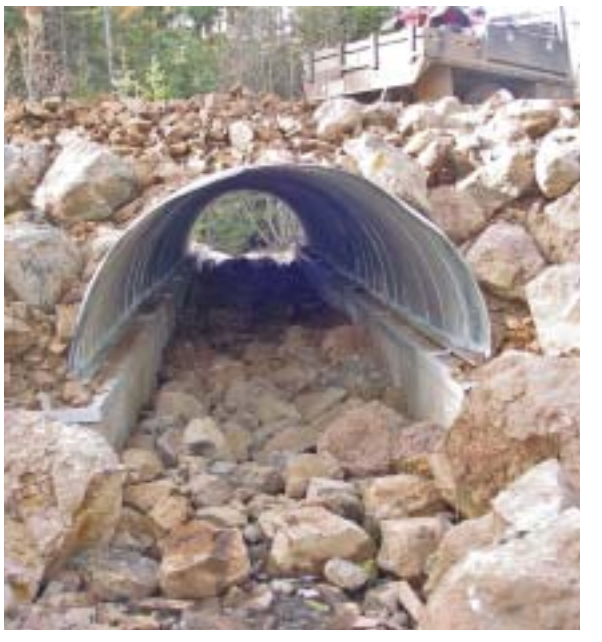
As more modern equipment became available, making it easier to fall and remove the trees that are in the bottoms of many draws, it became a more common practice to build roads next to streams. The drive to provide access to remote locations for numerous reasons resulted in miles of roads along miles of streams. It was good, and it was bad.

Regardless of when, why, and how draw-bottom roads were built, it is almost inevitable that the road and stream will come into conflict. It will eventually become apparent that the road is inhibiting the natural ecological processes associated with the stream, and it will also become apparent that the stream's dynamic nature presents some threat to the road.

> *"The drive to provide access to remote locations for numerous reasons resulted in miles of roads along miles of streams."*

Fortunately, there are often remedies that protect the qualities of the stream and preserve the structural integrity of the road. A recent example of how such remedies were implemented is along Shaw Creek, just above the valley floor and slightly south of the Interstate 84/Ladd Creek interchange. The road in question leaves Forest Road 43 about 3 miles south of the freeway and runs mostly southeast up Shaw Creek for almost 3 miles. The property and the road

.....Continued on Page 8, ***SHAW CREEK***



Right: This road, typical of many that are adjacent to streams in draw bottoms, shows signs of erosion. This erosion contributes to excess sediment in the stream and jeopardizes the road's capacity to handle traffic. In many places similar to this, heavy rock is added to the roadbed to secure it and reduce sediment flows into the stream. USFS photo. Far right: At the upper end of Shaw Creek, a bottomless arch culvert was installed to replace the old circular culvert. Photo by Rick Wagner, ODF.

Streams *that* run dry

The value of intermittent streams

by Brad Smith, District Fish Biologist
Oregon Department of Fish and Wildlife

Three months earlier water flowed from the slopes above, filling the small channel and providing inviting habitat for insects, amphibians, fish and mammals. But it's August now and it's hot and dry. All that remains as evidence of the once vigorous stream are mounds of parched gravel, small piles of debris, and a few damp patches of sand.

When viewed in mid-summer, the importance of such streams is easily underestimated. But miles and miles of similar intermittent stream channel exist across the landscape, connecting the watershed by linking uplands with perennial stream reaches. These small streams deliver water, along with sediment and nutrients, to larger streams throughout the wetter months. They provide seasonally expanded habitat for a variety of species and influence the environment on a larger scale. Collectively, small watersheds and their intermittent streams determine the condition and productivity of larger perennial systems downstream.

Like all streams, these on-again off-again tributaries reflect the land they drain and the land management practices in place. In watersheds viewed at any scale, condition of uplands, state of streambank and riparian-area vegetation, and the history of development and use combine to determine how water travels through the system. Stream courses in good condition – better vegetated with less exposed soil – retain more water, soil and nutrients. Water percolates into the soil or is stored in the floodplain when slowed by vegetation. Overland flow occurs less frequently and streamflow is less flashy. As a result, floods produce less violent and destructive flows.

