



United States
Department of
Agriculture

Forest Service



Pacific
Northwest
Region

2001

Teachers in the Woods



Annual Report
Mt. Hood National Forest
2000

All photos by Joan Oakley. Many thanks to Joan for her contribution to the 2000 program.

Teachers in the Woods Annual Report

**Mt. Hood National Forest
2000**

Program Coordinator
Joan Oakley

Program Manager
Dan Shively

Portland State University
Dr. Marion Dresner

Report by
Tracii Hickman

Executive Summary

The Teachers in the Woods program is a partnership between the Mt. Hood National Forest, Gifford Pinchot National Forest, and Portland State University (PSU). In 1995, PSU established a program, funded by the National Science Foundation, to provide continuing education to science teachers in junior and senior high schools. The program consists of training, assisting Forest Service resource specialists to monitor projects on National Forests, and developing curricula for science projects to use the following year in their classrooms.

PSU partnered with National Forests to provide:

- A wildland setting where teachers can learn and implement monitoring techniques,
- An introduction to National Forest management issues, and
- An overview of laws and regulations guiding federal actions.

The role of the Mt. Hood National Forest is to assist in the introductory training week, provide additional monitoring training as needed, and supervision and coordination of teacher monitoring crews.

Twenty-five teachers participated in the Teachers in the Woods program in 2000. Nine teachers were assigned to the Mt. Hood National Forest. The remaining teachers were assigned to the Gifford Pinchot National Forest or other units. Work crews of two to four teachers assisted Forest Service personnel in monitoring 12 different types of projects on the Mt. Hood National Forest. Projects ranged from inventorying impacts of human use in remote wilderness areas to evaluating fish passage at a small hydroelectric facility.



*At left: Dave Sherden
and Alan L'Hommedieu
summarize stream
monitoring data.*

The value of monitoring provided by the teachers on the Mt. Hood National Forest is estimated at \$12,853.

Table of Contents

Introduction.....	1
Training.....	2
Project Site Map.....	3
Monitoring Project Descriptions.....	4
Program Contribution Overview	8
Appendix A. Project Costs and Teacher Contributions.....	9
Appendix B. Projects	11

Introduction

In the summer of 2000, the Mt. Hood National Forest partnered with Portland-Metro area middle and high school science and biology teachers, Portland State University's Center for Science Education, and the Gifford Pinchot National Forest in a unique Challenge Cost-Share project known as "Teachers in the Woods."

The project began in 1995 when Dr. Marion Dresner of Portland State University (PSU) approached the Mt. Hood National Forest with a concept to involve teachers in the collection and interpretation of monitoring data on National Forests. A pilot project began in 1995, and has grown to include 25 teachers in 2000. The teachers receive a week of training then participate in monitoring and research activities for three weeks. Monitoring locations are primarily at Forest Service locations in Oregon and Washington, but also at other land management agencies in the west. The teachers regroup for their final week to develop curricula for their classroom. The teachers also receive graduate credit for their Masters degrees. The intent of this program is to provide teachers with meaningful learning experiences, accomplish identified monitoring work on National Forests, and provide a foundation to teach young people about natural resource management on federal lands.

Participation in 2000 included nine teachers assigned to the Mt. Hood National Forest, five to the Gifford Pinchot National Forest, five to the Siskiyou/Rogue River National Forests, and the balance to PNW research at the H.J. Andrews Experimental Forest, the Oregon Dunes National Recreation Area, Helena National Forest, Turnbull National Wildlife Refuge, and Redwood National Park in northern California. The training week was held at the H.J. Andrews Experimental Forest.

