United States Department of Agriculture

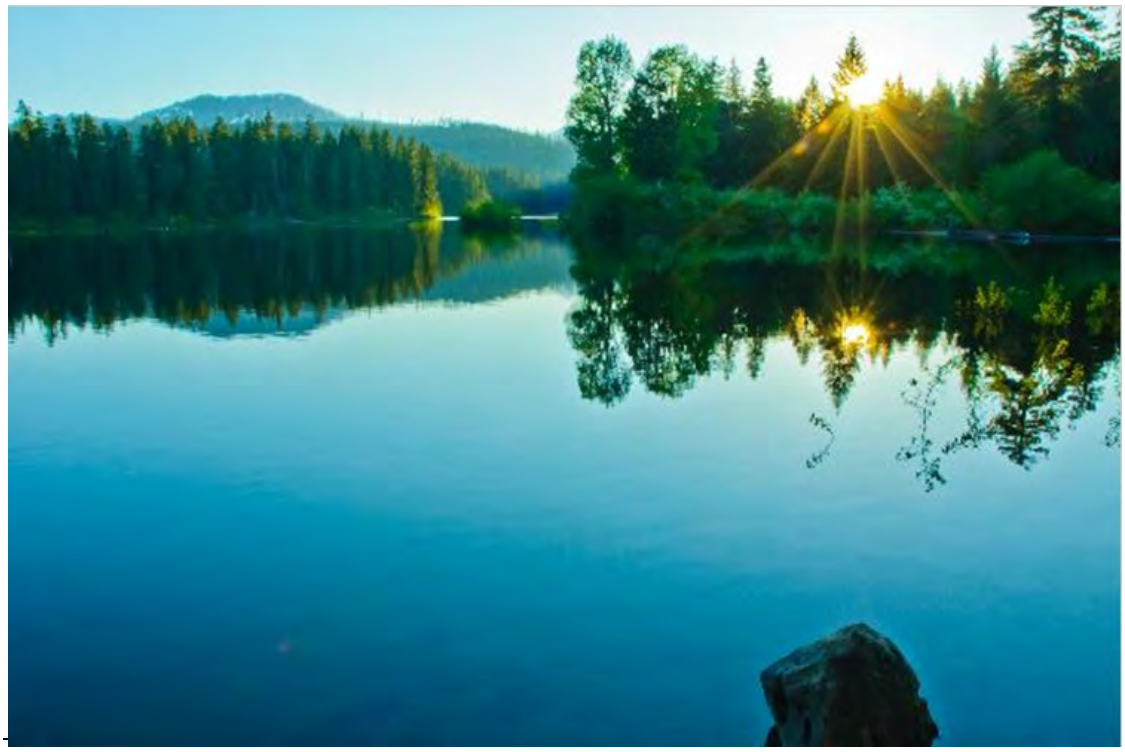
Forest Service

Pacific Northwest Region

Monitoring and Evaluation Report

Willamette National Forest

Fiscal Year 2010



Fish Lake,

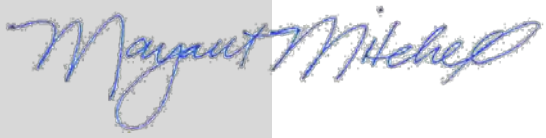
Willamette National Forest

Welcome to the 2010 Willamette National Forest annual Monitoring and Evaluation report. This is our 20th year implementing the 1990 Willamette National Forest Plan, and this report is intended to give you an update on the services and products we provide. Our professionals monitor a wide variety of forest resources and have summarized their findings for your review.

The climate in which we began implementing the Forest Land and Resource Management Plan (LRMP) in 1991, has changed considerably. The largest change occurred in 1994 when the Northwest Forest Plan amended our LRMP by establishing new land allocations. Climate change is now a subject of concern. We want to know what changes, if any, will occur on this forest We have added a monitoring question to address this subject.

I invite you to read this year's report and contact myself or my staff with any questions, ideas, or concerns you may have. I appreciate your continued interest in the Willamette National Forest.

Sincerely,



MEG MITCHELL

Forest Supervisor

Willamette National Forest

r6-will-009-11

MONITORING AND EVALUATION REPORT

This report focuses on the monitoring and evaluation process described in Chapter V of the Forest Plan. The document provides an overview on how the Plan's management direction is being implemented and an evaluation of the current conditions. The questions and the answers have changed as conditions have changed and new information has become available.

If you would like an additional copy of this report contact Judy McHugh (541 225-6305) or write to: Willamette National Forest; 3106 Pierce Parkway Suite D; Springfield, OR 97477.

Contents

Introduction and Background

The Land and Resource Management Plan (Forest Plan) for the Willamette National Forest was approved by the Regional Forester on July 31, 1990. We began implementing the Forest Plan on September 10, 1990.

The Forest Plan is the basis for integrated management of all the Forest's resources. It designates areas of resource management emphasis based on the capabilities of these areas and the differing levels of goods and services that are projected to come from them. The Forest Plan also specifies monitoring and evaluation requirements to provide information necessary to determine whether promises are being kept, and to assure assumptions made during analysis are valid.

On April 13, 1994, the Secretaries of the Departments of Agriculture and Interior signed a Record of Decision for the Management of Habitat for Late-Successional and Old-Growth Forest Related Species, referred to as the Northwest Forest Plan or NWFP, which amended the Forest Plan by establishing new land allocations (management areas) and standards and guidelines (S&Gs). The implementation of these new management areas and S&Gs began May 20, 1994.

Monitoring Strategy

To meet the challenge of monitoring, the Willamette National Forest developed a strategy designed to address questions asked in the monitoring section of the Forest Plan (Chapter V) and to assure compliance with the Standards and Guidelines established in the Northwest Forest Plan. The basic elements of that strategy were:

1. *Identify the monitoring that is currently being done on the Willamette National Forest.*
2. *Supervisor's Office Staff develop plans and programs to address the questions asked in the monitoring section of the Forest Plan (Chapter V).*
3. *Forest Supervisor and Staff review at least one project on each District. The focus of that review being to determine, "Did we do what we said we would do?"*
4. *Publish a report displaying the results of monitoring and an evaluation reviews.*

The measure used in the Forest Plan monitoring questions is the "Threshold of Variability" or TOV. The TOV is a threshold that when exceeded triggers further

investigation to determine a proper course of action. For many questions the TOV has been exceeded due to the subsequent Northwest Forest Plan that materially altered many outputs predicted in the Forest Plan. A Forest Plan revision scheduled to begin around 2014 will alter predicted outputs to a level probable under the Northwest Forest Plan. Where the TOV no longer provides useful information, a narrative and data will still be provided.

Monitor and Evaluation

Monitoring and evaluation provide the control system over management activities on the Willamette National Forest. Monitoring and evaluation each have distinctly different purposes.

Monitoring is gathering information and observing management activities. Forest Plan monitoring is organized into three levels:

Implementation Monitoring is used to determine if the objectives, standards, guidelines, and management practices specified in the Forest Plan are being implemented. "Did we do what we said we were going to do?"

Effectiveness Monitoring is used to determine if the design and execution of the prescribed management practices are effective in meeting the goals, objectives, and desired future condition stated in the Forest Plan. "Are the management practices producing the desired results?"

Validation Monitoring is used to determine whether data, assumptions, and coefficients used to predict outcomes and effects in the development of the Forest Plan are correct. "Are the planning assumptions valid, or are there better ways to meet Forest Plan goals and objectives?"

Evaluation is the analysis and interpretation of the information provided by monitoring. Evaluation is the feedback mechanism identifying whether there is a need to change how the Forest Plan is being implemented to comply with existing direction, or whether there is a need to change Forest Plan direction itself through amendments or revisions.

This report emphasizes the question, "Did we do what we said we were going to do?" as well as reporting the progress that is being made on questions of effectiveness and validation. This approach is consistent both with the first assumption behind our Forest Plan monitoring strategy and the last guarantee in the Forest Plan Guarantee that promises we will show you how we are implementing the Plan. Typically, several years of effectiveness and validation monitoring results are needed to permit meaningful evaluation of trends against baseline data. These trends are revealed and discussed throughout the report when they become evident

Summary of Monitoring Findings

A review of the monitoring activities, findings and results for the fiscal year 2010 is presented in the following section. This section is organized in five major headings covering the range of resources monitored on the forest.

Physical Resources

The Forest Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining and improving water quality, soil productivity, and air quality. These Standards and Guidelines also provide direction to prevent, detect, and with few exceptions suppress fires. Below is a summary of FY10 monitoring questions designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards and Guidelines to meet the goals of protecting, maintaining, and improving the physical environment of the Forest.

CONTENTS

If the reader is interested in more information than what is provided in the following summary they may request the documents listed under "Supplemental Information".

PHYSICAL RESOURCES SUMMARY FINDINGS

Physical Resource	Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Water Quality	25 - Water temperature	Water sampling	Results OK	Water quality FY10 monitoring report
	26 - Water turbidity	Field evaluations	Results OK	
	27 - Peak flows	No formal monitoring in 2008	No new results	
	30 - Lake quality	Field monitoring	Results OK	
Soil Productivity	32 - Soils, mass movement	On-site visits	Results OK	Soil FY10 monitoring report
	33 - Soil productivity, mass movement	Routine monitoring	Results OK	Water quality FY10 monitoring report
	34 - Soil productivity	Site visits and implementation monitoring	Results OK	

Air Quality	35 - Air quality	Reported smoke intrusions, lichen surveys	Results OK	Fire Management and Lichen FY10 monitoring reports
Fire	36 - Fire protection	District reports	Results OK	Fire Management FY10 monitoring report
	37 - Fuels treatment	Forest report	Results OK	

Water Quality

Monitoring Questions 25 & 26: Water Quality: Temperature and Turbidity

Are Standard and Guidelines effective in meeting State Water Quality Standards for turbidity and temperature?

The Forest measured summer water temperature at 91 sites during the summer of 2010 (see Table X below). Thirty-five sites showed a 7-day average maximum temperature exceeding salmon and trout rearing and migration standards (16-18o C), the core cold water habitat standard (16oC) or the bull trout spawning and rearing standard (12oC) established by Oregon Department of Environmental Quality (ODEQ). These maximum water temperature conditions occurred primarily in July and August, which is typical of past summer water temperature monitoring on the Willamette National Forest. Generally, those sites that exceeded standards occurred in wider main stem channels with less riparian shade, while the cooler water sites tended to be associated with headwater streams and small tributaries with better vegetative cover and contribution from cold water springs at the base of High Cascades geology. Other objectives for this monitoring included water temperature monitoring with fish habitat surveys, and monitoring to answer specific questions about forest management or watershed restoration projects associated with species listed under the Endangered Species Act.

Number of summer water temperature sites successfully monitored on the Willamette National Forest, summer 2010.

Sub-basin	Total # of Sites Successfully Monitored	# of Sites Exceeding Standards	# of Sites Meeting Standards
North Santiam Sub-basin	11	1	10
South Santiam Sub-basin	6	3	3

McKenzie River Sub-basin	44	13	31
Middle Fork Willamette Sub-basin	30	18	12
Totals	91	35	56

In October, 2006, based on both ODEQ and Forest Service water temperature data collected on national forest lands in past years, ODEQ issued the Willamette Total Maximum Daily Load (TMDL) for point and non-point sources of pollutants in the Willamette Basin. This TMDL focused primarily on water temperature, and analyzed shade as a surrogate for water temperature. As Designated Management Agencies required by law to meet requirements of the Willamette TMDL, the Willamette and Umpqua National Forests jointly submitted a Water Quality Restoration Plan (WQRP) in April 2008, serving as an implementation plan for the TMDL for the North Santiam, South Santiam, McKenzie River, Middle Fork Willamette, and Coast Fork Willamette Sub-basins (USDA Forest Service, 2008). This WQRP outlines how ongoing active and passive restoration will address critical riparian shading needed to protect and enhance surface water temperatures on the Forest. Given the completion of both the Willamette TMDL and the corresponding WQRP, all streams listed on the 303d list on Willamette National Forest were removed from the updated list in 2010. Through implementation of Forest Plan Standards and Guidelines and adherence to the Northwest Forest Plan, management of stream-side areas is contributing to a trend of improved riparian conditions that will lead to maintained or enhanced water quality over the long term.

Santiam River Zone: Emergency response protocols in place to protect water quality in the event of a natural disaster.

Monitoring Question 26 is also concerned with water quality as measured by turbidity levels. Forest personnel rely heavily on real-time data provided by USGS gauging stations across the Forest. Also, aquatics personnel do project specific monitoring of turbidity where sediment can affect municipal water. An example of this is occurring on the Santiam River Zone at the north end of the Forest where personnel maintain close communication with municipalities in the North Santiam Sub-basin. A group known as the North Santiam Water Users meets quarterly and has organized an emergency response protocol for natural events that have potential to affect water quality. USGS websites are tracked during winter storms, and when turbidity in specific rivers and reservoirs rises to levels that may affect drinking water, Forest personnel do field reconnaissance to find the source of this turbidity and report back to the group's members. This group includes officials from the City of Salem who treat waters flowing from National Forest lands as a source of drinking water for residents of Salem, Oregon.

Monitoring Questions 27: Water Quality: Peak Flows

Are management practices causing changes in stream flows?

No new monitoring was conducted in 2010 for stream flow by the Willamette National Forest. As mentioned above, historic and real-time data from USGS gauging stations are used for flow data across the Forest. Modeling of the potential changes to peak flows as part of timber harvest on Forest was done for four landscape level vegetation treatment environmental assessments using the Aggregate Recovery Percent methodology prescribed in the Willamette National Forest Land and Resource Management Plan (1990). In each case, this modeling showed that peak flows would not be deleteriously affected by vegetation thinning in each respective watershed.

Monitoring Questions 30: Water Quality: Lakes

Are Standards and Guidelines for Water Quality and Riparian Areas effective in maintaining or enhancing water quality and riparian conditions of lakes?

Lake monitoring on the Forest in 2010 included monitoring of key chemical and biological properties of Waldo Lake. In addition, high use recreation areas on several reservoirs on the Forest were also monitored to determine if high concentrations of potentially toxic blue-green algae were present.

Waldo Lake monitoring continues.

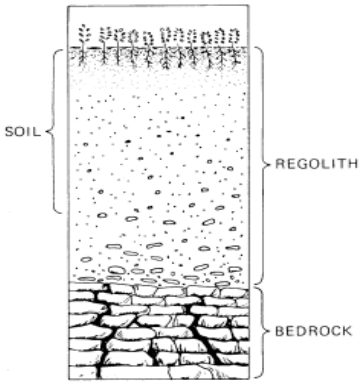
The Willamette National Forest contracted with Cascade Research Group to perform three monitoring trips to Waldo Lake in 2010 as part of the long-term monitoring program for the lake. Chemical and biological samples and field data were collected on three dates: July 12, August 16, and September 26. The highest Secchi disk reading (a measure of water clarity) was reported to be 42.5 meters on September 26 indicating an extremely high level of water clarity. In addition, under an agreement with Portland State University, water temperature data was collected in Waldo Lake from stationary instruments that recorded temperatures at various depths at one location on Waldo Lake. Also in 2010, new instrumentation was deployed to monitor changes in the lake level throughout the year. This information is being used to develop and calibrate a water quality and hydrodynamic model for the lake. Forest personnel continued to monitor lake outflow and weather data to provide information for model development and calibration.

Monitoring visits were made primarily to developed recreation sites on water bodies that are known to have had blooms of potentially toxic blue-green algae in the past. Public

health advisories are issued when concentrations of potentially toxic blue-green algae are at concentrations above the health based threshold established by the Oregon Health Authority (OHA). Throughout the summer season site visits were made to approximately 25 locations on Detroit, Cougar, Blue River, Hills Creek, and Lookout Point Reservoirs. Trailheads, swimming areas, and boat ramps were posted with educational information about the health hazards of toxic blue-green algae blooms and how to identify them. As a result of this monitoring and in cooperation with OHA, a public health advisory was issued for Blue River Reservoir in 2010. The advisory on Blue River Reservoir was in effect for 25 days from September 10 to October 5.

Forest Service personnel will continue to work cooperatively with other state and federal agencies to protect human health with regard to toxic algal blooms occurring on National Forest lands.

Soil Productivity



Monitoring Questions 34: Soil Productivity

Are Standard and Guidelines effective in maintaining soil condition and conditions for nutrient cycling? Are the Forest Plan predictions of mass movement valid?

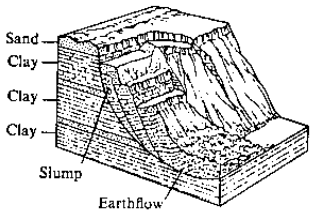
Forest Plan Standards and Guidelines used to protect soil productivity are focused on limiting the extent of compaction and displacement related to the use of ground-based equipment on forest soils, and survey of soil effects from prescribed fire.