Surface flow in the small streams persists for longer periods as trapped water is slowly released. Soil and nutrients are also held in place or trapped by riparian and upland plants in a healthy watershed. Downstream this trend is magnified a thousand-fold as the products of these small watersheds merge. Their combined flow ultimately determines channel stability, flow, temperature, sedimentation and nutrient loading in the larger tributaries and mainstem

Right: In the spring when water is present, Wallowa County's Dry Creek, on the Oveson Ranch, provides spawning habitat for steelhead. Photo by Jeff Oveson. Top: This set of photos shows an intermittent stream. The first photo was taken in the spring when water is flowing; the second photo was taken from the same location in late summer after the stream has gone dry. GRMW photos.

This set of photos shows another example of an intermittent stream in the Grande Ronde Watershed. The first photo was taken in the spring when water is flowing; the second photo was taken from the same location in late summer. GRMW photos.

reaches of the system we generally consider the "real" streams.

Intermittent streams provide important habitat for many fish and wildlife species as well. Availability of habitat in intermittent streams varies greatly from year to year, both in extent and duration. But aquatic organisms from insects to amphibians to fish utilize water where and when it is available. Their use of seasonal pools and streams is no exception. Exploitation of seasonally available habitats is not without risk, however. Entrapment as water recedes means certain death for species unable to fly or move overland. But for those able to successfully take advantage of expanded habitat and food resources available in intermittent streams and vernal pools, their use can mean better reproductive success and increased growth.

As an example, summer steelhead is one important local species that makes extensive use of intermittent stream habitat. Adult steelhead move upstream to spawn in spring as tributaries are brimming with flow from snow melt and spring rains. In efforts to find suitable spawning gravel, they often venture into reaches that will later become dry. Steelhead fry emerge from the gravel as flows recede. Although some fry may be trapped in pools and die, many of the tiny fish find their way downstream to reside in stream reaches with perennial flow.

Juvenile steelhead also make use of seasonally available habitat in intermittent streams. Adventurous young fish move upstream during spring flow to find abundant food and little competition in the once dry channels. The move can translate into a growth and survival advantage for the young fish when compared to their counterparts that remain downstream.

Often scattered and isolated, pools of clear, cool water fed by natural springs that emerge conveniently near the streambed, can be a year-round source of water for fish, wildlife and livestock. Juvenile fish are restricted in their movement, thereby limiting their ability to forage for food and to escape from predators, such as birds, snakes and raccoons, when they end up trapped in one of these pools for months at a time. Still, if the pools are protected and shaded by vegetation, such as hawthorn and willow, a large percentage of these fish will survive the summer months to escape when fall and winter rains swell the streams again.

From a population perspective, the push to use intermittent stream reaches by both adult and juvenile steelhead ensures that distribution of rearing fish extends to the margins of suitable habitat each year. Increased habitat utilization translates into lower rearing densities and improved growth and/or increased rearing numbers. Either ultimately means more fish migrating to the ocean. Years with low water availability precludes use in many areas and reduces steelhead population productivity.

Intermittent streams are an important component of watersheds and provide much more than one might determine from a quick glance in late summer. They are building blocks for the streams below, and contribute significantly to productivity of fish and wildlife populations. ■

"Intermittent streams are an important component of watersheds and provide much more than one might determine from a quick glance in late summer."

Large woody debris

LWD

Putting wood back in Northeast Oregon streams

by Paul Boehne, Forest Fisheries Biologist
Wallowa-Whitman National Forest

Late in the 19th century, the stream systems in the Grande Ronde Basin were the "highways" for moving logs to the mills. The process of moving timber to the streams, then moving logs down the streams to the mills involved an ingenious method of cleaning the streams of obstructions such as wood and rock. Multiple "splash" dams were built to store water, which was later released in a synchronized manner to move large logs or rafts of logs down the stream channel, taking with them anything else in their path. This process was repeated over the course of many days during spring runoff. Daily, men would reposition logs back into the channel to be moved downstream the next day on the flood flows created by release from the splash dams. Logs were harvested from near the stream and up tributaries to feed the mills. A large mill at Perry, just east of La Grande, processed millions of board feet of timber from the upper Grande Ronde River.