This report summarizes the activities on the Mt. Hood National Forest in 2000. Participating teachers included Betsy Estep (HB Lee Middle School), Dave Sherdon (Franklin High School), Megan Panaras (Marshall High School), Guy Duncan (Lane Middle School), Kirk Hanson (Wild Thyme Farm), Lance Thurman (Sherwood High School), Alan L'Hommedieu (Sandy High School), Debbie Frankel (Sherwood Middle School) and Diane Sague (Centennial Middle School). Joan Oakley managed the program and supervised the teachers on the Mt. Hood National Forest. A separate accomplishment report has been prepared for Gifford Pinchot National Forest activities. Funding was provided through a Challenge Cost-Share grant from the Forest Service Region Six Office and a National Science Foundation grant administered by PSU.

Project locations are found on Map 1, page 3. Monitoring projects are summarized on Table 1, page 4. Descriptions of individual project activities follow. A summary of project costs and partner contributions concludes the report.

Training

The training week hosted by the Forest Service is an important component of the Teachers in the Woods program. The teachers are given a crash course on management of National Forests. Laws and regulations guiding forest management are reviewed. This provides the context to discuss development of forest management projects, and most importantly, how the monitoring they will be conducting fits into “the big picture”. In 2000 the teachers spent several days with staff of the H.J. Andrews Experimental Forest. They received lectures on forest and landscape ecology. They learned field techniques to monitor aspects of forest ecology such as vegetation transects, forest mensuration, birds, amphibians, arthropods and soils.



At left: Dr. Andy Moldenky displays results of collecting insects from trees.

After one week of training the teachers disperse to work sites near their homes and begin working with local land managers. Working safely in the woods is a cornerstone of the Teachers in the Woods program. The first day on the Mt. Hood National Forest is spent reviewing operating procedures. Topics covered include radio use, safe behavior in the woods, and walking safely in the woods.

The Teachers in the Woods program in year 2000 conducted a variety of monitoring projects on the Mt. Hood National Forest. Monitoring was performed in many areas of forest management, including hydrology, silviculture, fisheries, wildlife, recreation and botany. Table 1 on page seven lists the monitoring projects, description and location of the project.