The Forest Plan requires that no more than 20% of an area harvested by ground-based machines should be impacted by roads, landings and skid trails on a given harvest unit. Post-sale reconnaissance and transect monitoring accomplished by the Forest Geologist on units of the Pebble, Buzz RV and Stinger Timber Sales in 2010 revealed that Best Management Practices (BMPs) were being used properly to protect soil productivity in ground-based logging locations. BMPs included limiting ground-based machines to slopes less than 30%, proper use of designated skid trails to minimize extent of effects and requirements to place logging slash on skid trails to minimize ground pressure. Monitoring included walking six field transects totaling an estimated 5,600' to determine the extent of skid trail impact. Results ranged from 7 to 13% of surveyed ground-based logging areas having skid trails and landings, well below the Forest Plan standard of 20%.

The Forest Geologist also conducted post-prescribed fire monitoring of soils after under burns in the Cup, Pebble, Stinger, Blowout and Cub Timber Sales. Forest Plan Standards and Guidelines state that severely burned areas, evidenced by duff removal and soil

discoloration, should not exceed 10% of an activity area and the Forest Plan sets out standards for duff retention based on vegetation and soil types. For example, on Cup Timber Sale unit 21, duff retention standards were 40 to 60%. Transects conducted in this 15-acre unit showed duff retention of 80% or more in all burned areas. Pebble Unit 9, a 70-acre unit, had duff retention standards of 10-30%. Broadcast burning only covered 30% of the entire unit and burned areas met or exceeded 60 – 80% standards. Stinger unit 101 was a high complexity burn on approximately 20 acres and duff retention standards were 10 to 30%. This unit was jackpot burned (fire only in slash accumulations) so only 10% of the area was burned with burned areas meeting 60-80% duff retention. Similar results were found on the Blowout and Cub Timber Sales showing that in all sites monitored in 2010, careful prescribed fire after vegetation treatments was meeting or exceeding Forest Plan standards in every case.

In 2010, the Forest Geologist also documented visits to the Power Pak, French Thin, BT-3 and BT-1 timber sales to consult on harvest operation effects to soil. Consultation at these sites included whether designated logging systems were appropriately protecting soils, whether ground-based operations could resume after wet weather, discovery of unstable locations during operations, and appropriate location of a helicopter landing for one of the sales. In each case, Timber Sale administrators asked specialists to come in and evaluate operations to make sure that Forest Plan Standards and Guidelines were being met and in each case, the Forest Geologist approved or adjusted operations, or prescribed BMPs to assure standards were being met.



Monitoring Questions 32: Water Mass Movement

Are Standard and Guidelines effective in managing mass movements to meet Forest goals?

The monitoring of mass movements involved the evaluation of typical sites of existing and previously unstable failures where road construction or other activities occurred. Site work can be divided into five categories: MQ 32.1- Construction / Reconstruction, MQ 32.2- Stabilization / Mitigation, MQ 32.3- Maintenance Practices, MQ 32.4- Decommissioning, and MQ 32.5- Large Earthflow / Historical Baseline. The content of this year's report will be directed at both A) larger, active, naturally occurring slumps or slump / earthflow complexes and their effects on the various transportation systems on the Willamette National Forest, and B) smaller site specific failures that directly impact a roadway. The work on various slides will include all the elements mentioned above, except MQ 32.4. This report discusses work that has been monitored in 2010. Section Item II reviews the various unstable areas that were highlighted in last year's report for 2009 or added in 2010. Section III will look at each of the slides listed, discuss tasks that were completed, and highlight the monitoring results.

Proposed Slide Areas Under Investigation

Boone Cr. Slide on McKenzie River Ranger District.

The Boone Creek Slide is located on Road 19 at Boone Creek, approximately 0.5 mile north of the Terwilliger Day Use Area at Terwilliger Hot Springs. Road 19, also known as the Aufderheide Memorial Drive, is a double lane paved road that extends through the Willamette National Forest from Hwy. 126 on the north to Hwy. 58 near West Fir on the south. At the Boone Creek Slide, the road crosses near the bottom of an approximately 45 acre semi-active to active slump / earthflow complex. The toe of the slide is just at or below the high pool elevation of Cougar Reservoir. Approximately 370 to 400 feet of road is affected. Currently, this section of road is graveled instead of paved to facilitate regular road maintenance.

Geotechnical work was conducted at the site, and several drainage improvements were implemented. Throughout the 1980s, this road segment had to be reconstructed every few years because of soil settlement and asphalt cracking and deterioration. In response, a drainage culvert was relocated from the center of the slide to the original channel on the south side of the slide and drainage improvements were constructed above the road. This appeared to slow slide movements, and noticeable improvements to the road surface were evident in the early 1990s. However, the intense rain storms and rain-on-snow events of 1996/1997 caused renewed failure of the asphalt. Geotechnical work was again conducted at the site. The principal work involved more drainage improvements above the road, primarily in terms of surface ditching. Slope indicators were also installed and monitored as part of a slope stability study in the 2000s. The slide is still moving, but the rate of movement has apparently been reduced to the acceptable level noted after the improvement constructed in the 1980s.

Monitoring in 2010:

A reconnaissance investigation of the entire unstable area was first conducted by the Forest Geologist in the spring of 1994 as part of the Willamette National Forest South Fork Pilot Watershed Analysis. On November 29, 2010, I conducted another intensive field review of the entire slide mass as part of the ongoing environmental analysis for the Green Mountain project planning area. The Green Mountain project intends to look at thinning of older managed stands and naturally fire – regenerated older stands. At this point, no potential Green Mountain stand would affect the Boone Creek Slide.

Some observations and conclusions:

1) The drainage improvements implemented about 10 years ago seem to be stabilizing (or reducing the rate of movement within) the toe area of the slide between the road and the reservoir. The soils in this toe area appear to have dried out with the containment of the stream flow on the north side of slide area. Road settlement seems to have stabilized, and

more recently leaning trees and tension cracks are not evident below the road way and extending to the lake shore.

2) The storm events of 1996/1997 and subsequent events through about 2000 or so caused additional small debris chute type soil failures on the slide scarp on the northeast corner of the slide near its highest point. The debris chute scar evident on the 1990 photo (8-1-90, 1190-28) has partially vegetated with brush and conifer. Newer bare soil scarps are now evident to the east of this failure. These slides form short debris chutes that piled up on the slump benches beneath.

3) The slide mass is generally saturated throughout. Small areas of ponded water are evident at the ground surface in numerous low spots, in root wad depressions from over turned trees, and in the numerous small springs that pop out in various locations.

4) Although this is a most subjective observation, it appears that the slide mass above the road has not slowed to any degree, but it some ways appears to be moving at rates that equal or exceed those apparent in 1994. More leaning and swayed trees seem evident, as well as a few more tension cracks.

In summary, the Boone Creek Slide is a semi-active to active earthflow that is crossed near its toe by Road 19. Movement rates are such that a paved road surface is broken relatively quickly. Consequently, the surfacing on the road through this section is and has been gravel for many years. Geotechnical work at the slide in the last twenty years or so has slowed movement at the road and begun to stabilize the toe area of the slide below the road. The stabilization work, primarily in the form of drainage control, has helped to better protect the road bed and drainage crossings. There is no indication that the larger part of the slide, uphill of the road, is beginning to stabilize. Consequently, the current status quo is likely to exist for some time to come.

Poly Retaining Wall on Middle Fork Ranger District.

This slide is in the vicinity of Camp 5 Hill on Rd. 1926. The road was built over a localized unstable area that is part of a large earth movement that extends uphill. In the 1970s, the road segment had dropped and formed an approximate 10 foot dip across the failure. In 1981, a wood chip/geotextile wall was constructed across the site. The slide still showed movement, but at a much reduced rate. The wood chip wall was replaced in early 2000s with a light weight Poly/block wall.

Monitoring in 2010:

Mark Leverton indicated to me (in an email, dated 1/27/2011) that visual monitoring in 2010 indicated no change in the status. The improvements appear to be functioning properly.

Highway 20 on Sweet Home Ranger District

The FY 2005 Transportation Legislation contained a provision for the study of unstable areas along a critical section of Hwy. 20. The project is included in Western Federal Lands Highway Funds and will be administered by Federal Highway Administration (FHWA). The project is a coordinated effort between FHWA, the Oregon Department of Transportation (ODOT), the U. S. Forest Service (USFS) and Linn County. The proposal is to investigate active landslides on U. S. Highway 20 between Cascadia and Santiam Pass to develop a long-term repair strategy. Specific projects are located between milepost 53 and milepost 61. The slides are as follows.

1) Milepost 53.7/53.8 – Double Gate: This is a large, actively unstable, slump / earthflow complex of approximately 20 acres, with the toe in the South Santiam River. The head of the slide is about 1500 feet above the road. Relief from the toe of the slide in the River to the top of the unstable area is about 800 feet. During the 1996 storm, a section of toe approximately 60 yards long, 30 yards wide, and 10 yards deep failed and was washed away by the River in a few hours. Subsidence at the roadway ranges from six inches to one foot per year. Little seepage or surface water is present anywhere on the slide mass above the road. Standing water is evident just below the road on the east side of the failure.

2) Milepost 54.2 – House Rock Slide: This is a large slump / earthflow complex of approximately 21 acres with the toe at Hwy. 20. This slide is most interesting in that it is a new failure in terms of its effect on the Highway. It began to deform the pavement only in the last fifteen years or so. This section of highway was stable from at least the late 1970s to the mid 1990s. The toe is on the Highway or just below it, and it has been drilled by Federal Highways (Report dated May 20, 1998). The head of the slide is almost one half mile upslope of the road. Relief from the toe of the slide to the head is about 800 feet. A perennial stream runs down through the slide for almost its entire length.

3) Milepost 55.4 / 55.5 – Lower Sunken Grade: This is a large slump / earthflow complex of approximately 64 acres with about half of that, 33 acres, being very actively unstable. The top of the slide is about 1700 feet above the roadway and the toe is located in Sheep Creek. As with other major failures, relief from the toe to the head is about 800 feet of elevation. The Lower Sunken Grade has shown movement rates of an inch a day during some periods. In the last decade or so, movement rates are around 5 to 10 feet per year. The slide is expanding both above and below the road way.

4) Milepost 56.1 - Upper Sunken Grade: This is a large, actively unstable, slump / earthflow complex of approximately 18 acres with the top of the slide just above the ditch line of the road and the toe in Sheep Creek. The instability affecting the highway corridor is the western arm of this unstable area. The retaining wall just to the east of this slide was constructed about a decade ago to stabilize the eastern arm of the Upper Sunken Grade. At the roadway, the eastern arm of this unstable area and the western arm are separated by a small area, about one acre in size, of stable ground. A perennial stream crosses Hwy. 20 at this small stable area, drops down along the eastern side of the western arm, and then empties onto the main slide mass a few hundred feet below the road way. In the early

1980s the eastern arm and the western arm were actually two separate slides that extended to the Santiam River. However, in the last several years, the toe areas of both have grown together.

5) Milepost 56.7 to 56.8 – Sheep Creek Complex: This slide area is a very large slump / earthflow complex of about 100 acres. It includes areas of active slumps, debris chutes, and more stable areas. The most actively unstable area occupies about 30 acres. It begins at the east abutment of the Sheep Creek Bridge and extends east for about 500 feet along the road way. The top of this actively unstable portion is about 500 to 600 feet above the roadway and the toe is located in Sheep Creek. This slide is very complex with both sinking and rising road grades and the moving bridge abutment on the east end of the Sheep Creek Bridge. The highway at this site was reconstructed about ten years ago to improve driver safety.

6) Milepost 60.1 – Tunnel: The overall site is characterized by a, semi-stabilized, slump / earthflow complex that covers about 26 acres, both above and below the road. Anecdotal evidence indicates that this area (or parts of it) may have been moving in the 1940s, during or soon after the highway was constructed. The site received it name from an actual tunnel dug into the slope above the highway about 300 feet west of this slide. The "tunnel" was used to drain the slide mass. Field evidence indicates that the area immediately above the highway may also have been used as a rock source for highway construction. At this point, the actual slope instability affecting the highway corridor is a small, slump-type failure about 4 acres in size with about a 100-foot-long, settlement crack in the pavement. The active failure extends into the west bound lane, but does not extend uphill of the roadway. Settlement rates are approximately six inches per year. Springs and standing water are present above the road and in the ditch line. The toe is several hundred feet below the road. Willamette National Forest personnel will continue to monitor on-going stability concerns and will work cooperatively with other land management agencies and companies to address specific needs.

Monitoring in 2010:

Nathan Jenks (U. S. Department of Transportation, Federal Highway Administration, Western Federal Lands Highway Division, Geotechnical Group, 610 East Fifth Street, Vancouver, WA 98661) organized a meeting on December 1, 2010, at the ODOT Region 2 Office in Salem, OR. At that meeting the Draft Final Report for the Landslide Investigation and Analysis, South Santiam Highway, US Route 20, Slope Stabilization Phase I report was presented by Cornforth Consultants, Inc. (10250 SW Greenburg Rd. Suite 111 Portland, OR 97223ph. 503-452-1100 fax. 503-452-1528). Numerous personnel from Federal Highways, ODOT and the Forest Service were in attendance. At this meeting, an extensive review of the project findings was conducted. Presently, the final report is being developed and should be completed within the next month. Consequently, a summary of the findings for the Hwy. 20 Project will not be included in this year's monitoring report, but is anticipated for 2011.

Frazier Slide on the Middle Fork Ranger District

The Frazier Slide, located on the northeast slopes of Coyote Mountain, occurred January 19, 2008. The upper portion of the slope failure covered or obliterated the Union Pacific Railroad line for about 900 to 1000 feet. The total slide covers about 60 acres, and the failure area above the railroad grade extends over about 20 acres. This slope failure has elements of both an upper rotational and a lower translational failure mechanism, with the dividing line around the elevation of the railroad grade. The larger portion of the slope failure below the railroad grade is translational in nature and is run out of saturated or liquefied soil from the primary rotational failure above. The final slope stabilization work on the Frazier Slide was completed in the late fall of 2008. Essentially, a large rock buttress was constructed at the toe of the slide. A considerable mass of failed material, several hundred thousand yards, was hauled away to stable waste areas, and a drainage control system was constructed near the toe of the slide area.

Monitoring in 2010:

Mark Leverton indicated to me (in an email, dated 1/27/2011) that visual monitoring in 2010 indicated no change in the status. The improvements appear to be functioning properly. The slope stabilization measures (rock buttress, horizontal drains, and under drains) were working well, and no additional slope instability had been observed.

Other Sweet Home Ranger District Road Failures

1) FS Rd. 2044000, Latiwi Road, Mile Post 3.3

A sunken grade exists at mile post 3.3 on Rd. 2044000. The road has dropped approximately 2 to 3 feet for a distance of about 200 feet. The road settlement is part of a large (3 to 4 acre), deep seated earthflow, that has been moving for decades. The road is located approximately in the middle of the slide mass with about 200 to 300 feet of distance to the toe at the creek and roughly the same distance to the rock scarp at the back. Failure depths are estimated at 50 to150 feet, with the toe at a major tributary of Three Creeks. Rd. 2044 will be needed for timber haul, and the desire was to have Rd. 2044 accessible with low-boy hauling equipment. The route with the ramps into and out of the slide did not meet that standard.

2) FS. Rd. 2045000, Holman Creek Road, milepost 6.5

The Holman Slide impinges upon FS Rd. 2045000 at approximately milepost 6.5. The Holman Thin Timber Sale has two units, 9 and 10, that are beyond the slide area (most of Unit 9 and all of Unit 10). The desire was to have Rd. 2045 accessible for logging equipment and log haul.

The Holman Slide is an actively unstable slump / earthflow complex of approximately 7 acres that resides within a much larger area (several dozen acres) of a potentially highly unstable slump / earthflow terrain. In turn, this potentially unstable upland area is the head wall complex for several hundred acres of stabilized slump / earthflow topography. About 6 or 7 acres begin actively moving perhaps after the 1964 storm event. After the 1996 storm event, parts of the slide finally had reached Rd. 2045.

3) FS. Rd. 2027000, Moose Mountain Road, milepost 6.5

A sunken grade exists at approximate mile post 2.7 on Rd. 2027000. The road has dropped approximately 2 to 4 feet for a distance of about 200 feet. Rd. 2027 will be needed for timber haul. The desire was to have Rd. 2027 accessible with low-boy hauling equipment. Prior to any repairs, it is doubtful if this route would pass loaded log trucks, yet alone a low boy. The failure extends down the hill for 250 to over 300 hundred feet. Failure depths are below rooting depth, but not a great deal. Portions of this unstable area may have been moving for perhaps 40 or 50 years.

4) Road 2047000, Milepost 0.7

This slide failed in the winter of 2009. This slump-type failure extended along the road way for about 70 feet at the road shoulder. Over all, the slide was about 110 feet across and dropped down the hill about 100 feet to end on or near a large, stabilized slump bench. When it failed, approximately 6 feet of road width dropped about 1 to 2 feet; about 8 to 10 feet of road width remained. The road was nearly impassable. The repair involved removing the failed soil and rebuilding the road way with an open graded rock fill. The work was completed in the summer of 2009.