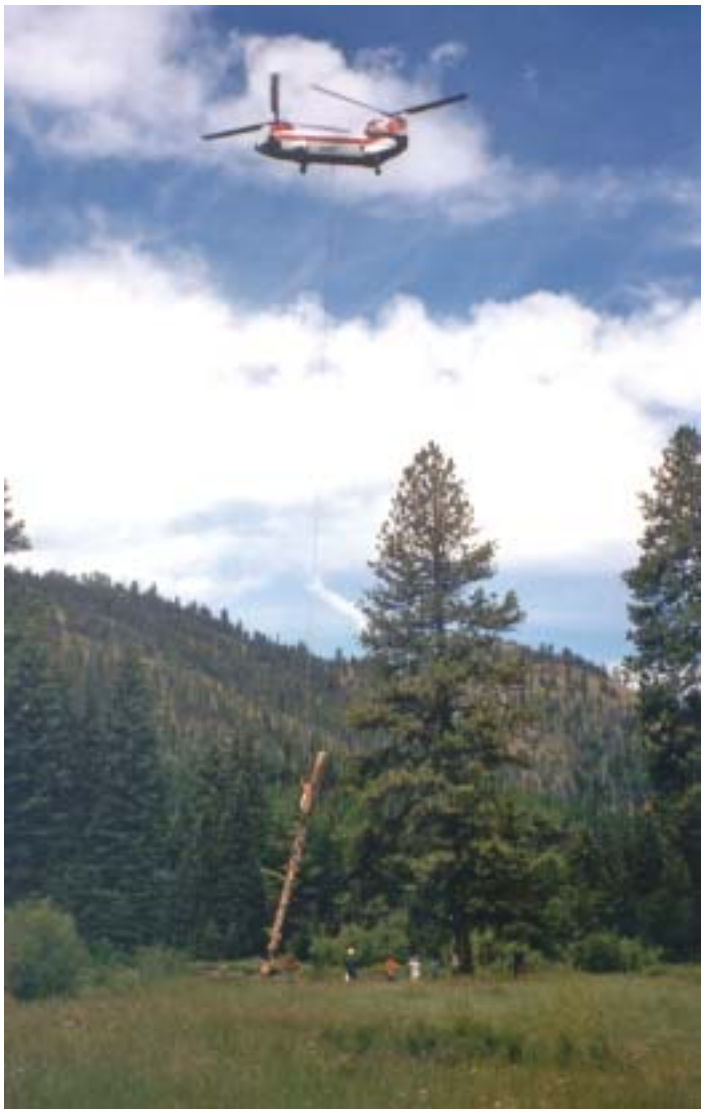
This process and the subsequent railroad grades placed in the 1920s, along with the road system that was developed beginning in the 1950s, and the timber harvest practices of the 1970s and early 1980s, have resulted in stream channels that are simple conduits to move water and sediment. This simplified channel, in many cases, has limited streamside vegetation and the number of pools. Riparian vegetation is coming back, but is yet to be the large conifers of the past during the splash-dam days.

Wood in streams in northeast Oregon is a valuable component for a variety of reasons. The wood that was removed in the latter part of the 19th century was valuable for fish. Runs of spring and summer chinook salmon and steelhead negotiated large wood complexes to reach spawning areas, and used the pools created by wood for rearing juvenile fish before they headed out to the ocean, over 800 miles downstream, to mature into adults and repeat the cycle.

Above top: Local contractor Partney Construction uses an excavator to place logs in Fly Creek, Wallowa County. Above: An ELWd® log structure placed in Fly Creek in 2006. Notice the smaller logs bundled together to create larger "logs." This La Grande Ranger District project includes monitoring by Wallowa Resources to determine the effectiveness of ELWd® structures in creating pool habitat and quality hiding cover for fish. La Grande Ranger District photos.

Wood plays a vital role in most streams in northeast Oregon in maintaining channel form, or roughness, and fish habitat. Timber of varying lengths and diameters accumulate in complexes that provide the roughness element to scour the streambed to create pools for rearing fish, and to create cover within the pool to maximize the number of fish using the pools. These complexes also retain sediment, which allows for the natural establishment of vegetation, and which improves egg survival in downstream spawning gravel.