Map 1. Teachers in the Woods, 2000 Project Sites

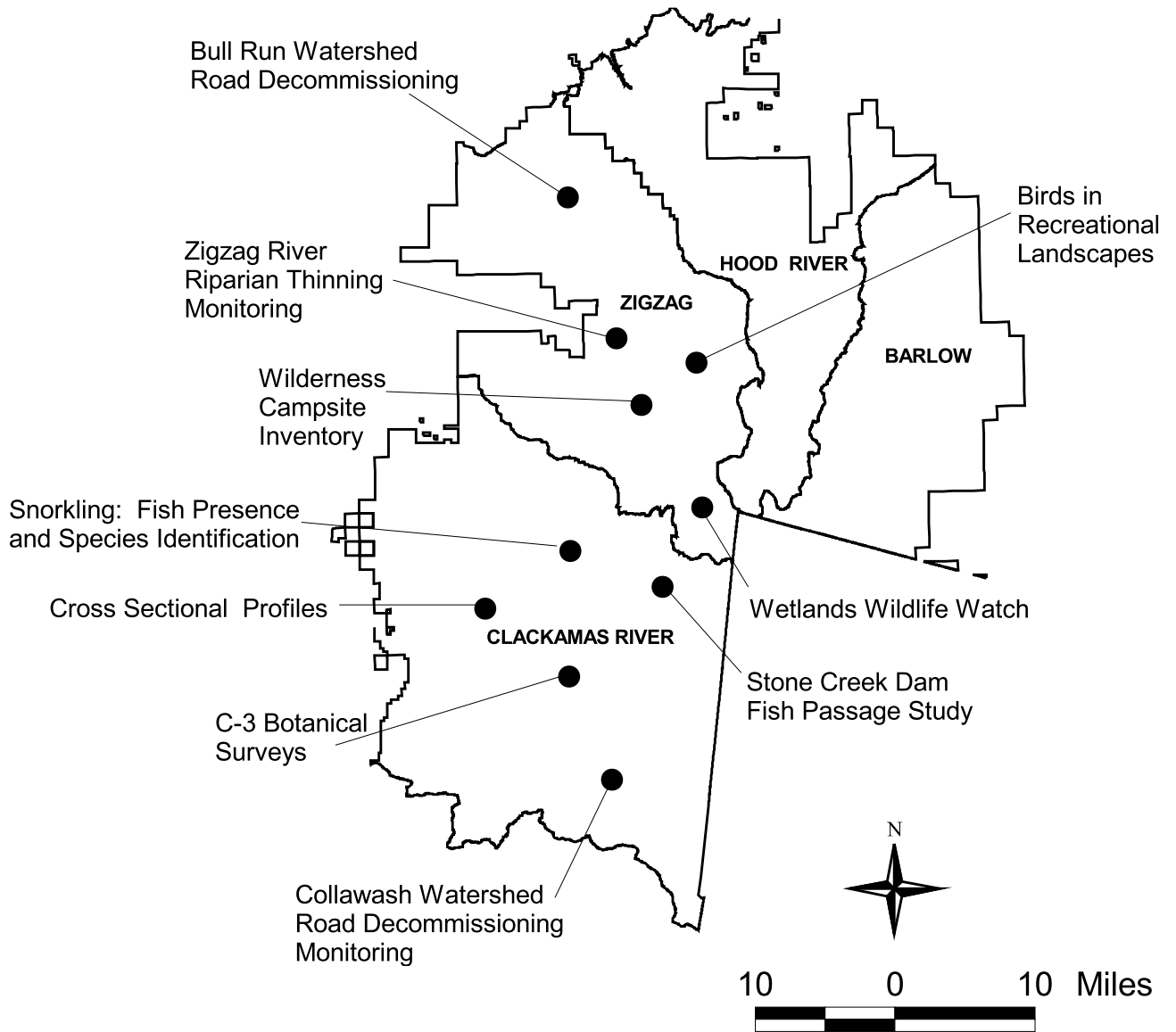


Table 1. Monitoring projects, description and location.

Project Name	Project Description	Project Location
Road Decommissioning	Monitor effectiveness of road obliterations after a major storm.	Bull Run watershed, Sandy River basin
Riparian Thinning	Compare four different riparian thinning prescriptions to controls.	Zigzag River, Sandy River basin
Recreation Impacts in Wilderness	Inventory day use sites and campsites in Wilderness area.	Salmon River Trail #742, Mirror Lake, Salmon Huckleberry Wilderness
Bird Habitat	Collect vegetation data for “Birds in Recreational Landscapes” study.	Seven campgrounds, Zigzag Ranger District
Wetland Wildlife Watch	Survey for Sandhill crane and amphibian use.	Zigzag RD and Clackamas River RD
Cutthroat Spawning	Survey for spawning cutthroat trout in lake shoals and tributaries.	Bull Run Lake, Sandy River basin
Plant Surveys	Survey for C-3* lichens, liverworts, mosses and vascular plants.	Locations throughout the Clackamas River basin
Stream Cross-Sections	Replicate stream cross sectional data from two years earlier.	Fish Creek, Clackamas River basin
Road Decommissioning	Monitor effectiveness of road obliterations and erosion control from 1998 and 1999.	Collawash watershed, Clackamas River basin
Dam Fish Passage	Evaluate fish passage in fish ladder.	Stone Creek Dam, Clackamas River basin
Culvert Fish Passage	Evaluate fish passage at newly installed culvert.	Buckeye Creek, Clackamas River basin
Fish Presence/Absence	Determine fish presence or absence through snorkeling.	Side channels of upper Clackamas River basin

**C-3 is a category of plants or animals requiring special project level inventories prior to ground disturbance.*

Monitoring Project Descriptions

Hydroelectric Fish Passage Evaluation

The Stone Creek hydro system on the Oak Grove Fork of the Clackamas River was constructed in the early 1990's. No evaluations have been made of effectiveness of the fish ladder for passage of cutthroat trout. A pilot project began in 2000. Fifteen cutthroat trout and two brook trout were fin clipped and monitored for their movement. The trap failed and no fish were recaptured. The trap design is undergoing modification.