5) Road 2047000, Milepost 1.05

This large slump / earthflow failure extends along the road way for about 100 feet at the road shoulder. Over all, the slide is about 200 to 300 feet across and extends intermittently down the hill about 700 to 800 feet to end near the shores of Johnny Lake, a large sag pond. The failure at this site has been moving for many years (decades) and appears to be getting progressively worse. During the winter of 2009, approximately 10 feet of road width had dropped about 1 to 2 feet. Only about 2 to 3 feet of road width remained unaffected. Again, the roadway was nearly impassable. The repair consisted of shifting the alignment into the hill side about 9 to 12 feet for a distance of 20 to 25 yards. This work was completed in the summer of 2009.

Monitoring in 2010:

1) FS Rd. 2044 000, Latiwi Road, Mile Post 3.3

Within a few weeks of the 2008 investigation, the proposed road relocation work was completed. The road was shifted into the bank by raising and then lowering grade, and the

old road bed was obliterated. About 400 cubic yards of excess excavation was end hauled to the designated waste area. The sale was implemented successfully.

I visited the site in both the spring and summer of 2009. No new movement has occurred, and the newly constructed road bed is intact. I again reviewed this site again in June, 2010. As before, no new settlement is evident, and the road bed is functioning well and in good condition.

2) FS. Rd. 2044 000, Holman Creek Road, milepost 6.5

A rock fill, approximately 8 feet wide, along the outside shoulder of the road was constructed to provide additional width for logging equipment and timber haul. In addition, sufficient rock fill was added to raise road grade through the slide area about 2 to 3 feet for a distance of around 50 feet. This fill would act as a small buttress for the toe of the slide. The work was completed in late June 2008, and the unstable back slope was not touched.

I visited the site in the spring of 2009 to determine what would be needed to open the road for timber haul. For all intents, the slide had not moved further. Only a few cubic yards of soil had fallen onto the roadway. The road tread on the far end of this critical section had one tension crack where the roadway dropped about 4 to 6 inches. A hike up the hill indicated that at least a portion of the actively unstable terrain appears to have started to stabilize (move much more slowly). For 2009, the rock buttress appears to be functioning and the road is available for use. A site visit later in the summer showed no change in conditions.

After the winter of 2010, few changes had taken place. One tension was located on the road way. The far side of the slide (away from Sheep Creek Saddle) dropped about 8 to 12 inches. The trench drain that was installed by CTC was still working well. Sufficient road width (11 feet or so) was available for truck traffic. My recommendation was again to protect the slide scarp and remove only the rocky slough on the roadway in the area of the rock fill (on the near side or Sheep Creek Saddle side). At the tension crack, the road was regraded to allow truck passage, without adding or removing much material. The road was reopened and used in 2010. The Timber Sale Officer reported that timber haul proceeded without difficulty.

3) FS. Rd. 2027 000, Moose Mountain Road, milepost 6.5

The prime maintainer for this cost / share road decided that the best solution for this problem was to do very limited work that would provide suitable access for log trucks, but not necessarily a low boy. Consequently, they elected to simply lower the approaches slightly on either side of the sag in the road. This had the effect of reducing grade into and out of the sag, thereby improving the vertical alignment sufficiently for log truck traffic. Essentially no fill was added to the actively moving portion of the road.

I visited this site several times during the spring and supper of 2009. No additional subsidence of the road way was observed. In a similar manner, site visits in 2010 did not show that any substantive subsidence had occurred.

4) Road 2047000, Milepost 0.7

The field review on June 16 and July 13, 2010, indicated that the site was stable. The open graded rock fill was draining the slide area, and no new cracks or road settlement were observed.

5) Road 2047000, Milepost 1.05

The intent of the road realignment was not to stabilize the slide area, but move the road away from the top of the active failure. The field review of June 16 and July 13, 2010, showed that the new road tread does not have any tension cracks or settling. Numerous new tensions cracks are evident in the road shoulder area – that once was the old road way. Parts of this area dropped one to two feet this past winter. The cracks stop at the outside edge of the new road, as was desired.

Conclusions

In summary, 15 slides have been discussed in some detail. These slope failures are large in scope (generally a few to many acres), and mostly of natural origin. They have caused substantial impacts to various Forest transportation systems built across their paths. All have existing stabilization or ongoing site investigation work. They are being monitored extensively in that existing improvements are continually evaluated for efficiency or repair. Several of the slides are being studied to determine cost effective ways to maintain transportation routes or reduce maintenance. Future reports will evaluate the efficiency of the implemented actions, discus site specific findings and propose remedial actions.

Air Quality

Monitoring Question 35: Air Quality

Are management activities that affect air quality in compliance with state and federal air quality regulations?

Legal Basis and Purpose of the Willamette National Forest Air Program

Under provisions of the federal Clean Air Act, the Wilderness Act, the Organic Act, and the Regional Haze Rule, the Forest Service has responsibilities and authorities to mitigate potential air quality impacts on all national forest system lands.

Forest Service policy assigns Regional Foresters the responsibility to respond to States or the Federal EPA on issues or actions involving the Clean Air Act. Forest Supervisors are delegated the responsibility to take action to identify impacts and to protect National Forest System lands from adverse impacts which may result from air pollution (including atmospheric deposition).

The region has an extensive air quality monitoring program using of which the Willamette National Forest is a key part of that program. A detailed report can be found in the 2009 Forest Plan Monitoring Report and a new report is expected next year to bring the values up to date. Last year reported an overall steady state to slight improvement in air quality. The Willamette as been reporting since 1979,

New Monitoring Question: Climate Change

What evidence do we have of climate change and what ecological effects have been documented so far?

This new monitoring question was reported for the first time last year. The information is repeated again with new information expected next year. The frequency of reporting on this very important subject will begin to take form.

Why Monitor Climate Change?

Anthropogenic emissions of heat-trapping gases like carbon dioxide, methane, and nitrous oxides are changing the earth's climate. Regional analyses for the Pacific Northwest predict warming temperatures, smaller snow packs, earlier snowmelt, summer time drought, higher stream temperatures, higher energy storms, and increased coastal flooding. There is less agreement about long term trends in precipitation; some models predict increases, others decreases. Understanding the changes that are occurring helps Forest managers plan adaptive actions to ameliorate adverse effects to the condition of natural resources and biological diversity.

Climate Change Monitoring Methods on the Willamette National Forest (Temperature, Climate-Sensitive Vegetation)

Two kinds of data have been collected on the Willamette National Forest to map climate change and document the ecological effects of climate change. These are temperature and precipitation measurements and surveys of non-vascular plants (epiphytic lichens). Temperature and precipitation data are collected at weather stations throughout the region and drive a sophisticated model developed by climatologists at Oregon State University, called PRISM. The model calculates temperatures and precipitation on an 800 m scale throughout the region. Lichen community data are collected in ten year rotations by the Willamette National Forest Air Program on a 3.4 mile grid following the Forest Inventory and Analysis lichen indicator protocol.

Monitoring Results

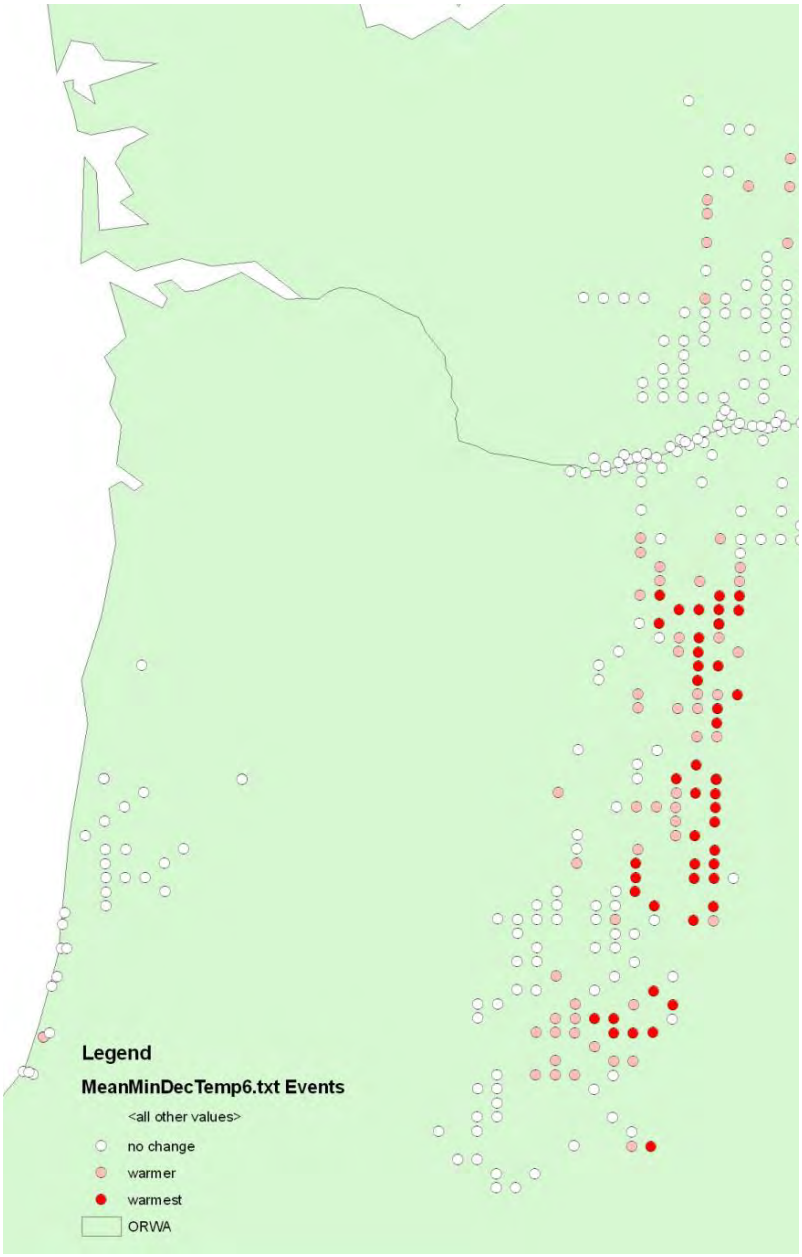
Temperature and Precipitation Trends

Linear regressions of year (1970 -2000) vs. the mean minimum December temperature predicted by PRSIM at each lichen biomonitoring site on the Willamette National Forest and other national forests in the Pacific Northwest region were tested for significance at p

<0.5. Individual sites were rated as no change, warmer, and much warmer. No change was observed in the Oregon Coast Range and low elevation valleys, moderate increases in temperature were observed in the mid elevation Oregon Cascades and the Washington Cascades, greatest warmer occurred at the high elevation in the Oregon Cascades. No sites became significantly cooler. A similar analysis found no overall regional trends in precipitation.

Changes in Distribution and Abundance of Climate-Sensitive Vegetation

Between the initial biomonitoring round in 1994-1997 and the second round in 2004-2007, lichen community composition shifted in response to cooler temperatures in much of the Siuslaw National Forest (central Oregon Coast) and warmer temperatures in the Gifford Pinchot, Mt. Hood, Willamette, and Umpqua national Forests (western Oregon and Washington Cascades). No overall change in climate was observed in the Columbia River Gorge National Scenic Area. Vegetation effects on the Willamette NF were largely consistent with temperature trends.

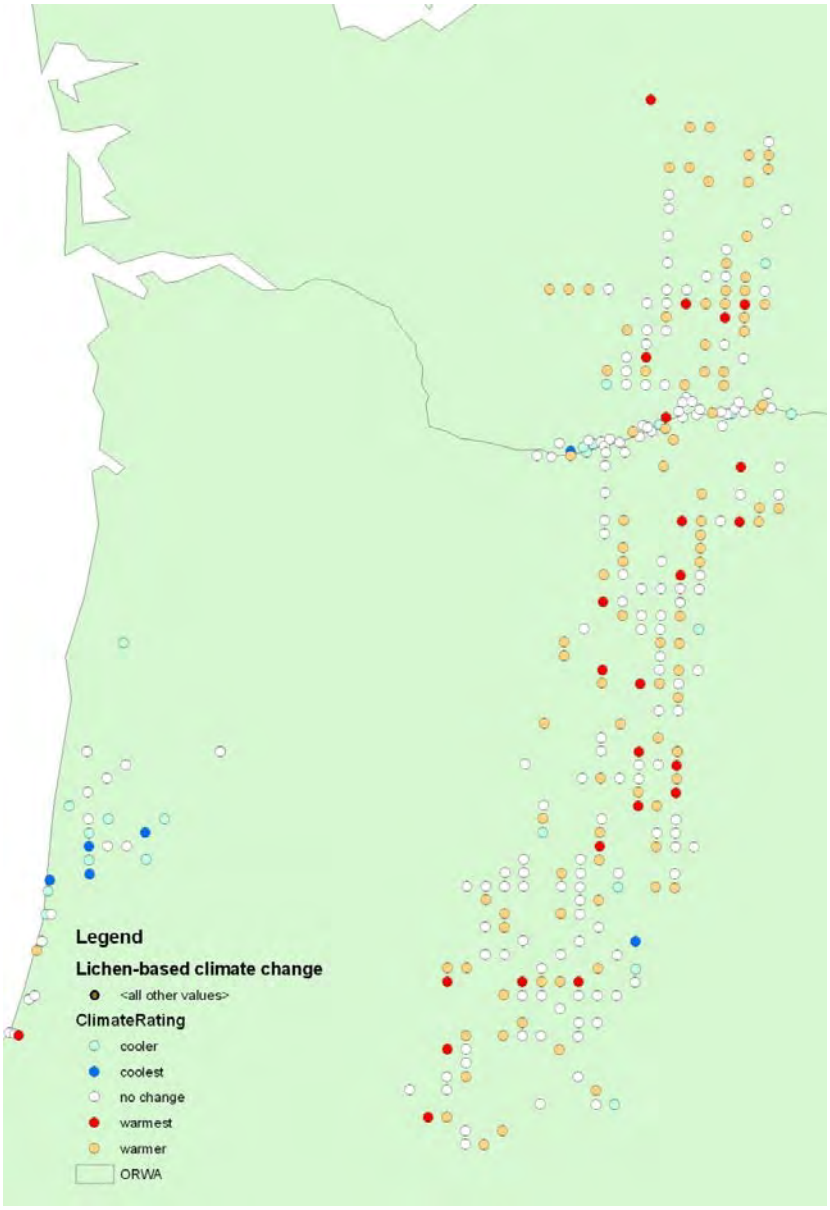


Change in mean minimum December temperatures at climate change biomonitoring sites modeled by PRISM between 1970 and 2000. No change was observed in the coast range and low elevations, moderate increases in temperature were observed in the mid elevation Cascades, greatest warmer occurred at the high elevation in the Oregon Cascades.

Implications for Management

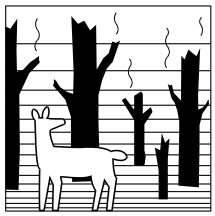
The Willamette National Forest Air Program, working cooperatively with the regional Air Program, is demonstrating some of the first effects of climate change on biological diversity and species distribution patterns in the Pacific Northwest region. This work is demonstrating that climate change is not even across the landscape. Little change has yet been observed in valleys and low elevations, and the Oregon central Coast Range has evidently experienced some cooling since 1997; most dramatic warming is occurring in the mid to high elevation Oregon and Washington Cascades. From a biodiversity perspective, species at greatest risk on the Willamette Forest would be rare alpine and subalpine species with cold temperature requirements. Other anticipated effects of warming include drought stress due to smaller snow packs, increased summer time stream temperatures, and increases in wildfire intensity and frequency.

Further analysis of non-vascular and vascular plant inventory data is needed to identify species at risk. Needed is an analysis of long term trends in stream aquatic biota, temperatures, and other climate-variables.



This map shows that between the initial monitoring round in 1994-1997 and the second round in 2004-2007, lichen community composition shifted in response to cooler temperatures in much of the Siuslaw National Forest (central Oregon Coast) and warmer temperatures in the Gifford Pinchot, Mt. Hood, Willamette, and Umpqua national Forests (western Oregon and Washington Cascades). No overall change in climate was observed in the Columbia River Gorge NSA. Data from the USFS PNW Region Air Program.

