

## THREE-YEAR REVIEW OF IMPLEMENTATION ACTIVITIES TIED TO THE UPPER GRANDE RONDE RIVER TMDL: GOT IT DONE, NOW WHAT?

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### INTRODUCTION

Hard work by stakeholder committee members, agency staff, and others paid off when the EPA approved the Upper Grande Ronde TMDL in April 2000. The Water Quality Management Plan (WQMP) associated with the TMDL laid out an ambitious set of objectives. In this paper, we will present some of the accomplishments of the local community during the past three years.

### Location

The area covered by the Upper Grande Ronde sub-basin TMDL includes all lands that drain to Grande Ronde River upstream of the confluence with the Wallowa River at Rondowa (Figure 1). The Upper Grande Ronde River sub-basin is approximately 1,640 square miles. It is bordered by the Blue Mountains to the west/northwest, the Elkhorn Range to the southwest and the Wallowa Mountains to the east/southeast.

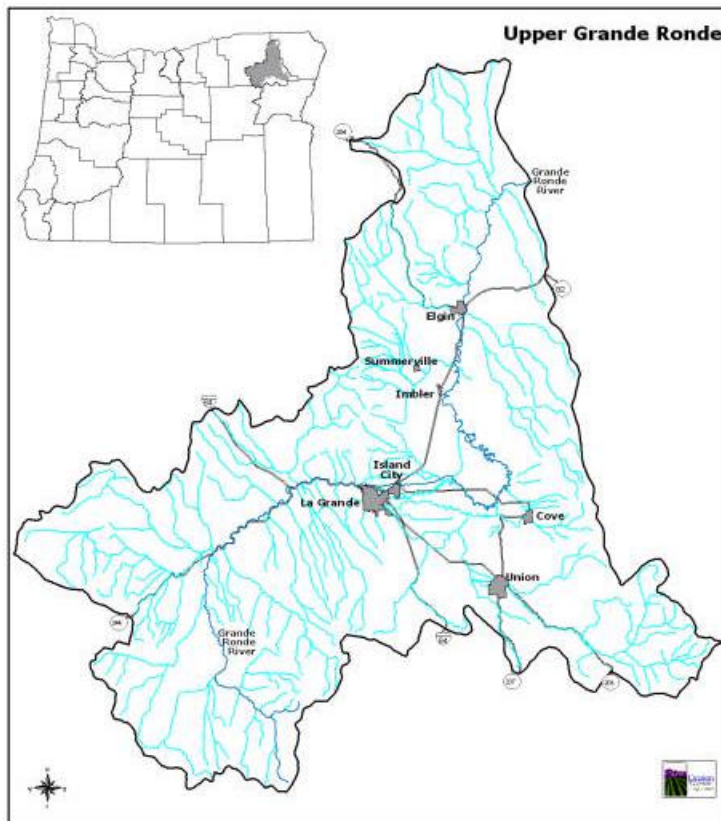


Figure 1. Map of the Upper Grande Ronde Sub-basin.

## **Water Quality Issues**

Extensive monitoring by DEQ and others showed that water quality in the Upper Grande Ronde sub-basin frequently violated state water quality standards for:

- Temperature,
- Dissolved oxygen and pH,
- Nutrients, and
- Sedimentation.

Water quality standards are designed to protect the most sensitive beneficial uses. In the Upper Grande Ronde sub-basin, DEQ designated resident fish and aquatic life, salmonid spawning, rearing and migration as the most sensitive beneficial uses. This sub-basin has three federally listed fish species. The spring/summer Chinook salmon (*Oncorhynchus tshawytscha*), Snake River steelhead trout (*Oncorhynchus mykiss*), and bull trout (*Salvelinus confluentus*).

Water quality problems in tributaries and main-stem reaches throughout the sub-basin have reduced the extent of spawning and rearing habitat for these listed species. The primary causes of the water quality problems stem from limited riparian vegetation, excessive sediment, and point and non-point sources of nutrients.