Riparian Thinning

In 1998 a riparian silvicultural project was initiated on the Zigzag River. Four areas were treated with different riparian silvicultural prescriptions. The goal is to accelerate the establishment of old growth. The teachers established five riparian plots and baseline measurements were recorded. The objective is to compare the four different riparian silvicultural treatments sites to the one control site.



At left: Alan L'Hommedieu measures the diameter of a Douglas fir while Kirk Hanson inputs data on a handheld data recorder.

Recreation Impacts in the Salmon Huckleberry Wilderness

Every five years, data is collected monitor human impacts and change in the Salmon Huckleberry Wilderness. Study areas include Salmon River trail #742 and Mirror Lake. Twenty-one sites were inventoried on 14 miles of trail along the Salmon River, and 11 sites were inventoried at Mirror Lake. The data will be used to determine levels of acceptable change.

At right: Alan L'Hommedieu, Dave Sherden, Debbie Frankel and Diane Sague measure and record amount of human caused disturbance in the Salmon Huckleberry Wilderness.



Bull Run Lake Cutthroat Spawning

At Bull Run Lake there are index sites established for monitoring spawning cutthroat trout. Teachers assisted in inventorying five tributaries where spawning was known to occur the previous spring. The objective is to determine if the redds are still viable and not dewatered. 48 redds were found, which is half the number found the previous two years.

Wetland Wildlife Watch

There is a partnership between Forest Service, Northwest Ecological Research Institute and individual citizens to monitor wetlands on Mt. Hood National Forest. The teachers participated in this program, monitoring at Little Crater Lake meadow, Red Top Meadow, Frying Pan Lake, Dry meadow, and Jackpot meadow for amphibians and Sandhill cranes. Species of interest found include: Barrow's Goldeneye and immature bald eagle found at Frying Pan Lake, Cascade frog at Dry meadow and Jackpot meadow, and two sandhill cranes found at Little Crater Lake meadow.



At left: Diane Sague and Jason Brewer identify a Cascades frog.

Botanical C-3 Surveys

The Forest Service is required to survey for certain rare plants and animals (found on the C-3 list in the Northwest Forest Plan). Under the guidance of botanists, teachers assisted in surveying for *Buxbaumia viridis* (Bug on a Stick), *Rhizonmium nudum*, *Sarcosoma mexicana*, *Ulotia megalospora*, *Corydalis aquae-gelidae*, *Loxosporopsis corallifera* and *Hypogymia oceanica*. Surveys were conducted at a variety of sites on the Clackamas River Ranger District.

Fish Creek Cross-Sections

Fish habitat restoration work was scheduled for 2000 in Fish Creek. Pre-project monitoring had occurred in 1999, but a 10-year storm event changed channel conditions. Teachers assisted in re-surveying 11 stream cross-sections. Data is still being analyzed and the information will be used to compare to post-treatment conditions.

Road Decommissioning in the Collawash Watershed

In 1998 and 1999, 3.2 miles of road were obliterated on the road segments 4600-283, 4600-285, 6350-170 and 6355-130. Teachers assisted in monitoring these road segments surveying for noxious weeds, effectiveness of erosion control and identifying potential erosion problems. Findings include: erosion control grass was not well established if it had been planted during summer months, erosion control blankets applied on slopes facing east and west had little vegetation established because of the hot and dry conditions; and some thistle and other weeds were found in minor amounts and will need continued monitoring to see if it spreads.

Culvert Fish Passage

Fish passage was evaluated at culverts on Buckeye Creek, Tag Creek and Tar Creek. Baffled, squashed arch pipes had been installed the previous summer to aid fish passage. 15 cutthroat trout were captured at each site, and marked with a fin clip. Block nets were installed at the inlet and outlet, and then fish were monitored for movement. Results were positive. In three days from marking to recapture fish successfully moved at two locations.