Wood also plays a role in providing a home for insects that become food for salmon and steelhead. Large woody debris, often abbreviated as LWD, can reduce stream velocities to help provide more areas in the stream where fish can station themselves to feed, reducing energy expenditures thereby putting the additional energy into growth.



Wood is a major reducer of stream energy, slowing the movement of sediment through a system and reducing streambank erosion. The retention of the sediment and the additional organic matter also serves as the primary source of food for the aquatic insects that become food for fish.

Wood enters a stream through a variety of means. In northeastern Oregon, it generally enters waterways through wind throw, streambank erosion (flood), fire, and the introduction from humans. In smaller headwater streams, wood can accumulate and remain for a long period of time, never breaking up or moving downstream. In larger streams and rivers, the retention of the wood is dependent on the size of wood (length and diameter). Wood, of course, is subject to deterioration in the stream channel, and will break apart and move through the system over time.

Our understanding of wood in streams and the value it provides to fish is well documented in the scientific literature. Our knowledge of where wood is present in our streams in the Grande Ronde and Imnaha River systems is based on stream inventories conducted primarily in the early 1990s. It is the data contained in these inventories that allows us to identify which streams are lacking wood to provide optimal fish habitat.

Once we assess the wood needs for a stream, habitat restoration practitioners then go about the task of finding wood sources and placing the wood in streams to start the stream channel restoration process. In some instances, wood has been banded together to come up with the diameter of wood needed for the stream size being treated. In some cases, due to location and access, wood has been flown in with helicopters. Other times the wood can be trucked in and placed with a large excavator.

Many streams in the Grande Ronde and Imnaha River systems have been "treated" with the addition of wood as part of stream restoration efforts. These streams have been ones that have had the wood removed for a variety of reasons or during a variety of time periods throughout history. Regardless of the mechanism whereby the wood was lost, the reason for treating streams with wood is almost always the same – increasing the wood component leads to an increase in fish habitat.

Wood in streams certainly reflects a healthy component of stream systems in northeast Oregon. Through careful assessment we can determine where to place wood and in what quantities to start the restoration of stream channels for increased fish production.

It must have been something to see … a splash dam being released with the logs headed down Meadow Creek to the Grande Ronde River to the Perry mill. What *is* something to see … a complex of logs being placed by a helicopter in the Grande Ronde to improve fish habitat! ■

Far left: While not located in the Grande Ronde Watershed, both historical photos show examples of splash dams in the Pacific Northwest. The top photo is an open splash dam on the South Coos River, spring 1956. Courtesy of Coos Historical and Maritime Museum, CHMM 998-17.102. The bottom photo is that of Gould's Splash Dam on the Millicoma River, 1912. Courtesy of Coos Historical and Maritime Museum, CHMM 992-8-0366.

Top: A helicopter transports and places whole logs in the upper Grande Ronde River. A helicopter was used because of the large log size (50+ feet long) and because the trees were removed from a roadless area. Left: Large wood placed at this site on Fly Creek trapped additional coarse woody material to create a woody debris complex that provides high-quality fish habitat. GRMW photos.