Fire



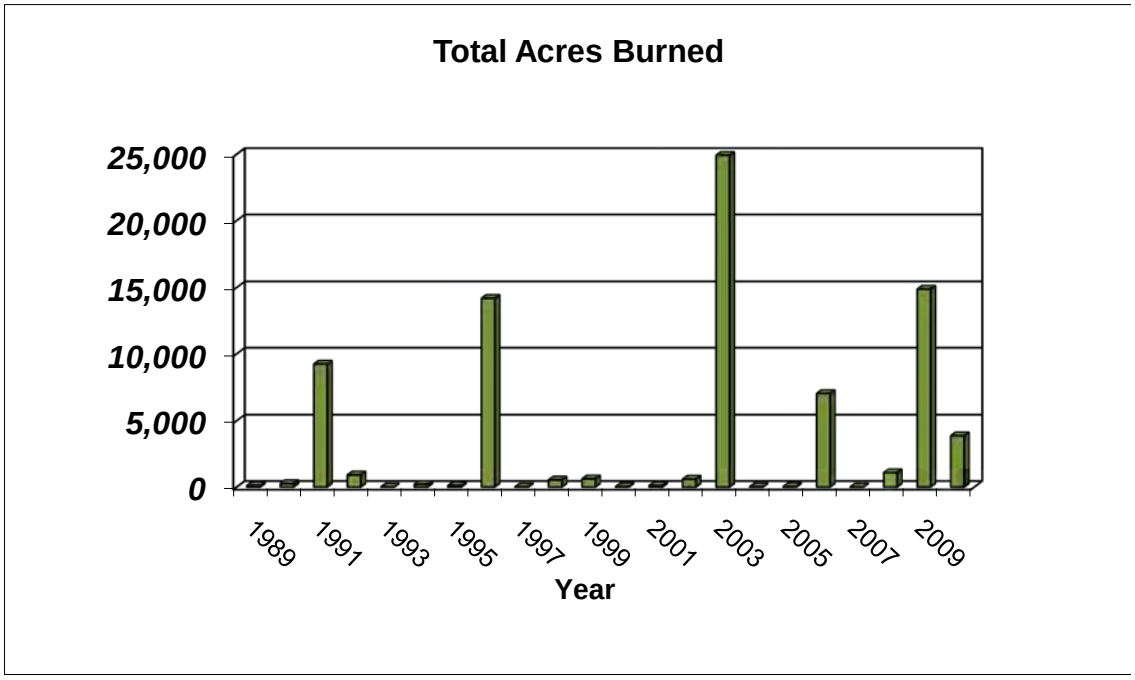
Monitoring Question 36: Fire protection

Are the acres burned by wildfire within the levels considered in the plan?

One hundred thirty fires burned 53 in non-wilderness acres in FY10. Thirty nine reported fires burned 3,807 acres in the wilderness in FY10. Fire occurrences in 2010 were 47% above normal with169 starts. The Forest had two large fires (over 300 acres). The Scott Mountain fire burned 3,454 acres within the Mount Washington wilderness and the Dinah Mo Peak burned 344 acres within the Mount Jefferson wilderness.

The 2010 fire season ended in early October when the Willamette National Forest received significant rainfall.

As illustrated by the graph below, this fiscal year continues to depict the high degree of variability among fire patterns across the Forest.



A retrospective view of fires in the last 20 years since the Forest Plan has been implemented reveals that over 78,600 acres have burned in both wilderness and non-wilderness.

Monitoring Question 37: Fuels treatment

Were fuel loading/ distribution standards met on affected activity areas?

The Forest completed 1,166 acres of fuel treatment in FY2010 or 100% of the assigned target for fuel treatment. For 2010: acres treated were in accordance of acreages on affected activitiy areas.

Acres treated in 2010 were in accordance of acreages on affected activity areas.

An additional 527 acres of secondary treatments also occurred in FY2010, including 479 acres of treatment in the Wildland Urban Interface.

With an increasing harvest level, the future outlook is for an upward trend in fuels treatments on the Forest.

Biological Resources

The Forest Standards and Guidelines provide direction to enable the Forest to meet the goals of protecting and improving species populations and their habitat. Threatened, endangered, and sensitive species as well as indicator species are monitored for species viability. Below is a summary of FY10 monitoring questions designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards and Guidelines in meeting the Forest's goals.

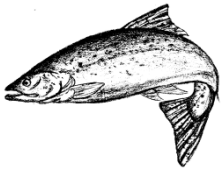
If the reader is interested in more information than what is provided in the following summary they may request the documents listed under "Supplemental Information".

CONTENTS

BIOLOGICAL RESOURCES SUMMARY FINDINGS

Biological Resource	Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Fish Population	13 - Fish Populations	River monitoring, field observations	Results OK	Fish FY10 Monitoring Report
Habitat Diversity	14 - Aquatic Habitat	Field evaluations	Results OK	Fish FY10 Monitoring Report
	28, 31 - Riparian & Wetlands	Field evaluations	Results OK	Wetlands Monitoring Report FY10
	40 - Biological Diversity	Field surveys and Spotted Owl demographic study	Results OK	Biological Diversity FY10 Monitoring Report
Wildlife	15 - Bald Eagle	District surveys	Results OK	Wildlife FY10 monitoring report
	18 - Perigrine Falcon	District surveys	Results OK	
	19 - Primary Cavity Excavators	District surveys	Results OK	
	20 - Marten & Pileated Woodpecker	Snag creation and monitoring	Results OK	
	21 - Deer & Elk	Hunter statistics and annual census counts by ODFW	Population stable to declining	
Plants	16 - TE&S Plants, Noxious Weeds, Native Species	Forest and district records and field activities	Results OK	Botany FY10 monitoring report

Fish Populations



Monitoring Questions 13: Fish Populations

Are the predictions of maintaining or improving Management Indicator Species and Threatened Species of fish valid?

The forest tracks population and habitat changes for spring Chinook, winter steelhead, Oregon chub, and bull trout. The three major river systems on the forest are the Middle Fork Willamette River, the McKenzie River, and the Santiam River.

MIDDLE FORK WILLAMETTE RIVER

Spring Chinook: In 2010 pre-spawned adult salmon were once again released in the Paddy's Valley area in the Middle Fork Willamette River. Adult salmon were placed in the system after it was determined the man-made redds from 2008 were unsuccessful in producing young of the year. During the summer of 2009 we observed very few juvenile salmon in the Middle Fork Willamette River. In late fall 2009, we released 436 adult male, 147 adult female, and 341 jack Chinook salmon. We observed 11 redds during the only survey completed for the area. This survey was completed late in the year and we suspect many redds were obstructed or already covered by organic matter and fallen leaves. In addition, we were only able to survey half of the known available spawning habitat in the area. Therefore, we surmise there were many more spring Chinook redds in the Paddy's Valley area then we recorded in 2009. The information was validated by the fact that juvenile Chinook were observed in the in the Middle Fork Willamette River during the 2010 sampling season.

Bull trout habitat: In 2010 we observed approximately 24 adult bull trout returning to spawning areas of the Middle Fork Willamette River. Eleven bull trout redds were documented in tributary streams and an additional three redds were observed in the Middle Fork Willamette River. Redds in the Middle Fork Willamette were not confirmed as "positive" bull trout redds. Overall redd numbers decreased over last years estimate and the adult spawning population continues to stagnate at approximately 20-25 fish. The Forest Service works in conjunction with ODFW on nearly all bull trout and salmon related research projects.

In 2010 we monitored all previous projects and determined bull trout are still present in all release areas and all age classes are present in the Middle Fork Willamette River and Hills Creek Reservoir. Bull trout are using the habitat we have constructed and enhanced. Monitoring techniques included night snorkel surveys, various trapping projects and angling. Larger bull trout are still implanted with a recorded tag (PIT tag) so biologists can determine seasonal migration patterns and location of spawning.

Partners continue to address limiting factors within the sub-basin.

In 2010, two miles of bull trout habitat on the Middle Fork Willamette River was improved in a restoration project. In the last few years the Forest has completed several instream restoration projects to increase spawning habitat in areas used by bull trout. In 2010, nearly 200 logs and root wads were used to construct 25 large log structures at numerous sites frequented by bull trout. We pull over entire trees to create solid foundations for our stream structures. We are preparing to place another 1100 logs in the Middle Fork Willamette River and surrounding areas to create or enhance four more miles of habitat as part of the recently completed 5 Year Action Plan developed for the Middle Fork Willamette Watershed. Once this is completed we feel the bulk of stream restoration and enhancement in the watershed will be completed. Also in 2010, we continued to monitor the recently completed Indigo Springs Bull Trout Spawning Channel Project. This project removed an impassable barrier for bull trout to restore connectivity to some of the most important habitat on the forest and provide an additional 400 feet of engineered channel for spawning. This project was completed with major funding from the USFWS, OWEB, and others and is a remarkable example of the quality of projects we have completed for bull trout recovery in the watershed.

Bull trout populations: The population appears to be at least maintaining itself and is expected to maintain that trend as new age classes continue to mature and natural reproduction continues. Juveniles are still present in all release areas and we now observe natural spawning at several sites each year. The Bull Trout Working Group and US Fish and Wildlife Service agreed to rear another 800 bull trout fry in the McKenzie Hatchery again this year. These fish will be transported to the Middle Fork Willamette and released in the fall of 2011.

Today, bull trout are common in the Middle Fork Willamette. Years of hard work and funding appear to have paid big dividends in this program as we can once again see wild bull trout in their native environment

MCKENZIE RIVER

Spring Chinook: Spring Chinook adult returns at fish counting facilities at Leaburg Dam increased from 1,638 in 2009 to 2,655 in 2010 (51% of which were unmarked, or presumably wild).

Restoration efforts by partners in the sub-basin focus on factors found limiting to spring Chinook production, and those projects range from historic temperature regime restoration and passage at Cougar Dam (Cougar Temperature Control Project and fish passage facilities completed in 2010 by USACE) to restoration of aquatic habitat (McKenzie River and South Fork McKenzie River by USFS). Of the effects that are believed substantial in the sub-basin, the long term presence of the McKenzie River Hatchery program is thought to be significant. Changes in spring Chinook stock

management by ODFW toward natural production, especially above dams, will be monitored by USACE and ODFW for effectiveness in future years. Changes in life history due to the altered thermal regime or changes in the juvenile migratory corridor and downstream rearing habitat are thought to be significant in the lower sub-basin (non-Forest Service land) but could not be estimated due to lack of information.

In 2009, the USFS completed a multi-year project in the South Fork McKenzie River upstream of Cougar Dam to restore large woody material to 8.5 miles of stream channel. To complement that effort, in 2010 the USFS completed Phase 1 of a project to restore large woody material to 3 miles of side channels in the "middle" McKenzie River corridor. Phase 1 consisted of pulling over 22 stream-adjacent trees into the channel to provide key pieces on which to build log accumulations via helicopter (Phase 2). This project is expected to increase rearing and spawning habitat for spring Chinook. The USFS will conduct post-project effectiveness monitoring through examination of habitat conditions, which will be of value in answering the question of Chinook and bull trout habitat availability and production conditions. ODFW and USACE continue to monitor spring Chinook salmon production above and below Cougar Dam and that data will be useful in determining restoration effectiveness.

Willamette Basin dams USACOE operations must now address a 2008 Biological Opinion. Of high priority are issues of habitat connectivity above dams and of highest priority within the McKenzie sub-basin is reconnecting the South Fork McKenzie River. The USACE is currently working on a "trap and haul" facility at Cougar Dam that would transport spring Chinook salmon (and other native fish) to upstream habitats. In 2010, ODFW released adult spring Chinook salmon from the McKenzie River Hatchery upstream of Cougar Dam in the South Fork McKenzie River. The goal of these releases is to restore marine derived nutrients to the South Fork McKenzie watershed upstream of the dam, and so that the progeny of spring Chinook provide a prey base for bull trout isolated upstream of the dam.

In 2009/2010, members of the McKenzie River Ranger District, ODFW, NMFS, and the USACE reviewed current release sites for adult spring Chinook salmon, and potential new release sites upstream of Cougar Reservoir. In 2011 we expect to select sites and prepare any needed environmental documentation.

Phase 1 of a multi-year project was completed in 2010 in the McKenzie River that will improve conditions for spring Chinook and bull trout.

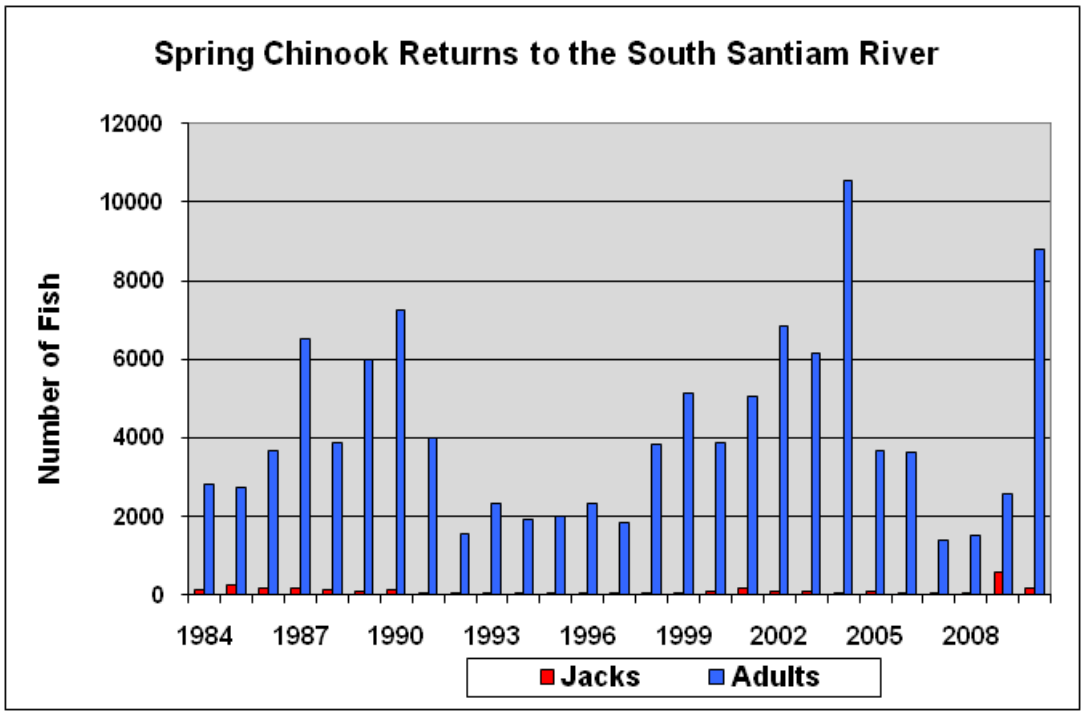
Bull trout habitat: In 2010, the USFS completed Phase 1 of a project to restore large woody material to 3 miles of side channels in the "middle" McKenzie River corridor. Phase 1 consisted of pulling over 22 stream-adjacent trees into the channel to provide key pieces on which to build log accumulations via helicopter (Phase 2). This project is expected to increase rearing and foraging habitat and prey base for bull trout.

Bull trout populations :Redd counts in 2010 declined in the mainstem McKenzie River and Trail Bridge sub-populations. Some evidence shows that illegal harvest, natural predation and passage issues at culverts may have played a role in the decline. Redd counts in 2009 and 2010 for the South Fork McKenzie River sub-population, however, are the highest on record. Habitat restoration projects were conducted in 1996-1998 and 2007-2009 in the South Fork McKenzie River and Roaring River and may be contributing to increasing redd counts. Trap and haul facilities at Cougar Dam were completed in 2010 and will benefit the South Fork McKenzie River sub-population. A fish ladder is planned at Trail Bridge Dam by the Eugene Water & Electric Board (EWEB) and will be completed within 6 years of receiving a new hydropower license. EWEB expects to receive their license in 2011.

SANTIAM RIVER

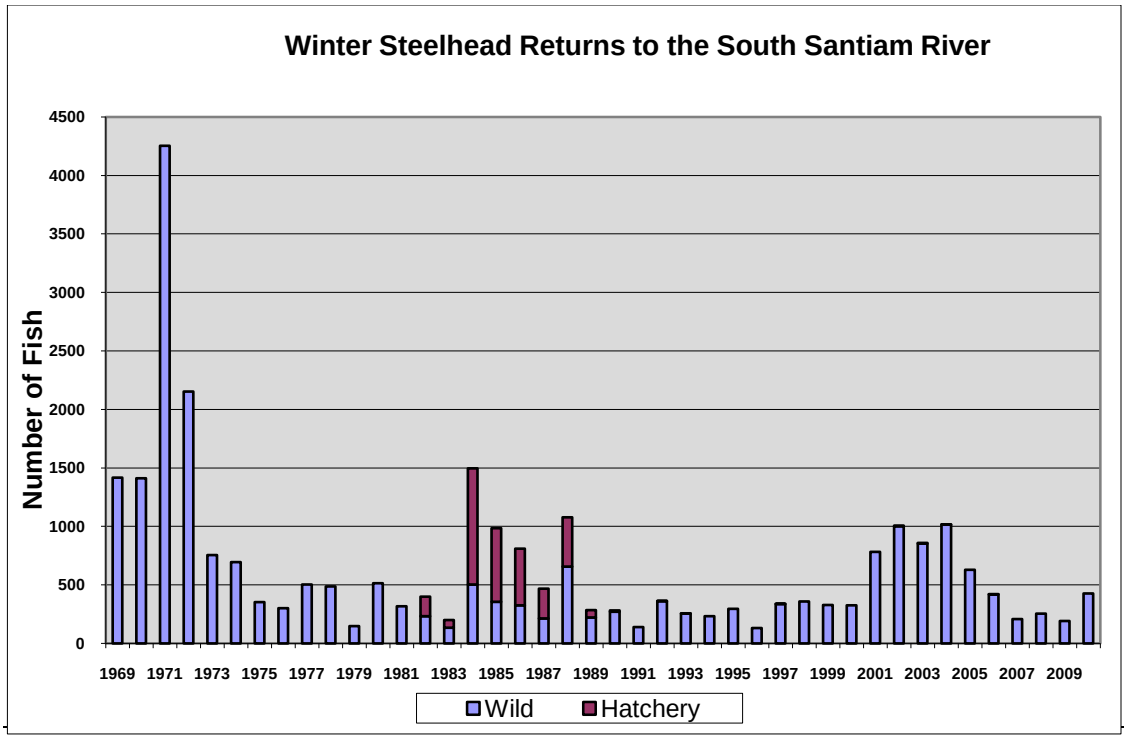
Spring Chinook: There has been no monitoring in the North Santiam River, Little North Santiam River, South Santiam River or the Calapooia River that would indicate whether smolt numbers are increasing, decreasing or are stable. Smolt traps were installed in both the Breitenbush River and the North Santiam River, in 2010. The North Santiam trap operated from 13 October through 31 December 2010 and collected 276 subyearlings and no yearling spring Chinook salmon. The Breitenbush River trap was operated from 25 October through 31 December 2010. No yearlings and only nine subyearlings were collected. Like most other sites, it was difficult to sample the fry outmigration due to the late installation of the trap. A contributing factor to low juvenile catch rates were the limited numbers of female adult Chinook salmon outplanted above this trap site. In the North Santiam River, hatchery supplementation and natural spawning of Chinook moved around Big Cliff and Detroit Dams continued. Redd counts show that trap and haul operations are producing naturally spawned Chinook .