Fish Presence/Absence

Side channels off the upper Clackamas River were re-constructed in the late 1990's. Two locations were snorkeled to determine fish presence or absence, and fish species composition. The first side channel was used for training, and in the second side channel juvenile chinook was found.

Bird Habitat

Thrushes and hawks are monitored in the "Birds in Recreation Landscapes" project conducted by Cornell University. Teachers conducted the vegetation-monitoring component of the program at seven campgrounds on the Zigzag Ranger District to determine cover type and amount. All data was sent to Cornell for analysis.



At left: Heidi Jandro, Diane Sague and Debbie Frankel summarize vegetation data used in the "Birds in Recreation Landscapes" project. They are on a pier at Clackamas Lake Campground.

Road Decommissioning in the Bull Run Watershed

The Zigzag Ranger District is decommissioning about 40 miles of road within the Bull Run watershed. Some of the work has been completed, and teachers monitored effectiveness of the treatments. Observations were recorded on old culvert crossings and signs of erosion, types of vegetation established, erosion at stream crossings and any failures needing repair were noted.

Program Contribution Overview

Figure 1 represents a cost breakdown between the different program areas of Training (\$1,634), Planning and Follow-Up (\$12,767), Volunteer Reimbursement (\$917), and Monitoring projects (\$11,640). Detailed program costs for each area can be found in Appendix A.

Figure 1. Cost Breakdown for 2000 Teachers in the Woods Projects

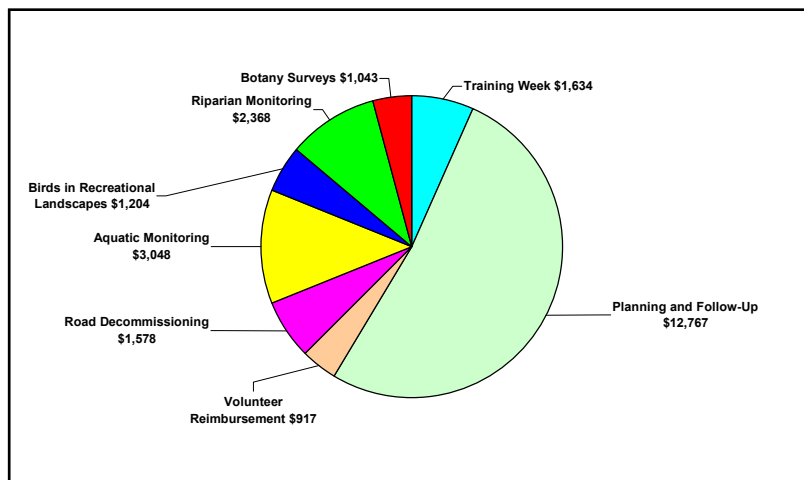


Table 2 shows the total program value based on costs and contributions of the Teacher Volunteers and the Mt. Hood National Forest combined contribution of training, planning and follow-up, and monitoring projects. More detailed costs are found in Appendix A.

Table 2. 2000 Mt. Hood National Forest Teachers in the Woods Program Value

	Total
Teacher Contribution	\$12,853.50
Mt. Hood National Forest Contribution	\$28,165.00
Mt. Hood National Forest Cost	\$27,248.00
Volunteer Reimbursement	\$917.00
Total Program Contribution	\$41,018.50

Appendix A

Project Costs and Teacher Contributions

Estimated costs for the Mt. Hood National Forest employees, vehicles, supplies, as well as teacher contributions, are displayed by project. Teacher contributions were estimated by assigning the equivalent value of their time as paid biological technicians.