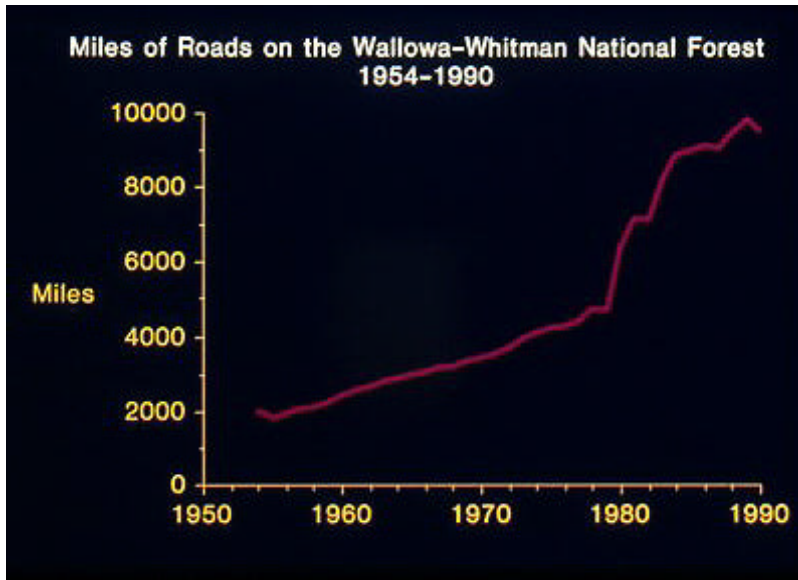
## **ACCOMPLISHMENTS**

A large number of groups, agencies, and other organizations are actively restoring fish habitat and improving water quality in the Upper Grande Ronde sub-basin. In this paper, we will focus on selected issues in the headwaters area, the work done by the point sources, and a program designed to improve riparian areas.

### **Headwater Area – Road Management**

The U.S. Forest Service manages nearly 46 percent of the land in the sub-basin. The majority is in the upper end of the sub-basin near the headwaters of the main-stem and important tributaries. The Forest Service has taken steps to protect nearly all the riparian areas on its lands, instituted changes in their grazing allotments to improve management of livestock, and has implemented many miles of in-stream projects to improve fish habitat.

One of the most pressing problems the Forest Service faces is road management. Total road miles on the Wallowa-Whitman National Forest has increased from about 2,000 miles in the early 1950s to just under 10,000 miles in 1990 (Figure 2).



**Figure 2.** Increase in miles of roads on the Wallowa- Whitman National Forest from 1954 to 1990 (USFS data).

Many of these miles are draw-bottom roads running next to a creek or river. These kinds of roads have many direct and indirect affects on water quality. They can degrade riparian vegetation, the road prism can reduce the connectivity between the river and its floodplain, and overland flow can deliver high levels of sediment from the road surface directly to the creek.

Land managers have many options to address draw-bottom roads. The most effective is to obliterate the road and re-contour the roadway. The U.S. Forest Service has removed a number of draw-bottom roads in recent years. Since 1990, the number of miles obliterated has approached 1,000.

## **Future Challenges in the Headwaters Area**

### **Roads Through Wet Meadows**

Wet meadows serve as a vital reservoir of water that is slowly released through the spring and summer. This improves late-season flows, and because this released water is ground water, it reduces stream temperatures.

A number of wet meadows exist in the headwaters area of the Grande Ronde, and a large percentage of them contain roads. Figure 3 is an example of this situation. What effect do these roads have on the wet meadow functions? To try and answer this and other questions, the Forest Service is assessing wet meadow conditions on the lands they manage.



**Figure 3.** Example of a road intersecting a wet meadow in the headwaters of the Grande Ronde River.

### **Forest Health**

Large wild fires have been a common phenomenon throughout the western United States in recent years. Some of the forests in the Upper Grande Ronde Sub-basin are vulnerable to fire because of the number of dead and dying trees, and dense conifer re-growth.

Riparian areas are just as vulnerable as the rest of the forest. A hot wild fire could have serious negative effects on water quality and fish habitat. One solution is to manage the riparian area as the rest of the forest. This means to thin where there are too many trees.