ODFW is still trying to coordinate plans to identify a way to monitor smolts on the South Santiam river. The chart below shows returning adult spring Chinook in the South Santiam River since 1984.



Construction is set to begin at a new collection and sorting facility at Minto Park this year. This facility will dramatically improve the ability of ODFW personnel to capture and transport adult salmon, hopefully reducing the high incidence of pre-spawn mortality of out-planted adults in both the Breitenbush and North Santiam Rivers. The ACOE has completed the installation of acoustic sensors at various locations in Detroit Reservoir to monitor adult Chinook salmon implanted with transponder tags. The Army Corps continues to work with ODFW to improve stream temperatures below the reservoirs to improve fish habitat. Stream temperature models were developed by the Oregon Department of Environmental Quality to assist in this project. Utilizing historical records prior to dam construction as well as data collected from monitoring stations above the reservoirs the DEQ has produced a water temperature seasonal profile.

Upper Willamette Winter Steelhead (UWS): There may be an indication that winter steelhead smolt numbers in the South Santiam River may be fluctuating based on the variability of numbers of adults returning to the South Santiam River the last several years. Annual snorkel surveys for juvenile steelhead have been initiated on Moose Creek and over time the data collected from those surveys will increase our understanding of the population. The chart below shows returning adults of UWS in the South Santiam. UWS have been extirpated in the North Santiam River above Big Cliff Dam. Steelhead that reach the Minto trap, operated by ODFW, are passed around the collection facility and naturally in the North Santiam River below Big Cliff Dam. In the Willamette Basin Biological Opinion winter steelhead may be moved around these dams in the North Santiam River. Downstream smolt migration would be monitored by the COE.



UWS have been extirpated in the North Santiam River above Big Cliff Dam. Steelhead that reach the Minto trap, operated by ODFW, are passed around the collection facility and spawn naturally in the North Santiam River below Big Cliff Dam. In the Willamette Basin Biological Opinion winter steelhead may be transported above these dams in the North Santiam River. Downstream smolt migration would be monitored by the COE.

Bull trout habitat: Potential Bull Trout habitat in the North Santiam and South Santiam River Systems are being maintained. Habitat suitability for bull trout reintroduction is currently being explored in the upper North Santiam basin. Temperature data and habitat surveys completed in 2009 have narrowed the focus of suitable habitat in the North Santiam watershed. Temperature monitoring started in 2010 will continue in the Breitenbush watershed in 2011.

OREGON CHUB

Oregon chub habitat areas on the National Forest are being maintained. The evidence of this finding is a stable trend in chub populations on the Forest.

In 2008, the Middle Fork District took over the responsibility of monitoring many Oregon chub populations on the District. There are several populations on the Willamette National Forest that currently meet Endangered Species Act down-listing criteria of greater than 500 fish with a stable or increasing trend of

Stable or increasing trends in abundance for several streams on the Forest.

abundance for at least 5 years. These trends did not change in 2010.

Monitoring Questions 14: Riparian Aquatic Habitat and Streambank Stability

Are Standards and Guidelines for Water Quality and Riparian Areas effective in maintaining or enhancing stream conditions and aquatic habitat?

Stream survey data collected over the last 10 years indicates that in-stream habitat is being maintained/enhanced by Forest Plan S&G's. Stream habitat attributes such as instream large wood, large pools, and bank stability are generally improving. There are stream reaches in need of in-stream and/or riparian restoration. The Respect the River program has been implemented in the North and South Santiam watersheds to protect and restore riparian habitat. These areas are prioritized and restoration occurs as funding allows. The Respect the River program will expand across the Forest in 2010. See Monitoring Question 13 for more discussion on accomplishments and work planned for the future.

Monitoring Questions 28 & 31: Riparian Terrestrial Habitat and Wetlands

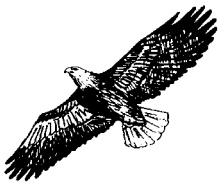
Are riparian Standards and Guidelines effective in meeting Forest Goals for terrestrial riparian resources including beneficial values of small wetlands?

Riparian areas are being protected.

No formal monitoring was conducted for riparian terrestrial habitat in FY10; however, riparian area protection and restoration was completed on the north end of the forest with implementation of the Respect the River program. In addition, Forest Supervisor monitoring trips focus on new project including those that may affect riparian areas. Monitoring completed in FY10, showed overall physical protection of channels appeared to be successful. Providing flexibility in reserve boundaries to meet site-specific conditions such as aspect, topography, and vegetation would further enhance protection.

Protection given through the NWFP for riparian and wetlands areas maintains the quality and diversity of these areas beyond the Forests' original expectations. Add to that Respect the River, which is managing recreation impacts, protecting riparian habitat and actively restoring riparian areas, and riparian areas on the forest are being moved towards restoration.

Wildlife



Monitoring Questions 15: Bald Eagle

Are the bald eagle recovery objectives being met on the Forest?

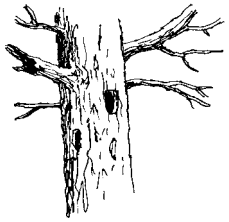
Yes. In 2007 the bald eagle was removed from federal listing as threatened under the Endangered Species Act. Bald eagles are now being managed as a Sensitive species on Forest Service lands. One new active bald eagle nest site was found in 2010 on the Detroit Ranger District. The 16 known nest sites on the Forest are being managed in accordance to Forest Plan Standards and Guides with seasonal restrictions applied to activities near active nests. Thirteen nesting sites were monitored for use in 2010. Three nests on the Forest were documented producing a total of 5 nestlings to older than 4 weeks of age.

Monitoring Questions 18: Peregrine Falcon

Are the objectives for peregrine falcon recovery being met on the Forest?

Yes. Recovery objectives have been met for peregrine falcons on the Forest. In August of 1999 the peregrine falcon was removed from the federal Threatened and Endangered species list (delisted). Peregrine falcons are now managed as a Sensitive species on Forest Service lands.

A requirement of the Endangered Species Act is to monitor a delisted species for at least 5 years. The Forest has 28 known nesting sites. Seven of these nest sites are included in the 2003 National Monitoring Program. Twenty sites were monitored in 2010, including the 7 national monitoring sites. Of the 20 sites monitored, 17 young were produced from 14 occupied sites for an average of 1.2 young per occupied site. The 7 national monitoring sites produced 5 young in 2010 from 3 successful nests, with 3 sites unoccupied.



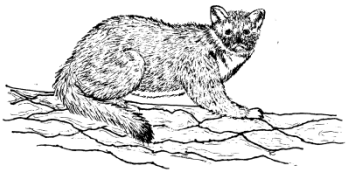
Monitoring Question 19: Primary Cavity Excavators

Is adequate amount, quality, and distribution of snag habitat being maintained to ensure viable populations of cavity nesting species?

Harvest units are monitored every year to determine whether the number, size, species, and distribution of wildlife trees are retained after harvest as prescribed in the accompanying Environmental Assessments. Of the 43

harvested units monitored in 2010, 100% were in compliance with wildlife green tree and snag retention prescriptions. Because timber harvest practices have shifted from clearcutting old forests to thinning of younger stands, large numbers of green trees are left in addition to specific wildlife trees which helps provide habitat for cavity nesters and future sources of downed logs.

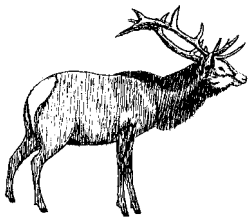
Snags are created annually using a variety of methods, such as tree topping, girdling, top blasting, and/or inoculation to create cavity nesting habitat generally in connection with timber sales. In 2010, 566 natural and management-created snags were surveyed for cavity use on two districts. About 23% showed use by primary cavity excavators, especially for foraging. Monitoring to date suggests that snag retention and creation helps maintain and promote use by primary cavity excavators in areas of timber harvest.



Monitoring Questions 20: Marten & Pileated

Is there an adequate amount, quality, and distribution of mature or old-growth forests to maintain viable populations of species dependent on this successional stage of forest habitat?

Upon adoption of the NWFP, the pileated woodpecker and marten networks were reevaluated and nodes of habitat were maintained or dropped in order to provide connectivity between large LSRs. The LSRs were expected to provide adequate habitat for both pileated woodpeckers and martens. Snag and downed log creation occurs throughout the forest in connection with timber sale mitigation using primarily KV funds. These measures enhance habitat for both pileated woodpeckers and marten. As a result of major changes in how pileated woodpeckers and marten are managed under the NWFP, changes are recommended to this monitoring section during Forest Plan revision.



Monitoring Questions 21: Deer and Elk

Are habitat effectiveness values for cover quality, forage quality, open road density, and size and spacing of food cover being increased or maintained as established for each emphasis level?

Regionally the consensus among elk biologists in Oregon and Washington is that Forest Service and Bureau of Land Management elk management plans developed during the past couple decades, such as the Willamette Forest Plan, are based on science that is outdated (Wisdom et al. 2007). Substantial research since 1990 has suggested that elk are limited by the nutritional adequacy of the habitat, including forage area, forage biomass and quality, and the effects of human disturbance on forage availability. Available forage quality and quantity is also thought to limit black-tailed deer populations on the Forest (Oregon Department of Fish and Wildlife [ODFW] 2008). An updated elk habitat model

reflecting current science is being developed by a group of elk researchers. A draft version of this model was presented to the Forest in 2010 for beta-testing. The key components that have been identified as important for predicting elk habitat use are: 1) dietary digestible energy, 2) distance to cover/forest edge, 3) distance to nearest road open to public use, and 4) mean slope. Testing of the elk model for Forest project analysis will continue in FY11.

Elk and deer are shifting from public lands to private lands.

ODFW developed a statewide management plan for black-tailed deer in 2008. This plan, as well as the modeling and research efforts discussed above, are noting the need for better quality forage areas on National Forest lands. With the cessation of large-scale clearcutting in the Northwest Forest Plan, forage quality and populations have declined on the Forest for both deer and elk. Based on hunter statistics and annual census counts by ODFW, black-tailed deer numbers have declined in the past 15 years. Elk populations are more stable (ODFW 2003) as they can utilize lower quality forage such as grass. In some areas elk and deer have shifted from public lands to private lands which have more young clearcuts. Three Oregon State Game Management units overlap the Willamette National Forest. Populations are below management objectives in all three units (Brian Wolfer personal communication). Limited forage on National Forest lands and a need to reduce elk numbers on private lands to lower damage to reforestation are factors responsible for the lower than desired elk numbers.

The need to improve elk and deer foraging habitat is considered in all vegetation manipulation projects. Specific mitigation measures or design criteria for elk and deer habitat are often developed during timber sale planning. Thinning spacings may be increased or varied or stands may be underburned to increase forage production. Specific wildlife projects, such as forage planting, prescribed burning and meadow restoration, are designed to improve forage quality and abundance for deer and elk. About 18230 acres of accomplishments were reported in 2010 that benefitted elk and deer habitat. These projects include 670 acres of precommercial thinning, 2771 acres of commercial thinning, 296 acres of browse cutback, 741 acres of weed treatment, 390 acres of meadow restoration and prescribed burning, 463 acres of forage seeding and shrub planting, 12416 acres enhanced with road closures, 110 acres of fertilization, 96 acres of savannah restoration, 40 acres of mowing, and 239 acres of other forage enhancement projects. Many projects to improve elk and deer habitat are done with outside partners, including the Rocky Mountain Elk Foundation, Oregon Foundation for Black-tailed Deer, Oregon Dept. of Fish and Wildlife, and the Oregon Hunters Association.

Opportunities to close roads to improve habitat effectiveness for elk are considered when appropriate with other management objectives and when funding allows. About 39 miles of road closures were implemented this year and several hundred miles of existing gated roads were inspected and gates and locks were maintained to provide increased habitat

security. Thirty two improvement projects across the forest were inspected in the field in 2010, and more than 90% were rated effective at increasing deer and elk use.

Oregon Department of Fish and Wildlife. 2003. Oregon's elk management plan. Portland, Oregon.

Oregon Department of Fish and Wildlife. 2008. Oregon black-tailed deer management plan. Salem, Oregon.

Wolfer, Brian. 2009. Personal communication to Joe Doerr, Forest Wildlife Biologist , 12/21. Area Wildlife Manager. Oregon Department of Fish and Wildlife, Springfield.

Wisdom, M., J. Lehmkuhl, M. Vavra, M. Rowland, P. Singleton, B. Gaines, J. Cook, R. Cook, B. Johnson, P. Cox, and S. McCorquodale. A proposal to develop and apply new elk habitat models in Westside and Blue Mountain Provinces of Oregon and Washington. 2007. Unpublished report submitted to Sporting Conservation Council, 11/27/2007. U. S. Forest Service, Pacific Northwest Research Station. La Grande, Oregon.

Monitoring Questions 40: Biological Diversity

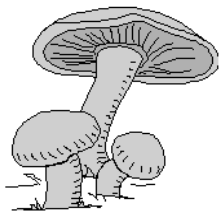
Is biological diversity being maintained or enhanced on the Forest?

In January 2008, Region 6 updated its list of Sensitive Species and developed a new list of Strategic Species. These species, together with federally listed and proposed species comprise the current list of Forest Service "Special Status Species". There are now 7 invertebrate, 10 bird, 3 amphibian, 1 reptile, and 5 mammal Sensitive Species suspected or documented on the Willamette National Forest. One bird and 8 invertebrate species that are classified as Strategic are also suspected to occur on the Forest. There are also 31 fungi, 28 bryophytes, 16 lichens and 44 vascular plants on the sensitive list, and 36 fungi, 25 bryophytes, 7 lichens, and 5 vascular plants on the Strategic list. The Forest provides habitat for one federally threatened bird, 1 federally endangered fish, and 3 federally threatened fish. Effects to federally threatened and endangered and Forest Service sensitive species were evaluated for each proposed project. In FY 2010, 99 project-level Biological Evaluations or Assessments were conducted to address effects and identify mitigation measures for these species. There were 2 informal consultations on project effects with the U. S. Fish and Wildlife Service or the National Marine Fisheries Service. Six formal consultations were conducted with the U. S. Fish and Wildlife Service or the National Marine Fisheries Service on project effects to northern spotted owl or federally listed fish. More activities enhancing the maintaining biologically diversity is documented below under plants.

Fifty seven acres of western pond turtle habitat were enhanced and monitoring of nest sites and potential habitat areas were conducted cooperatively with other agencies and private partners. Two unoccupied Forest Service buildings that support a year-round colony of sensitive Townsend's big-eared bat were improved to provide long-term habitat

use and monitoring of results was conducted. Also a cave used as a winter hibernacula for Townsend's big-eared bats was gated to prevent disturbance. Seeds of the sensitive Arabis hastatula were collected on Iron Mountain on the Sweet Home Ranger District. These seeds are being used to grow-out and establish additional plants in future years to increase the existing population. Specific inventory and monitoring surveys were conducted on the Forest for the sensitive salamander slug, bald eagles, and peregrine falcons under the Regional Special Status Species Program. That program also funded surveys for sensitive fungi species in stands 40 to 80 years of age on the Sweet Home and Middle Fork Ranger District and sensitive bryophytes in 9 meadows on the Detroit Ranger District. The northern spotted owl demographic study was continued on the HJ Andrews Demographic Study area. Six MAPS stations were run with numerous partners to capture and record neotropical breeding birds. Forest Service biologists developed a draft site plan for Oregon Spotted Frogs at Gold Lake. Additional surveys for Special Status Species were conducted at the project-level. Potential habitat for sensitive species habitat is often buffered from activities in lieu of surveys. The Forest continued to host the Center of Excellence for Bats, and the Bat Grid Program conducted systematic monitoring for bats on the Forest.