Planning and Follow-Up

Position	GS Level	Hours	Total
Fisheries Bio-Technician	07	440	\$7,268.80
Wildlife Biologist	11	8	\$237.07
Forest Wildlife Biologist	12	8	\$267.50
Forest Botanist	11	24	\$742.68
Forest Fish Biologist	12	24	\$802.50
Fish Biologist	11	16	\$440.58
Fish Biologist	11	24	\$648.27
Fish Biologist	09	24	\$487.80
Forest Partnership Coordinator	12	30	\$975.60
Office Automation Assistant	05	8	\$137.42
GIS Specialist	09	16	\$425.95
Visual Information Assistant	07	16	\$333.58
Mt. Hood National Forest Cost			\$12,767.75

Training Week

Position	GS Level	Hours	Total
Fisheries Bio-Technician	07	40	\$660.80
Forest Fisheries Biologist	12	8	\$267.50
Fisheries Biologist	11	8	\$ 220.30
PNW Research Geologist	12	8	\$306.31
Mt. Hood National Forest Employee Cost			\$1454.91
Forest Service Vehicles			\$179.16
Total Mt. Hood National Forest Cost			\$1,634.07

This table shows the total program value based on costs and contributions of the Teacher Volunteers and the Mt. Hood National Forest.

Teachers in the Woods Program Value

	Total
Teacher Volunteer Contribution	\$12,853.74
Mt. Hood National Forest Contribution	\$28,165.20
Mt. Hood National Forest Project Costs *	\$26,041.14
Volunteer Reimbursement	\$917.52
Non-monetary awards (t-shirts, including shipping/postage)	\$1,015.95
Posters (Smokey Bear, International Migratory Bird)	\$73.50
Camera (battery, film development)	\$49.52
Supplies (Write-in-the-Rain notebooks, mechanical pencils, flagging, training materials' copies)	\$70.58
Total Program Contribution	\$41,018.95

** Includes planning and follow-up, training, and projects.*

Appendix B

Projects

Wilderness Campsite and Day Use Inventory

(3 teachers, 8 10-hr days; 1 teacher three 10-hr days)

Position	GS Level	Hours	Total
Wilderness Forestry Technician	07	40	\$902.00
Wilderness Forestry Technician	05	30	\$401.40
Forest Service Vehicle (2 days)			\$35.20
Mt. Hood National Forest Total Contribution			\$1,338.60
Teacher Contribution: Bio-Technicians (4)	05	270	\$3,612.60
Total Project Cost:			\$4,951.20

C-3 Botany Surveys

(2 teachers, 3 10-hr days; 1 teacher, two 9-hr days)

Position	GS Level	Hours	Total
Botanist	09	20	\$532.40
Botany Technician	09	20	\$406.60
Botanist	07	30	\$794.70
Forest Service Vehicle (5 days)			\$95.50
Mt. Hood National Forest Total Contribution			\$1,829.20
Teacher Contribution: Bio-Technicians (3)	05	78	\$1,043.64
Total Project Cost:			\$2,872.84

Birds in Recreational Landscapes

(5 teachers, 1 10-hr day; 4 teachers, one 10-hr day)

Position	GS Level	Hours	Total
Wildlife Biologist	11	16	\$522.40
Wildlife Bio-Technician	05	50	\$669.00
Fisheries Bio-Technician	07	20	\$330.40
Forest Service Vehicle (2 1-day; 1 1-day)			\$55.67
Mt. Hood National Forest Total Contribution			\$1,577.47
Teacher Contribution: Bio-Technicians (5)	05	90	\$1,204.20
Total Project Cost:			\$2,781.67

Wetlands Wildlife Watch

(5 teachers, 1 10-hr day; 4 teachers, one 10-hr day)

Position	GS Level	Hours	Total
Wildlife Biologist	11	20	\$582.20
Wildlife Bio-Technician	05	10	\$133.80
Fisheries Bio-Technician	07	20	\$330.40
Forest Service Vehicle (2 1-day; 1 1-day)			\$72.08
Mt. Hood National Forest Total Contribution			\$1,118.48
Teacher Contribution: Bio-Technicians (5)	05	90	\$1,204.20
Total Project Cost:			\$2,322.68