### **Point Sources**

At the time the TMDL was written, three facilities discharged surface water to the Grande Ronde River and tributaries during the critical summertime period. They were the:

- City of La Grande's Sewage Treatment Plant,
- City of Union's Sewage Treatment Plant, and
- Boise Corporation's Particle Board Plant.

As of this writing, none of these facilities discharges to the river. The City of Union uses their treated wastewater to help irrigate the new Buffalo Peak Golf course. The Boise Corporation's Particle Board Plant discharges to a newly created wetland.

The City of La Grande has implemented an extensive project to address its discharge to the river. They worked with the Oregon Department of Fish and Wildlife and others to create several hundred acres of new wetlands as part of the Ladd Marsh Wildlife Area.

The City considered several options. Continuing to discharge did not seem reasonable because even with advanced treatment, meaning an expensive upgrade to their facility, nutrient levels downstream of the discharge would far exceed target concentrations. Another option was to use the wastewater to irrigate crops. However, it was more cost effective, by more than \$3 million, to create the wetlands.

Costs aside, this type of project has multiple benefits. One is the complete elimination of any discharge to the Grande Ronde River. The wastewater was a significant contributor to the high nutrient levels in the river. Wastewater temperatures were 73 ° F during August. Another benefit is that the new wetlands have created habitat for a variety of waterfowl, birds, aquatic plants, and a multitude of other organisms.

### **Non-point Source Control Programs**

A number of groups and agencies have implemented a wide variety of projects designed to control non-point source pollution. Some examples are:

- Bank stability projects intended to reduce erosion,
- Dike setbacks to allow for better floodplain function,
- Off-stream water for livestock to reduce bacteria and nutrient inputs, and the
- Conservation Reserve Enhancement Program (CREP).

With so many different kinds of programs, it is difficult to adequately describe the problems and benefits of each of them. We will focus on one significant program that could have wide reaching benefits to water quality in the sub-basin. That program is CREP.

### **Conservation Reserve Enhancement Program**

CREP is a U.S. Department of Agriculture program that provides economic incentives for landowners to improve riparian areas. The government provides cost-share dollars to plant trees and shrubs, build fences to exclude livestock and, if necessary, develop off-stream water for livestock.

In the Upper Grande Ronde sub-basin, CREP has had an impressive number of contracts signed. As of this writing, there are 60 contracts totaling 1,400 acres. An additional 8 to 10 people are interested in signing up for 2004.

The benefits of improved riparian areas are obvious. A healthy riparian vegetation community filters nutrients from runoff and from groundwater, provides shade to moderate stream heating, improves bank stability, and creates better conditions for fish and other wildlife.

The potential for riparian recovery is dramatic. An example of a creek with a recovering riparian area is McCoy Creek (Figure 4). The number of woody plants has increased, bank stability has improved, and the channel has narrowed and deepened.

### **McCoy Creek 1987**



### **McCoy Creek 1994**



**Figure 4.** McCoy Creek is an example of the potential for riparian recovery in the Upper Grande Ronde Sub-basin.

### **CREP Challenges**

Perhaps the largest challenge the CREP program faces is maintaining the plants once they are in the ground. Survival rates will be extremely low if landowners do not control weeds and irrigate if possible. Several agencies are evaluating the success of the CREP program. In the next few years, they will report on their findings.

### **ASSESSMENT OF PROGRESS**

Community support for the efforts to implement the Upper Grande Ronde sub-basin TMDL has been superb. All the point sources, at some considerable expense, have met their deadlines for eliminating discharges. A network of agencies, groups and private citizens have worked hard to implement a number of projects intended to correct non-point source causes of pollution.

Obstacles and challenges remain. Recovery of riparian areas will take time. Management of unhealthy forests and roads disrupting wet meadows in the headwater areas are still concerns. How well the CREP program is implemented will depend on the commitment of landowners to maintain their plantings.

### **CONCLUSION**

Although the local community has accomplished a great deal in the last three years, they have a great deal of work still to do. One important lesson they have all learned is that while TMDLs do require management changes, the changes are not overly disruptive or restrictive. People can still make a living and enjoy their watershed.