About 30,920 acres of terrestrial habitat were enhanced for native wildlife and plant species using a combination of designated, integrated, and partnership funding and in-kind support. These projects included road closures, native seeding and browse planting, commercial and precommercial thinning to increase diversity, browse cutback, off-road weed treatments, snag and downed log creation, fertilization, and nest box construction. Key benefitting species include elk, deer, cavity excavators/users, and terrestrial amphibians. Prescribed burning, cutting small conifer encroachment, and native seeding were used to maintain and enhance 390 acres of unique meadow habitat on all four districts. Prescribed burning and oak planting on the Middle Fork District restored 96 acres of pine savannah. Over 18 miles of roads were closed with wildfire emergency rehabilitation and wildlife funds reducing disturbance to elk, deer, and other wildlife on about 5850 acres. About 3,150 acres burned by wildlife fires in FY10 were determined to have produced overall beneficial effects to plants and wildlife by moving the habitat to a more desirable condition.



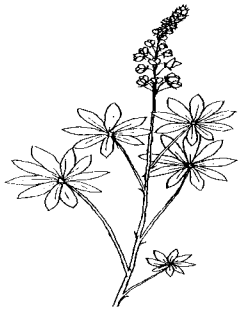
New Monitoring Question: Survey and Manage

Have surveys been conducted for Category 2 survey and mange species for all habitat-disturbing activities?

The requirements for Survey and Manage were removed by the July 2007 Record of Decision and Environmental Impact Statement to remove the Survey and Manage Mitigation Measure Standards and Guidelines from Forest Service Land and Resource Management Plans Within the Range of the Northern Spotted

Owl. The conservation of rare and little known species are protected by other elements of the Northwest Forest Plan and, if listed as federally threatened, endangered, or proposed or as Forest Service sensitive or strategic, they receive additional species management considerations under the Forest Service Special Status Species Program. Protection of these species is addressed under Monitoring Question 40.

Plants



Monitoring Question 16: Threatened, endangered, and sensitive plants

Have populations of all threatened, endangered, and sensitive (TE&S) plants been inventoried, and are these plant populations being maintained at viable levels?

Were surveys conducted for all ground-disturbing projects?

Surveys were conducted on over 7522 acres for projects ranging from timber sales to new toilet construction. Thirty Biological Evaluations were written to document effects on sensitive species. Twelve new sensitive plants were located during surveys.

SENSITIVE PLANT MONITORING AND RESULTS

District Botanists monitor the health of sensitive plants on their Ranger Districts as part of the Threatened, Endangered and Sensitive plant program. In 2010, thirteen different species were monitored. Monitoring can range from checking that plant populations are still in the area to actual counting of individuals within a population.

Species Name	Results
Arabis hastatula	Population on Iron Mountain declined due to removal of lookout and construction of interpretive site. Plan on growout and reintroduction in future.
Aster gormanii	2 populations stable
Botrychium minganense	Species declining
Botrychium montanum	Stable
Bridgeoporous nobilissimus	Individual conks were photographed and tagged

Calmagrostis breweri	Historic population searched for in Jefferson Park; not found
Cimicifuga elata	3 populations declining, likely due to big game browsing; one population stable
Gentiana newberryi	Stable at Hand Lake; monitored in the Scott Mountain area, wilderness population being encroached by lodgepole pine.
Laythrus holochlorus	Population declined due to roadwork in the past. Current population is stable and all plants were counted.
Lewisia columbiana	1 population at helipad; stable
Ophioglossum pussilum	Monitored two different populations on McKenzie they are stable. Water table gauges installed at Deer Creek and invasive work planned at Owl Creek. Monitored one site on Sweet Home.
Romanzoffia thompsonii	1 population stable
Utricularia minor	Historic site not relocated on McKenzie
Lewisia columbiana	1 population at helipad; stable

Monitoring Questions 40: Biological Diversity

Is biological diversity being maintained or enhanced on the Forest?

Several meadows are being actively managed in partnership with many outside groups, and are presented below.

Browder Ridge/Camas Prairie Habitat Enhancement Project:-The Willamette National Forest is a biologically diverse forest. Restoration projects being done to maintain and enhance biodiversity are listed below. Several meadows are being actively managed in partnership with many outside groups.

Camas Prairie Habitat Enhancement Project: Camas seed was collected prior to the burn and the area was seeded after the burn. Ongoing weed control has been conducted at the site. False Brome and meadow knapweed were hand pulled and shiny geranium was torched.

Browder Ridge: Burned five additional acres in an ongoing prescribed

Sweet Home Botanist helps burn tree islands at Browder Ridge, Sweet Home RD

burn/restoration project.

Mule Meadow: Treated invasive plant species with the prison workforce crew.

Calapooya 1 Meadow Restoration: Northwest Youth Corps cut small diameter trees in meadow areas and collected seed for use after prescribed fire.

Calapooya Meadows whip felling

Twelve Creek: Aspen Fencing was completed.

Jim's Creek: Planted Oregon White oak trees in areas that are completed. Burned two shelterwood areas to reinvigorate California fescue and reduce Douglas fir encroachment.

And we are monitoring the success of our terrestrial restoration efforts:

Browder and Camas Ridge: Monitored the effectiveness of prescribed burning in eradicating invading trees and We are also monitoring the success of our terrestrial restoration efforts, as documented below.

Grasshopper Mountain: The effects of revegetation on intensely burned tree islands and stringers were monitored in 3 transects to determine how quickly native meadow species invade formerly forested areas and the effects of fire on St. Johnswort populations at the site (year 2).

Browder Ridge: Pre-treatment plots were established to monitor the effectiveness of prescribed burning in eradicating invading trees and the effectiveness of seeding following burning.

New Monitoring Question: Noxious Weeds

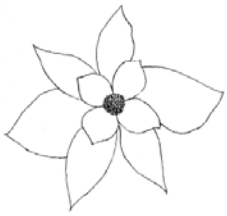
Are noxious weeds being treated on the Forest? Are surveys being conducted for weed populations and are partnerships being developed?

Over five thousand one hundred acres of invasive plants were treated on the Willamette in 2010. Manual, mechanical and chemical control were used to treat target locations. Over 200 acres were manually treated by OYCC and Marion county correctional crews on the Detroit District. 145 acres were treated in the Little Fall Creek watershed on the Middle Fork in partnership with the Upper Middle Fork Watershed Council. An annual weed pull at Iron Mountain on the Sweet Home district gathered volunteers to manually treat invasives. Invasives were

treated on approximately 1500 acres by Oregon Department of Agriculture and approximately 400 acres were treated by Youth conservation crews across the forest. The Middle Fork District installed and used a vehicle weed washing station during the summer of 2010 and used it to wash vehicles during initial attack.

Weed surveys were done in the Mt. Jefferson and Middle Santiam wilderness on the Detroit and Sweet Home districts and in the Lookout Point Watershed on the Middle Fork. Surveys were also carried out and as part of project surveys across the forest.

Partnerships continue to be important for leveraging funding and treating invasives on all ownerships. In 2010 a partnerships with the North Santiam Watershed council outreached to landowners in Idanha and Detroit. A partnership was initiated with the University of Oregon to study the effects of prescribed fire on false brome, a volunteer day with the Oregon Hunter's Association and the Rocky Mountain Elk Foundation in Detroit treated invasives along powerline corridors. Weed treatments in Horse Creek on the McKenzie were done in conjunction with the McKenzie Watershed council and treatments in Little Fall Creek were done with the Upper Middle Fork Watershed Council. The forest participated in 2 Cooperative Weed Management Areas and the Northwest Weed Management Partnership. We presented four invasives identification and prevention and weed free forge to the Backcountry Horseman and forest protection officers, Forest Volunteer training and the Native Plant Society.



New Monitoring Question: Native Species Revegetation

Is the Forest using native seed for restoration projects across the Forest?

Seed Growout Contracts:

We had 4 contracts for seed growout this year which resulted in procurement of the following:

- *32.58 tons of native weed-free grass straw which was uses on restoration of the Tumblebug Fire area and on the Legacy Roads restoration*
- *1500 pounds McKenzie Blue wildrye*
- *1567 pounds Middle Fork blue wildrye*
- *865 pounds California brome*

Seed Collection: Special funding was given to the Forest to help with seed collection for a project to develop additional materials for a wildlife forage mix, especially legumes and other herbaceous species to add to native grasses. Botanists collected various species including big deervetch (*Lotus crassifolius*), Spanish clover (*Lotus purshianus*), blue iris (Iris tenax), pearly everlasting (*Anaphalis margaritacea*), sweet pea (*Lathyrus polyphyllus*) and Oregon

sunshine (*Eriophyllum lanatum*). A contractor collected 12 # of *Elymus glaucus* to act as foundation seed for the Santiam zone. Camas was collected for Camas Prairie seeding

Legume Growout: The Forest initiated a partnership with Horning Seed Orchard in 2003. This year the BLM handed over the reins of the program to a contractor. We collected 3.79 # Penstemon from our old fields and we contracted the contractor to grow and outplant plugs of the wildlife forage species collected above onto new acreage in 2011.

Cooperative Projects: McKenzie District has been working with McKenzie High School at their Eagle's Pride Nursery and facilitated training and troubleshooting by an established nursery staff.

Native grass seed is used on a variety of projects from wildlife seedling in created openings in the forest to revegetation along roads that are closed in timber sales.

A third wildrye zone, the Santiam, was planted by the contractor this August and we eagerly await the fruits of his labor!

Resources and Services to People

This section of the monitoring report describes the resources and services the Forest provides its constituents. Recreation, timber, and roads provide direct benefits to many users of the forest. Benefits from other areas such as the cultural resources and research natural areas provide a more indirect benefit designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards and Guidelines in providing expected resources and services to our constituents.

If the reader is interested in more information than what is provided in the following summary they may request the documents listed under Supplemental Information.

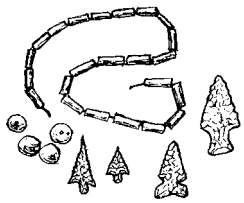
CONTENTS

RESOURCES AND SERVICES TO PEOPLE SUMMARY FINDINGS

Resource	Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Cultural Resources	2 - Cultural Resources	Site visits	Results OK	Heritage FY10 monitoring report
Specially designated unique areas	3 - Wilderness	District reporting, on-site visits by district personnel	Results OK	Recreation FY10 monitoring report
	4 - Wild and Scenic Rivers		Results OK	
	5 - Roadless Areas		Results OK	
	9 - Special Interest Areas		Results OK	
	39 - RNAs	Site visits and scoping	Results OK	RNA FY10 monitoring report
Recreation	6 - ROS	District reporting, on-site visits by district personnel	Results OK	Recreation and Scenic FY10 monitoring report NVUM Survey FY08.
	7 - Recreation Visitor Use		No new results until 2011	
	8 - Scenic Resources		Results OK	
	10 - Trails	District reporting, site visits	Limited results	Trail FY10 monitoring report

Resource	Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
	11 - Developed Recreation	District reporting, on-site visits by district personnel	Results OK	Recreation FY10 monitoring report
	12 - Off-road vehicle use		Results OK	
Timber	22 - Timber Suitability	Review of land allocation changes	No new results	--
	23 - Timber Program	Review of timber records	Results OK	Timber records
	24 - Silvicultural Practices	Review of silvicultural records	Results OK	Silvicultural records
Transportation	38 - Transportation System	Reports, databases, traffic counts	Results OK	Transportation FY10 report

Cultural Resources



Monitoring Questions 2: Cultural Resources

Are significant cultural resources being managed and protected consistent with the Forest Plan direction and law?

The Forest cultural resource inventory reflects a resource base of over 2000 recorded cultural resources including archaeological and historic sites, trails, and structures. We have recorded a multitude and variety of isolated finds and features, as well. Through a variety of program efforts, the Forest is managing and protecting these sites consistent with the Forest Plan direction and applicable federal law. Archaeologists are involved at all levels of project planning to ensure that cultural resources and historic values are considered. Over 4000 acres were surveyed for cultural resource last year with 34 sites newly discovered, recorded, and protected. Protection by avoidance or project redesign is typically recommended for sites discovered or monitored in conjunction with project planning. When those options are not feasible, adverse effects would be mitigated through scientific recovery and preservation of the data embodied in the historic property.

During FY2010, Heritage staff reported monitoring visits to 51 sites, which represents about 2.4 % of the total inventory of known sites. These monitoring visits occur most

often in conjunction with proposed project surveys or as follow-up to recent projects. Several sites were monitored in conjunction with heritage hikes and projects, and some with representatives of local tribes. Typically when a site is monitored, site records are updated as needed with current narrative information regarding condition, photo documentation, and often GPS data collected.

Most often impacts noted at individual sites were either minor or were existing damages that had occurred several years ago, for example historic logging or road construction. In a few cases current conditions indicate on-going impacts related to Off-Highway Vehicle (OHV) use. This situation was specifically noted at three sites. Fortunately measures are being implemented Forest-wide in an effort to reduce environmental damages.

No significant new impacts were reported at the majority of the sites visited. Overall most sites were found to be in good-to-fair condition. Impacts noted at individual sites were either minor or were existing damages that had been noted in the past, for example historic logging or road construction. In a few cases, current conditions indicate on-going impacts related to Off-Highway Vehicle (OHV) use. This situation was specifically noted at three sites. Fortunately measures are being implemented Forest-wide in an effort to reduce environmental damages. The cumulative effect of erosion, particularly along reservoir margins, was noted at one site – this combined with heavy recreation use increases the potential for unauthorized artifact collection at such sites. On a smaller scale, some site disturbance was found in association with dispersed campsites. Two incidents of site damage related to metal detector-assisted artifact collection, vandalism or looting were reported but none which constitute a violation under the Archaeological Resource Protection Act (ARPA). Five sites could not be relocated due to changed environmental conditions, vegetative encroachment, or incomplete information on early site forms. Many of the sites monitored, were characterized as overgrown with dense vegetation. Effects of weathering and erosion were commonly noted.

Though little formal monitoring of historic buildings was reported this year, historic buildings that are actively used by the Forest are typically being maintained according to historic preservation standard. However those that are not actively used are not consistently well maintained and may be subject to vandalism. Several fine examples exist across the Forest of historic preservation through appropriate maintenance and rehabilitation efforts at many important historic sites, such as Independence Prairie Guard Station and Fish Lake Remount Station. Several historic lookouts are maintained, stabilized or repaired in partnership with a lookout volunteer group.

Continuing programs of public outreach and education strive to improve understanding and appreciation for these resources. Preservation signing is encouraged at historic buildings and other vulnerable site areas where public use is concentrated, such as campgrounds, trailheads, and OHV-use areas. We are working in conjunction with broader forest efforts to curtail access to sensitive resource areas, e.g. Respect the River.

Consultation with the State Historic Preservation Office (SHPO) continues under a Programmatic Agreement for compliance with the National Historic Preservation Act. Consultation with local federally-recognized tribes continues to improve. Review of a sample of environmental documents indicates consistent consultation with SHPO and improved documentation of consultation with Tribes.

The heritage program staff provided numerous interpretive opportunities, classroom visits and Outdoor school presentations. The Sweet Home RD continues to host the annual Conservation Civilian Corps Alumni picnic each summer, as well as numerous Heritage hikes and an annual Heritage Expedition, all of which are very popular with the visiting public.

Specially Designated Unique Areas

Monitoring Questions 3: Wilderness

Is wilderness being managed to provide for a wide range of permitted uses while maintaining wilderness character and natural processes?

The Forest monitors the class settings and use levels of its wildernesses. The Wilderness Resource Spectrum class settings are consistent with the S&Gs for Wilderness management.

Use limits in Wilderness are exceeded during peak periods. Public education and information process continuing.

The Cascade Crest Coordination Committee (CCCC), comprised of leadership from both the Willamette and Deschutes National Forest, provides guidance on wilderness management issues for the Mount Jefferson, Mount Washington, Three Sisters and Diamond Peak Wilderness areas. The Wilderness Working Group (WWG) is made up of wilderness managers from both Forests, and implements the strategies of the CCCC. Since 2005, the WWG has improved wilderness stewardship by creating and implementing a wilderness education plan, designing and pilot testing a recreation site monitoring program, completing the first phase of fire use planning, invasive plant monitoring, and improved communication and coordination between the two Forests. In 2010, the WWG emphasized coordinated work in support of meeting the Chief's 10 Year Wilderness Stewardship Challenge, including wilderness recreation site inventory and monitoring of permitted commercial outfitters and guides. As a first step in completing a needs assessment for future Outfitter and Guide use, the forests partnered with West Virginia University to complete a visitor use survey for the Mount Jefferson, Mt. Washington and Three Sisters Wilderness areas. Results of the survey will be analyzed in

2011. Until the needs assessment is completed, a moratorium is in place on adding new commercial uses in wilderness.

A permit system is still in place to monitor visitor use in all wildernesses on the Willamette National Forest. Based on data submitted, visitor encounters are estimated to be within the established Forest Plan Standards with some exceptions. Forest patrols, designating sites, and other actions at Pamelia Lake and Obsidian Cliffs Limited Use Areas have improved social and resource conditions. Use numbers for the Obsidian Limited Area fluctuate seasonally due to field conditions and construction on Hwy 242; visitation in 2010 was 950, up from 700 in 2009. Standards for the number of visitor encounters are also estimated to be exceeded during weekends and the peak season at: Marion Lake, Jefferson Park, the Eight Lakes Basin, Duffy Lake, Erma Bell Lakes, Benson Lakes, and Tenas Lakes.