The Grande Ronde Model Watershed

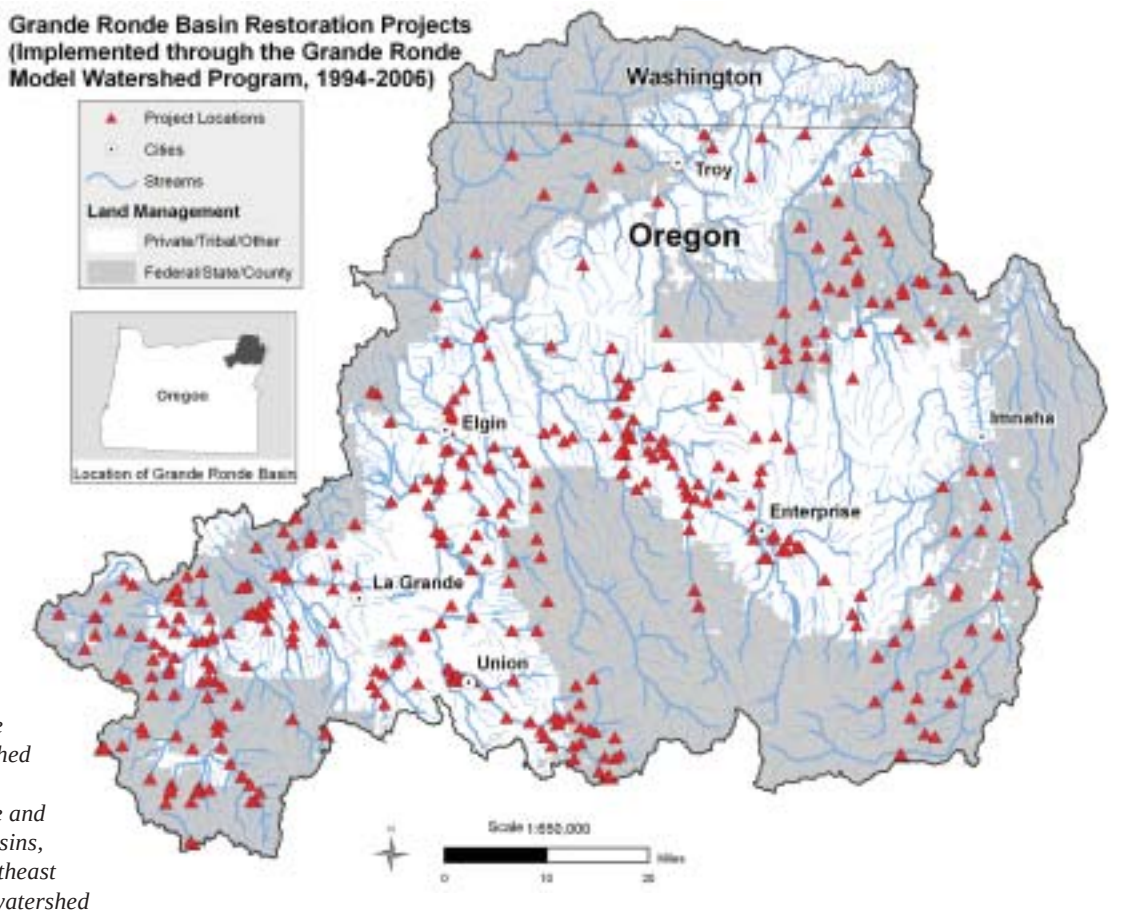
What is it and what does it do?

by Beth Stewart, Editor

Jeff Oveson was a Wallowa County rancher and board member of the local Soil and Water Conservation District before he was hired on as executive director for the Grande Ronde Model Watershed in 2000. Back on the ranch he chased cows, fixed fence and moved irrigation pipe. But that wasn't all he learned. He developed a respect for the land that dates back generations. In fact, he vividly recalls a conversation he had with his father while the two sat in their blue 1961 Jeep flatbed truck one morning. Only 16 at the time, Oveson remembers his dad saying, "This isn't really our land; we're only temporary caretakers. It's our responsibility to leave it in better shape than when we came." Oveson took those words to heart. That philosophy is one reason why his role as executive director is such a good fit.

Oveson manages a staff of six at the Grande Ronde Model Watershed's office in La Grande, Ore. Established in 1992, the model watershed is a product of the Northwest Power Planning Council's *Columbia River Basin Fish and Wildlife Program*, a plan designed to "protect, mitigate and enhance" fish and wildlife in Washington, Oregon, Idaho and Montana harmed by hydroelectric development in the Columbia River Basin.

The Grande Ronde Model Watershed is one of three model watersheds in the Columbia Basin. The program was designed to serve as an example for establishing partnerships among local residents, state and federal agencies, and public interest groups to improve conditions in the watershed. The approach revolves around the belief that a locally based effort to improve coordination, integration and implementation of local, state and federal programs can indeed protect, enhance and restore a regional watershed.