Zigzag River Riparian Thinning Monitoring

(1 teacher, 3 9-hr days; 3 teachers, two 10-hr days)

Position	GS Level	Hours	Total
Fisheries Bio-Technician	07	70	\$1,156.40
Forest Service Vehicle (5 days)			\$79.25
Mt. Hood National Forest Total Contribution			\$1,235.65
Teacher Contribution: Bio-Technicians (4)	05	87	\$1,164.06
Total Project Cost:			\$2,399.71

Bull Run Watershed Road Decommissioning Effectiveness Monitoring

(2 teachers, 3 10-hr days; 1 teacher, one 8-hr day)

Position	GS Level	Hours	Total
Hydrologist	09	4	\$113.28
Forest Hydrologist	12	10	\$382.90
Fisheries Bio-Technician	07	20	\$330.40
Forestry Technician	05	8	\$107.04
Forest Service Vehicle (4 days)			\$76.90
Mt. Hood National Forest Total Contribution			\$1,010.52
Teacher Contribution: Bio-Technicians (3)	05	58	\$776.04
Total Project Cost:			\$1,786.56

Collawash Watershed Restoration Road Decommissioning Effectiveness Monitoring (three 10-hr days)

Position	GS Level	Hours	Total
Soil Scientist	09	20	\$482.60
Forest Service Vehicle (1 day)			\$18.65
Mt. Hood National Forest Total Contribution			\$501.25
Teacher Contribution: Bio-Technicians (2)	05	60	\$802.80
Total Project Cost:			\$1,304.05

Fish Creek Cross Sectional Profiles
(four 10-hr days)

Position	GS Level	Hours	Total
Fisheries Biologist	09	40	\$813.20
Fisheries Bio-Tech	06	10	\$196.70
Forest Service Vehicle (4 days)			\$71.80
Mt. Hood National Forest Total Contribution			\$1,081.70
Teacher Contribution: Bio-Technicians (2)	05	80	\$1,070.40
Total Project Cost:			\$2,152.10

Stone Creek Dam Fish Passage Study
(three 10-hr days)

Position	GS Level	Hours	Total
Fisheries Bio-Technician	06	30	\$590.10
Forest Service Vehicle (3 days)			\$62.95
Mt. Hood National Forest Total Contribution			\$653.05
Teacher Contribution: Bio-Technicians (2)	05	60	\$802.80
Total Project Cost:			\$1,455.85

Buckeye Creek Culvert Fish Passage Study
(three 10-hr days)

Position	GS Level	Hours	Total
Fisheries Bio-Technician	06	30	\$590.10
Forest Service Vehicle (3 days)			\$61.55
Mt. Hood National Forest Total Contribution			\$651.65
Teacher Contribution: Bio-Technicians (2)	05	60	\$802.80
Total Project Cost:			\$1,454.45

Snorkeling: Fish Presence/Absence and Identification
(one 10-hr day)

Position	GS Level	Hours	Total
Fisheries Bio-Technician	06	10	\$203.30
Fisheries Biologist	09	10	\$196.70
Forest Service Vehicle (1 day)			\$18.65
Mt. Hood National Forest Total Contribution			\$418.65
Teacher Contribution: Bio-Technicians (2)	05	20	\$267.60
Total Project Cost:			\$686.25

Bull Run Lake Cutthroat Trout Spawning Surveys
(one 8-hr day)

Position	GS Level	Hours	Total
Fisheries Biologist	09	8	\$209.80
Forest Service Vehicle (1 day)			\$19.35
Mt. Hood National Forest Total Contribution			\$229.15
Teacher Contribution: Bio-Technicians (1)	05	8	\$107.00
Total Project Cost:			\$336.15

The U.S. Department of Agriculture (USDA) prohibits discrimination on all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.