Recent burns in the Mt. Jefferson Wilderness continue to displace users into unburned portions of the Wilderness, potentially causing increased encounters and impacts to campsites. In 2010, the Scott Mountain Fire included part of the Mt Washington Wilderness, closing many trailheads to the public during the fire and into the fall. Visitors were likely displaced to the Three Sisters Wilderness. Fire suppression efforts had some effects where fire line, escape routes, helicopter landing zones and evacuation sites were established. The Forest has received BAER (Burned Area Emergency Response) funding to rehabilitate these areas and rebuild trails in 2011.

In the Mt. Jefferson Wilderness, trail crews removed 10 culverts and installed step-down drains, continuing the on-going effort to remove non-conforming and failing structures and bring trails into compliance with the Forest Plan. In addition, the Buck Meadows Shelter collapsed during the 2009 winter and is slowly being removed through use as firewood by visitors, and a non-conforming bridge burned in the View Complex Fire.

Monitoring Questions 4: Wild and Scenic Rivers

Are the outstandingly remarkable river values of all eligible, study, and designated Wild and Scenic Rivers being maintained or enhanced as required?

All designated study and potential Wild and Scenic Rivers are being protected consistent with the Wild and Scenic Rivers Act. Formal and informal monitoring of conditions on the North Fork of the Middle Fork and the McKenzie Wild and Scenic Rivers is being conducted in accordance with their WSR management plans. River use is increasing, but the outstanding remarkable river values (ORV's) standards are being met. The McKenzie River Ranger District continued to implement a voluntary private boater registration program and in 2010 gathered additional data about river use through an on-site interview questionnaire.

A river corridor study will be initiated in 2011 to determine appropriate commercial and non-commercial use levels of the upper McKenzie River and the McKenzie River National Recreation Trail. Currently, some commercial uses are restricted on the trail, and commercial outfitter and guide river use is authorized under transitional use permits until the river study is completed.

Work continues with the Oregon State Marine Board on the aquatic invasive species prevention program. Elkhorn Creek, which was designated as Wild and Scenic River under the Opal Creek legislation (1998), still requires a management plan. There were no changes to the designation status of eligible and Study Rivers in 2010.

Monitoring Questions 5: Roadless Areas

Are Roadless Areas being managed as provided for in the Forest Plan?

Monitoring of roadless areas focuses on whether the acreages and numbers of inventoried roadless areas and other unroaded areas are consistent with Forest Plan direction. No changes to the roadless area boundaries occurred in 2010. The last change occurred in 1998 when 275 acres of the Waldo-Moolack inventoried roadless area within the Desperado timber sale planning area was found to be incorrectly classified as roadlesss. Forest Plan Amendment 34 was completed to correct the roadless area boundary.

In FY00 roadless area boundaries as depicted in Appendix C were moved into GIS (a spatial database).

Monitoring Questions 9: Special Interest Areas

Are the natural, cultural, and historic attributes and conditions of designated special areas being managed to assure their protections and proper human use?

Generally, unique areas on the Forest such as SIAs, OGGs and OCRA are being managed to protect their special attributes. Minor site-specific problems continue to occur in localized areas within special interest areas but overall area attributes are being protected.

Rehabilitation of the Santiam Wagon Road begins.

In 2008, the forest decided to begin rehabilitating existing motorized recreation-vehicle impacts to the Santiam Wagon Road SIA as part of the Santiam Pass Motorized Recreation Project. This included narrowing and realignment to its historically appropriate width; elimination of inappropriately located dispersed campsites and trail crossings within the SIA, re-vegetation of impacted areas; installation of barriers, regulatory signs, and identification posts along the SWR; and increased patrol coverage to gain user compliance. Funding for this project came from the Oregon Parks and Recreation Department, which has provided continued funding in 2011. An interpretive brochure and information panels are under development and will be available to the public in 2012.

An Implementation guide for the South Fork McKenzie SIA was completed in 2010, and the Detroit District is planning on completing the Jo-Jo-Bruno Lakes SIA Implementation Guide in 2011..

In 1998 the Opal Creek Wilderness and Scenic Recreation Area (SRA) was created along with the Opal Creek Advisory Council. A comprehensive management plan was completed in 2002. In order to meet management goals for the Opal Creek SRA, Three Pools Day Use Area improvements continued in 2010. The area saw significant improvements in terms of managing congestion, reducing law enforcement issues, and generated positive comments from visitors about the site and their experience.

A non-profit group, Friends of Fish Lake, was formed in 2010. Friends of Fish Lake, comprised of volunteers and Forest Service retirees, entered into a Memorandum of Understanding with the Forest to help maintain and restore the historic character of the Fish Lake Historic Site, located within the Fish Lake Special Interest Area. The forest is working with the Friends of Fish Lake and other community groups to develop a master plan for the area, outlining and prioritizing future management actions. One element of this plan includes the implementation of a Federal Highways Administration grant awarded in 2010 for improving interpretive facilities and universal access.

Monitoring Questions 39: Research Natural Areas

Are Research Natural Areas being protected and inventoried for use as ecological reference points?

A Research Natural Area Volunteer Stewardship program has been in effect for four very successful years. The Forest has one volunteer steward that visits RNAs on the Forest and reports his findings.. His work is coordinated jointly between the Forest's RNA Coordinator and the District RNA Coordinators on the Forest.

Two RNAs were visited last year, Three Creeks RNA and Wildcat RNA utilizing the volunteer program. In addition, further study in the Gold Lake RNA yielded a proposed larger RNA.

Three Creeks RNA:

The Three Creeks RNA is a large RNA encompassing two and an half sections in size with high escarpments of rimrock that parallel contours on the upper north and south slopes of the ridge. The RNA was monitored over the course of three days in August and September and a detail report written uniquely describing the north and south sides of the RNA .

North side: The north side is two stands dominated by old growth Douglas fir were reconnoitered. The area covered in each stand was 2–3 acres. The first stand was mesic with large Douglas fir, some with 6 ft or more dbh. Western hemlock was a common stand component and more subject to wind-throw than the Douglas fir. A few large noble fir were observed and pacific silver fir may have been present. Also seen on this site was deer fern *(Blechrum spicant)*, devil's club and Sitka alder.

At the second stand was very open Douglas fir stand with minimal understory on a south facing aspect. Much of the old growth forest at both sites contained a conspicuous understory of seedling to sapling size hemlock as well as vine maple, rhododendron, huckleberry, and prince pine.

Weeds observed along the road included Klamath weed and Tansy ragwort. No weeds were seen in the foest. Deer tracks were present on a game trail passing through the open Douglas fir stand at the firs site monitored. Several Stellar's Jay wee observed and two Pileated Woodpeckers were heard calling.

Recreational traffic associated with nearby Gordon Lakes were moderate heavy on the 230 road but there was no evidence of any past human activity or presence in the two sites monitored. Additionally, no litter was found near the trailhead or along the road.

South side: A wet meadow area on the south side of the RNA was monitored over the course of two days. Access was via Twin Buttes Trail (3404) which was 1.2 mile in length

started at Bear Pass and ended at Twin Buttes, an abandoned lookout site. Full access was considerably difficult and took two days to locate the best route. A detailed account of the best way reach the wet meadow and what was discovered along the way if recommended before someone attempts to reach the area again.

The meadow and surrounding forest with much yellow cedar proved to be a wet sites, with many seeps and rivulets. There were some very small openings of wet meadow habitat interspersed in the forest near the largest area of wet meadow the largest was not greater than 1 acre. This area would be larger if the small fingers of wet meadow meandering into the forest were included. From a brief recon, the entire wet meadow complex appeared to be only two acres. Vegetation at the wet meadow area included skunk cabbage *(Lyscichiton americanus)* mostly in wet sites near conifers, sedges, grasses, as well as the following species. Sleder bog-orchid *(Habenaria saccata)*, elephant's head *(Pedicularies groenlandica),* American bistort *(Polygonium bistort ides),* marsh marigold *(Caltha leptosepala),* mountain shooting star *(Dodecatheon jeffreyi),* mountain bokinia (Boykinia major), arrow leaf groundsel *(Senico trangularies),* tall manna grass *(Glyceria elata),* and blud joint reedgrass *(Calamagrostis canadensis).* Sitka alder and probably Western bog blueberry *(Vaccinium occidentalist)* were common near the meadow margins.

A significant feature of the wet meadow habitat examined September 10 was heavy recent use by elk. Several fresh wallows and rutting saplings were evident. Although the meadows no doubt held some attraction from a forage stand point, the availability of the wet sites for wallowing during the current rutting season was likely of more importance.

Wildlife observations of elk were limited to the wet meadow area. A few dear tracks were seen on the trail and a surprised doe on the way down September 10. Three Blue Grouse were flushed, two near the meadow and one on the ridgeline. Stellar's Jays were frequent on the ridge. One raven calling was heard. Several small passerines were present at the meadow but the volunteer could not get close enough to identify the songbirds except to identify them as not juncos. Fresh mountain beaver activity was evident on lower section of the trail. Three rabbits, probably snowshoes, were flushed

No week species were found along the Twin Buttes trail or within the RNA. Tansy ragwort and Klamath weed were present intermittently on the 2032 roadside.

No indications of recreational use on the portion of the RNA that was covered. No human footprints on the trail was spotted despite the good tracking conditions. Vehicle traffic was light on the upper section fo 2032 road and litter was essentially absent from the roadside and trail.

WildcatMountain RNA:

Points of interest in this RNA was west and east meadows situated on a gentle bench of old growth noble fir forest on south slope of Wildcat Mountain, approximately 600-700

yards north of 2655 road. The distance between the two meadows is 0.5 – 0.7 miles. Both meadows were dominated by dense stands of bracken fern. The meadows were not large and were of a moist meadow class, though no seeps or surface water was evident. The dates monitored (July 27 and August 3), the vegetation was mostly mature and even drying somewhat. Forbs common among the bracken were; alpine knotweed (*Polygonum phytolaccaefolium)*, mostly in the east meadow and coneflower, mostly in the west meadow. Also present False hellebore *(Veratrum viride)* and mountain thistle *(Cirsium callilepis)*. Grass species were present but no in particular abundance. Shrubs were confined to patches of vine maple and mountain ash on some parts of the meadow edges. Recent encroachments of conifers were not apparent in the east meadow, but a few young noble fir (~5 – 8 ft tall) had established within the west meadow.

Smaller meadows or openings dominated by bracken and of say less than 75 yards in maximum extent were situated among noble fir stands about 200-300 yards west of both the east and west meadows. The smaller openings were probably once much larger, but were in the process of being reduced over the years by conifer encroachment.

The forest between the 2655 road and the west and east meadow sites can be described as a partially open noble fir stand with an occasional Douglas fir, western hemlock, and some mountain hemlock. Very likely Pacific silver fir was present but none were noted. Windfall was common in the stand and patches of vine maple occurred in some sites. Conspicuous understory species, depending on location, included bracken fern, bear grass, buckelberry species, vanilla leaf, Oregon grape *(Berberis nervosa)*, coolworrt *(Tiarella trifoliate)*, Oregon bedstraw *(Galium oreganium),* fragrant bedstraw *(G. triflolium),* and starry false Solomon's seal. Dense stands ("tangles") of Sitka alder were found in wet drainages west of the west meadow area.

The last sites monitored (southeast ridge) was the lower portion of the ridgeline trending SE from Wildcat Mountain summit. At the location where the road intersects the ridge crest, the mostly open rocky ridge lends the appearance of a natural foot route onto Wildcat Mountain. Vegetation on the ridge was typical for outcrop sites in Cascades; stonecrop *(Sedum spp)* and buckwheats *(Eriogonum compositum)* and *(E. umbellate)* were especially common. Shrubs were well represented and included mountain and dwarf juniper *(Juniperus communis)*, pinemat Manzanita *(Arctostaphlos nevadensis),* Oregon boxwood (Pazistima myrsinites), oceanspray *(Holodiscus discolor)*, serviceberry *(Amelanchier alnifolia)*, and "sticky-leaf" ceanothus *(Ceanothus velutinus)*.

No weeds species were found within the interior of the RNA, but Klamath weed *(Hypericum perforatum)* may have been notice along road 2655 about 0.5 miles before reaching the access point to the RNA. An infestation of caterpillar north of the RNA has been noted by the district botanist, the volunteer saw no such evidence that these insects were affecting the RNA. Significant insect damage, however, had occurred recently on false hellebore in the west meadow.

Observations of wildlife in the RNA included a brood of near adult-sized Blue Grouse, several Stellar's Jay and a couple of ravens. On August 3 several robins were flushed from various places in the west meadow. Possible the birds were foraging for insects under the bracken, as no berries were seen in the meadow. A few feathers and scratch makers seen in a small area of bare soil indicated that grouse had recently visited this meadow. Bear sign in form of scat as well as several foraging sites for insects in decaying windfalls were evident near the west meadow area.

Mountain beaver *(Aplodontia)* activity in form of excavations for burrows was common in mesic sites of the forest between the 2655 and the meadows. Although soil disturbance in places was impressive the burrowing did not appear to be damaging the forest ecosystem. Except for one fresh burrow on the upper slope of east meadow near its edge, mountain beaver sign was absent from the meadows. By contrast, pocket gopher *(Thomomys)* sign consisting of surface "eskers" and subsurface tunnels were present in virtually all the meadows floor that was traversed. Despite the apparent abundance of gophers in the meadows there was no indication of ecological damage in a way of areas devoid of vegetation, unhealthy-appearing plant s or diminished plant density. No deer or elk sign were seen except for a few deer tracks on the southeast ridge.

Essentially no litter was found in areas covered in the RNA and very little was picked up along the 2655 road. Similarly no fire rings, hunter blinds, or other camp structures were found in the natural area. There was no indication that anyone had been in the area in recent months. A hunter campsite outside the RNA on the southside of 2655 road near the point we entered the west meadow was in a very clean site, and had not been occupied since last fall. The only indication of recent human presence in Wildcat Mountain vicinity were ATV tracks around the rock pit and gravel stock piles outside the west boundary of the RNA.

Gold Lake Bog RNA:

Boundary improvements to Gold Lake Bog RNA were completed in 2009 marking and documenting three additional points of the original boundary and preventing the lost of those corners due to fallen and decaying trees. Lake RNA was established in the 1960's marking the boundary with blazes on trees.

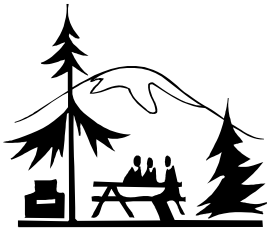
Gold Lake Bog RNA expanded.

During 2010 the Middle Fork Ranger District 's resource specialist looked into expanding the Gold Lake Bog RNA. Several key component of the bog complex were not adequately included in the original RNA. In particular, the current boundary does not include all the key spring systems that feed the bog and upper part of the lake that the unique flora and fauna depend on. Also, the RNA does not contain the unique bog habitat at the edge of Gold Lake and some of the upper wetland meadows are excluded. There is a need to expand the RNA by about 241 acres with boundary adjustments to fully include and better protect the

hydrologic wetland system that provides the unique conditions for scientific study. to include the spotted frog and the protection of the springs that serve the bog.

Gold Lake Bog RNA now has a new "proposed" RNA boundary that is approximately 241 acres larger than the current "established" RNA. An establishment report will begin in 2011.

Recreation



Monitoring Questions 6: Recreation Opportunity Spectrum

Are physical/environmental, social, and managerial conditions for dispersed ROS settings being maintained?

Standard and Guidelines in the Forest Plan manage activities for the removal of resource products and actions taken to accommodate or control human use to reduce their negative effect on dispersed ROS settings. Monitoring shows these activities are being conducted in accordance with management S&Gs for recreation opportunity settings (ROS).

Specific impacts or efforts related to retaining different recreation opportunity settings were noted at Elk Lake area, Waldo Lake Basin, Opal Creek SRA and recreation areas adjacent to lakes and streams on the McKenzie River RD.

Respect the River, a progam to address and educate recreationists on their impact on the environment.

Specific impacts or efforts related to retaining different recreation opportunity settings were noted at Elk Lake area, Waldo Lake Basin, Opal Creek SRA, Breitenbush River, Scott Lake, and recreation areas adjacent to the South Fork of the McKenzie River. The Forest continued to use the Respect the River (RtR) program to address these issues by educating dispersed campers about camping lightly on the land and making improvements to dispersed camping areas to protect riparian areas and protect water quality. Improvements included buck and pole fencing and the strategic placement of boulders to direct and concentrate vehicle and foot traffic away from sensitive riparian areas to already compacted areas that are less sensitive. Some sites were also de-compacted and planted with native plants. In 2010, 19 dispersed campsites on the Detroit Ranger District were improved, with a benefit to 30 riparian acres; the forest also continued to monitor and maintain RtR improvements completed in 2009 in Sweet Home, around Detroit Lake and on the McKenzie River Ranger District. The forest inventoried another 100+ dispersed sites for planning RtR improvements in 2011 and beyond. .

The Respect the River program also includes a major education element. As part of this, Forest patrols emphasize public contacts in riparian areas. Site survey forms and public contact forms were standardized, and Forest Protection Officers surveyed dispersed

campers to explore how, when and where the public is using sites. Over 750 contacts were made in summer 2010. Education efforts also included printing Respect the River information in Spanish and Russian, and providing stickers, drink coolers, children's tattoos, trowels and signage with the RtR logo and information.