Map: The Grande Ronde Model Watershed includes the Grande Ronde and Imnaha subbasins, located in northeast Oregon. The watershed encompasses approximately 5,265 square miles, including 280 rivers and streams containing more than 2,600 miles of fisheries. Land ownership in the watershed is roughly 65% public and 35% private.

The other two model watersheds are the Tucannon in Washington and the Salmon in Idaho.

"The most important thing we do is help change the way people think – the way they view their role in sustainable natural resource management," says Oveson. The role of the model watershed program is to develop projects that improve fish habitat, water quality, and other stream characteristics while keeping social and economic impacts in mind.

"After working with people on these projects, they understand their role in resource management," adds Oveson. "Humans *can* have a positive impact. A vibrant economy, healthy society, and healthy environment are not mutually exclusive."

Citizens of Union and Wallowa counties serve on the Grande Ronde Model Watershed's board of directors. They represent a wide range of interests, from local landowners to Native American tribes to natural resource agency personnel.

"The board represents lots of philosophical views," says Oveson, "but the members are always able to put their personal interests aside for the greater good." Among other duties, the board sets policy, reviews and approves various enhancement

.....Continued on Page 7, ***MODEL WATERSHED***

Grande Ronde Model Watershed's Partners in Watershed Enhancement

- Bonneville Power Administration
- Bureau of Land Management
- Bureau of Reclamation
- Confederated Tribes of the Umatilla Indian Reservation
- Department of Geology & Mineral Industries
- Environmental Protection Agency
- Farm Service Administration
- Local Governments
- Local Schools
- National Marine Fisheries Service
- Natural Resources Conservation Service
- Nez Perce Tribe
- Northwest Power & Conservation Council
- Oregon Department of Agriculture
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Oregon Department of Parks & Recreation
- Oregon Department of Transportation
- Oregon Universities
- Oregon Water Resources Department
- Oregon Watershed Enhancement Board
- Private landowners
- Soil and Water Conservation Districts
- Stock growers
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Forest Service

Meet the Board

Bruce Eddy

GRANDE RONDE MODEL WATERSHED

Bruce Eddy has officially served on the board of directors for the Grande Ronde Model Watershed for the past four years, although he has served as an alternate for 13. Bruce represents the fish and wildlife interests for the state of Oregon. He has been employed by the Oregon Department and Fish and Wildlife for more than 13 years, beginning as a fisheries aide and now as the Grande Ronde Watershed District Manager.

"What I appreciate most about the Grande Ronde Model Watershed is the venue it offers to bring together the various interests," says Bruce. While Bruce serves on the board from the state of Oregon's perspective, he feels it is the responsibility of all the board members to look beyond their personal interests for the betterment of the whole.

"The model watershed provides an umbrella – a venue to work together – and the process has worked really well," adds Bruce.

Bruce is a southern California native, graduating from Cal Poly in 1975 with a degree in natural resource management.

Right out of college he moved north to Oregon to work for the Oregon Fish Commission (ODFW's predecessor) in Clackamas. After working a few years as a fisheries aide, Bruce took a job as a biologist for a natural resource consulting firm headquartered in Portland. In 1982, he moved to Pacific Corp. to work as a principal aquatic scientist.

It was in 1992 when he moved east to La Grande to take a job once again with ODFW. Today, Bruce supervises nearly 30 biologists in ODFW's Northeast Region who deal in some capacity with fish and wildlife management, be it stream restoration, wildlife research, or hunting and fishing seasons.

Bruce lives in La Grande with his wife, Debbie, of 32 years. Debbie is a fish research biologist for ODFW. They have a 22-year-old daughter, Stephanie, who is a graduate of Eastern Oregon University.

***MODEL WATERSHED**, continued from Page 6.....*

projects, and provides oversight to the program. The members meet once a month, alternating between Union and Wallowa County.

When asked what he sees as the Grande Ronde Model Watershed's greatest accomplishment, Oveson responds, "We've helped build an understanding that initiative from locals is a lot better than regulation from Salem or Washington."

While Oveson applauds the support that the watershed receives from Oregon's elected officials, he believes the tie to local government is key to the program's success. A county commissioner from both Union and Wallowa counties serves on the model watershed's board.

Oveson and his staff work with several entities. "We rely heavily on very capable, diverse partners," says Oveson, whose small staff simply cannot offer expertise in every area. Among others, partners include the Bonneville Power Administration, the U.S. Forest Service, the Oregon Department of Fish and Wildlife, and the tribes (*see box on Page 6*). While BPA often provides the bulk of the capital to finance individual projects, funding also comes from the various agencies or tribes. Private landowners and other entities often offer "in-kind" support, such as labor, supplies, and technical expertise.

In our next issue of "Ripples in the Grande Ronde," we will explore the Grande Ronde Model Watershed's mission, goals, and progress to date.

Grande Ronde Model Watershed

Upcoming Board Meetings

The public is welcome to attend

- Tuesday, February 27, 6:30 p.m.
  Wallowa Community Center, 2nd St, Wallowa
- Tuesday, March 27, 6:30 p.m.
  Elgin Community Center, 10th St, Elgin
- Tuesday, April 24, 6:30 p.m.
  Wallowa Community Center, 2nd St, Wallowa
- Tuesday, May 22, 6:30 p.m.
  Elgin Community Center, 10th St, Elgin
- Tuesday, June 26, 6:30 p.m.
  Wallowa Community Center, 2nd St, Wallowa

Meeting dates subject to change. Please call 541-663-0570 to confirm. Thank you!

***SHAW CREEK**, continued from Front Cover.....*

belong to Forest Capital Partners, LLC. The public has historically been allowed to use this road during most of the year.

In late summer of 2005, Rick Wagner, a local stewardship forester with the Oregon Department of Forestry, called the Grande Ronde Model Watershed with an idea. He wanted to take a drive up the Shaw Creek road, get an overview of the present situation, and see if there was anything that could be done to improve matters both for fish and for travelers. A quick visit made it apparent that there was potential for improvements. In this span of road and adjacent stream, there were three culverts that accommodated traffic as the road crossed from one side of the stream to the other. Each of these culverts, however, presented a passage problem for fish during the low flows that are characteristic of late summer and early fall. Between the culverts, there were several locations where the elevation of the road was barely higher than the streambed. During times of high water, the road was subject to erosion, damaging the road and flushing unnaturally large amounts of sediment into the stream.

A conversation with local Oregon Department of Fish and Wildlife biologists Jeff Zakel (now retired) and Nadine Craft helped lead to the conclusion that the situation warranted some work. They felt that replacing the culverts with structures that allowed for fish passage and "lifting" the road in a few places to keep water from washing over the road would make for much better habitat, improved water quality, and a stable road.

Wagner then contacted Steve McClelland, manager of Rangeland Resources with Forest Capital, about the idea. Were they interested in doing something, and if so, were they willing to share the cost? The answers were affirmative, and planning got under way immediately. A proposal for funding was developed and reviewed by the GRMW Technical Committee and the GRMW Board of Directors, and subsequently recommended for funding to the Bonneville Power Administration Fish and Wildlife Program.

In September of 2006, the project was completed by Henderson Logging of Wallowa, Ore., a contracting company that is very familiar with forest roads, bridges, culverts, streams, and all the vagaries of meshing them together. The two largest culverts were replaced with bridges, the smallest with a larger culvert, and rock was placed on the road where it needed to be elevated. Rolling rock dips were built to provide good drainage in steeper parts of the road. Forest Capital not only met the cost-share contribution it pledged, the company went above and beyond by paying to have a short section of the road moved completely away from the stream.

The end result is a road that will function well as a transportation corridor for commerce and recreation alike, a stream that will continue to provide excellent fish habitat, and improved water quality. ■

Top Right: A Henderson Logging crew completes the installation of a new bridge replacing an old culvert on Shaw Creek. The streambed under the bridge is designed to resemble the natural streambed and to allow for fish passage. Photo by Rick Wagner, ODF. Right: This old culvert on Shaw Creek restricted fish passage and constrained the stream channel. It was replaced by a bridge to allow for a more natural streambed and to reduce risk of washout during high flows. GRMW photo.

Grande Ronde Model Watershed

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