In 2009, the Detroit District made improvements at Elk Lake Campground on the Detroit District to address use levels, party sizes and user activities that were inconsistent with the designated ROS setting. The district had planned to begin to charge fees for use of this site in 2010; the fee was approved by the Recreation Resource Advisory Committee, but the fee was not implemented due to the national moratorium on new fees.

Post and pole fencing was built in 2010 to protect the meadow and shoreline at Elk Lake. A similar approach is underway for Scott Lake, near McKenzie Pass, with similar work completed in 2010. At the Santiam Pass Recreation Area, dispersed campsites have been designated, and a no-camping zone implemented, to reduce impacts to vegetation and soils, and to eliminate use conflicts between developed and dispersed campers around Big Lake.

The Detroit Lake Recreation Strategy is focused on reducing the impacts of use along the river corridor.

An Oregon Administrative Rule (OAR) was established in 2009 to prohibit gas-powered boat motors and floatplanes on Waldo Lake, except for emergencies and some administrative uses. This motor restriction went into effect in 2010. Site visits by district staff and conversations with campground hosts revealed a low number of motorized boat users visiting one of the three boat launches, suggesting a high level of public knowledge about the closure and/or the effectiveness of posted signs near the Hwy 58 junction. Site visits also witnessed fewer large sailboats (equipped with motors) using Waldo Lake and moored for extensive periods. However, information from the camp host and concerned citizens verified that some motorized use was still occurring. No monitoring records were collected to calculate the degree of compliance.

Snowmobile intrusion continues to be an on-going problem in some semi-primitive non-motorized management areas on the Forest, as well as within the Three Sisters, Mount Jefferson, Waldo Lake and Mount Washington Wildernesses. Specific areas used for access include the Waldo Lake and Taylor Burn Roads, and the Hwy 242 corridor.

Monitoring Questions 7: Recreation Visitor Use

Are estimated use levels for dispersed ROS settings and developed settings being realized?

Forest Plan recreation visitor use estimates are now largely based on the National Visitor Use Monitoring program results. This

monitoring occurs every 5 years.

Results for the Willamette National Forest survey, completed in 2008, are available. A comparison of the number of visits on forests across the country with the first NVUM survey indicates overall visitation was down. However, on the Willamette National Forest, in developed sites and at ski areas where visitor use numbers are compiled from permittees, visitor use in 2010 was either stable or increased. The forest will be doing NVUM pre-work in 2012 in anticipation of the full NVUM survey in 2013.

Monitoring Questions 8: Scenic Resources

Is the quality of the visual resource being provided as directed in the Forest Plan?

In general, the effects of individual landscape alterations are consistent in design and implementation with the scenic quality standards for each management area and the quality of the scenic resource is being provided as directed in the Forest Plan. The cumulative effects of all management activities that might physically alter the landscape are consistent with the visual quality objectives in the Forest Plan. The TOV has not been exceeded.

Monitoring Questions 10: Trails

Are trails and trail corridors being maintained and managed for a variety of uses and experiences consistent with public demand?

Project management activities are not consistent with S&Gs for trail management classes due to inadequate funding. Trail maintenance on much of the Forest has been primarily limited to removal of logs, trailside brushing and erosion structure maintenance. Heavy maintenance is not being done at a level to maintain trails consistent with Forest Plan standards on all trails. Trails that do receive maintenance are normally restricted to one visit a year, usually in the summer. Recreation Pass receipts and Secure Rural School funding have allowed the Districts to accomplish some heavy maintenance projects. The forest has an active volunteer program and a cadre of volunteers are recruited and trained to help with minor trail maintenance. Strong partnerships exist between several districts and user groups across the forest. These groups include the Greater Oakridge Area Trail Stewards (GOATS), Backcountry Horsemen, Pacific Crest Trail Association, Disciples of Dirt, High Cascade Volunteers, and others. Over 150 miles of trail were maintained by volunteers in 2010. In addition to the volunteer trail work, the forest also hosted Youth Conservation Crews and Northwest Youth Corps crews.

Trail maintenance limited by funding; trail construction also down.

A range of trail opportunities is offered from hiker only nature trails, to motorized only, to multiple users sharing trails. Mountain bikers are restricted from riding on trails in Wilderness.

The forest completed several large trail projects. The McKenzie River National Recreation Trail received heavy tread maintenance and root and rock removal. Two decked bridges; one 24' and the other 40' were reconstructed on the Clear Lake trail north and south of Clear Lake Resort. Thirteen miles of heavy tread maintenance and 2 miles of tread realignment were accomplished on the Pacific Crest Trail (PCT) in the Three Sisters and Mount Washington Wilderness. Approximately 3 miles of tread realignment and 3 miles of heavy tread maintenance were accomplished on the Scott trail from the trailhead to the PCT junction. Lava River National Recreation Trail was reconstructed to improve accessibility and interpretive opportunities. The House Rock campground trail bridge was removed; a new bridge will be constructed in 2011 or 2012; many culverts and some bridges were removed and replaced with step-down drains or constructed fords. Four new miles of trail were constructed as part of the North Fork Trail System, and five bridges were replaced on the Middle Fork District. An adequate system of trails continues to be provided to the visiting public, trail conditions have fallen slightly reflecting maintenance backlogs.

A Community Trails Plan was completed in 2009 by a trail committee comprised of representatives from the Westfir-Oakridge area. Greater Oakridge Area Trails Stewards, the local trails committee, achieved non-profit status and in partnership with IMBA was successful in 2009 in securing a $400,000 grant from Congress for facilities improvements in the Westfir-Oakridge area; implementation of this grant will begin in 2011.

The Forest has received Legacy funding that will help support trail surveys and assessments in 2011 in the South Fork McKenzie and North Santiam watersheds.

Monitoring Questions 11: Developed Recreation

Are developed recreation sites providing the variety of use opportunity designed to meet user's needs, interests, and equipment; and being maintained to a level expected and accepted by those using developed facilities?

Monitoring of developed recreation sites focuses on the standards, use and range of opportunities provided. Concessionaires operating under special use permits manage larger campgrounds and developed recreation sites on the Forest. The sites are managed and maintained to standards higher than would be possible if the Forest were to operate the sites itself. In 2010, the Forest awarded a new concession permit which includes developed campgrounds on the Detroit, McKenzie River and Middle Fork Ranger Districts. This forest wide permit is designed for management efficiency and seamless

customer service across the forest, and also offers opportunities for public interpretive programs.

Campgrounds are improved with funds paid at by visitors.

Some campgrounds, day use sites, and boat ramps are managed by the Forest under the Recreation Enhancement Act (REA) Program, which allows the Forest to retain site revenues to supplement allocated funding and thereby manage the sites to standards expected and acceptable to visitors. Some of the more notable improvements to recreation sites funded by fees include a newly replaced shake roof and repaired chimney, a new woodstove & firewood box, at Box Canyon Cabin; constructed and installed information boards at nine day use sites and campgrounds, and installed wood fencing along newly reconstructed trail and repaired stairway at Three Pools Day Use Area.

The use of sites is generally in a manner consistent with the site design and purpose. There are occasional problems with group size and or equipment exceeding the designed capacity of sites. These problems are long-term and are being partially addressed as the Forest implements the Recreation Site Facility Master Plan (RSFA), which includes significant Recreation Site Improvement (RSI) projects. Beginning in 2008, these projects have reduced critical deferred maintenance at high priority recreation sites, including a septic and toilet system replacement at Paradise, new waste water system at Hoover Campground, replacement of the water storage tank at Shadow Bay Campground, and new vault toilets at 10 campgrounds across the forest. The forest has received additional RSI funding in 2011 for replacing the flush toilets at Big Lake Campground, drilling a new well at Trout Creek Campground, and making accessibility improvements at toilets across the forest

CIP funding arrived in 2010 for planning and design of a new water system for the North Waldo/Islet campground complex. A test well will be drilled in 2011, leading to installation of a new distribution system in 2012.

The forest received grant funds from the Federal Highway Administration for improvements at Marion Forks area, Cascadia area, and the Frissell Boat Launch, which will occur over the next several years. The Marion Forks project will improve and protect a heavily impacted riparian area and improve the accessibility and safety of the site. The Cascadia project will help mitigate issues from trash dumping, vandalism, illegal OHV use, and noxious weeds while improving interpretive opportunities for visitors and restoring both a historic CCC-built wall and the Santiam Wagon Road. The Frissell Boat Launch will be relocated across the McKenzie River to improve road safety and improve the accessibility of the site

Secure Rural School funding has continued to fund the Districts to accomplish replacement of vault toilets at many developed recreation sites.

The Recreation Site Facility Analysis proposes a range of sites and activities and additional development on Detroit RD

Generally the range of sites provided throughout the Forest is consistent with customer's preference and use trends; however, on occasion, demand exceeds site capacity (i.e. Detroit Lake, McKenzie River, ~~Fall~~and Fall Creek). - The Recreation Site Facility Master Plan (RSFA)~~,~~ proposed in 2006 that the Forest continue~~s~~ to provide a range of sites and activities, with additional development on the Detroit Ranger District. -Shady Dell Campground ~~was~~ continued to be used ~~operated~~ as a staging area by the Northwest Youth Corp under special use permit on the Middle Fork Ranger District ~~in 2009~~.

Monitoring Questions 12: Off-Road Vehicle Use

Are ORV opportunities providing a quality experience to the customers, ensuring their safety, and the safety of the general public? Are conflicts being minimized between users, with wildlife (and their habitat), and is resource damage being minimized – in areas that are suitable for each appropriate ORV use?

Trails and roads will be designated for OHV use.

The Forest has completed and signed the Environmental Assessment for the implementation of the 2005 Travel Management Rule. Following the publication of the Motor Vehicle Use Map in summer of 2010, roads and trails identified on that map will be designated as open to motor vehicle travel. All other roads, trails, and forest lands will be closed to motor vehicle travel.

A decision for the Santiam Pass Recreation Area was made in 2008 which designates, constructs, and reconstructs roads and trails for motorized mixed use and OHV use, including staging areas, visitor information and "learner loops". The first phase of the project was started in 2009 and continued into 2010. This phase included the design of a new staging area as well as the construction of approximately five miles of trail, design and construction of three learner loops, and reconstruction of ten miles of existing trail. In addition, thirty miles of existing trail were maintained and patrolled as part of Phase I of the projects.

Detroit RD has designated the McCoy Creek Motorized Recreation Area for off-highway vehicle recreation. At this time the emphasis is on developing a staging area that will access system roads currently open to mixed use. Development will include parking, sanitation, signing and mapping. One of the primary project drivers is the opportunity to draw recreational use to this financially distressed, but extremely scenic area via an existing road system that is currently open to motorized mixed use.

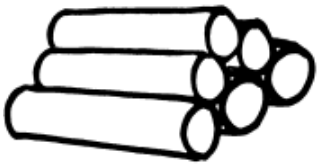
On the Forest, pockets of use show signs of resource damage, particularly around existing dispersed recreation sites and near adjacent private lands. Snowmobile intrusions into the Three Sisters, Mount Jefferson, Mount Washington, and Waldo Lake Wilderness areas continue to be an issue despite enhanced wilderness boundary signing and patrolling. Isolated incidences of mudding occur throughout the forest. As part of the Respect the River Program, mudding education including signing and brochures have been developed.

Timber

Monitoring Question 22: Timber Suitability

Has the suitable land base changed?

Suitable land is land managed for timber production on a regulated basis. Though more than 1.6 million acres are suitable for growing timber, such things as roads, water, poor conditions preventing adequate reforestation, and congressional reserved lands such as wilderness, prevent lands from being suitable for timber production on a regulated basis. Changes to the suitability of lands for timber production have not occurred since FY98.



Monitoring Question 23: Timber Program

Is the timber sale program quantity/quality comparable to the planned levels?

Target accomplishment shifted from "volume offered" to "volume awarded" in FY'06. In FY'10 the Willamette NF assigned target was 72.1 mmbf. Total volume offered in FY'10 was 71.8 mmbf. Total volume awarded in FY'10 was 72.9 mmbf. The volume difference between offer and award is the result of Purchaser's requesting and being authorized to remove additional convertible, non-sawlog material from existing contracts. Total volume offered and total volume awarded amounts are all included in meeting our PSQ (111 mmbf) levels. FY'10 offer amounted to 64.7% of the PSQ with FY'010 award being 65.6% of PSQ.

The total 72.9 mmbf volume awarded included 70.4 mmbf of sawlog material offered through advertisement in the newspaper and 2.4 mmbf in products that could be converted and measured in board feet such as firewood, posts, poles, green biomass and so on. These "convertible" type products are often sold under permit without advertisement. Approximately 3.6% of the awarded volume came from salvage sales. The Forest received viable bids for all sale volume offered for bid.

The majority of the timber harvesting program in the past few years, including FY 2010 has been in the general forest (MA 14) and matrix land allocations. However, since commercial thinning has become the predominant harvest method, timber sales have been used as a tool to achieve resource objectives in other land allocations such as riparian reserves and late successional reserves. In recent commercial thinning sales, up to 35% of the total acres thinned in a project area have been in parts of the riparian reserve.

Commercial thinning is the predominant silvicultural prescriptions being utilized. In order to introduce and develop stand structural and species diversity, 5 to 10% of the thinned acreage includes gaps ranging from 0.5 to 3 acres in size.

FW-196 States "Uphill falling shall be used in harvesting old growth and large sawtimber on slopes of 30% or greater, except where not operationally feasible or where in conflict with resource protection."

Recent timber sales on the Willamette NF involve smaller, commercial thinning size trees. All of these sales have utilized FS-197 "Directional falling should be used where necessary to protect other resource values to the extent necessary to ensure a variety of resource protection. Directional falling (felling to lead) is a regular design element included in all contracts.

Monitoring Question 24: Silvicultural Practices

Are silvicultural practices outlined in Standard and Guidelines being implemented as planned?

Growth responses from intensive management are consistent with expectations in the Forest Plan. Genetically improved stock is being used as planned and will maintain or exceed the growth of natural seedlings.

Regeneration of harvest stands within 5 calendar years from harvest is mandated by the National Forest Management Act, and is tracked every year to assure compliance. There were 12 acres reported as being harvested using stand regeneration harvest method and planted in FY 2005. All of these 12 acres (100%) were reported as being certified as reforested. The data source for this information is the FACTS database and the VEGIS database. Stocking is being established and maintained at the recommended levels and within the required time. In 2010, 331 acres were planted.

Planned created openings are much smaller than the maximum limits, and is resulting in under representation of young seral forests across the landscape.

Timber Stand Improvement (TSI) accomplishments of thinning, release, pruning, and fertilization totaled 3,889 acres. Accomplishments are about one fifth of the amount predicted in the Forest plan. There is a significant backlog of plantations in need of thinning on the Forest, but there are few new regeneration acres, so the backlog is dwindling.

Monitoring of insect and disease activity on the forest is completed each year. There are endemic levels of fir engraver and Douglas-fir bark beetle at levels that are considered to be normal. Damage to trees from black bears continues at a variable rate, with some stand experiencing significant mortality.

Transportation for 2010

Monitoring Question 38: Transportation System

Is the transportation system meeting the planned resource objectives?

Policy changes in the last fifteen years have had a profound effect on how roads have been managed compared to when the thresholds of concern were formulated in the 1990 Forest Plan. In the past the primary purpose for road construction, reconstruction and maintenance on the Forest was to enable timber harvest. With declining timber harvest came declining budgets for road maintenance. Reduced timber harvest levels have resulted in the need for significantly less miles of new road construction and reconstruction than anticipated in the 1990 Forest Plan. No new road constructed occurred on the Forest in 2009 and 178 miles of road reconstruction (see table below). New road construction is far below estimation in the Forest Plan of 40 miles. This year road reconstruction is very close to the Forest Plan estimate of 174 miles. However, on the average, over the last several years, road reconstruction falls far below the threshold of variability.

Timber related road use and road maintenance budgets have fallen significantly during the last fifteen years. As a result this has reduced the need for new road construction. Also, the Forest has not had the means or ability to maintain its road system to the standards and maintenance levels of the past. This situation is being duplicated in Forests across the Nation, prompting the Forest Service to initiate a national Road Management Policy. This policy shifts our focus away from developing new roads to managing the existing road system with an emphasis on managing for the minimum road network necessary to accomplish current Forest Management objectives.

Due to the fundamental changes to the timber harvest targets and drastically reduced road maintenance funding, the miles of road maintained for passengers cars is over 36% below the threshold of variability. Though far below the threshold, the lower miles of "passenger car" roads is more in line, and consistent with current and projected road management and budgetary trends. Roads formerly maintained for passenger cars are now maintained for motorized travel that is suitable for high clearance vehicles. This reflects an increase which is now 13 % above the threshold of variability for roads suitable for high clearance vehicles.

The table below gives a snapshot of our current road system on the Forest.

STATUS OF THE FOREST'S TRANSPORTATION SYSTEM

Road Construction and Reconstruction		**Miles of Road Removed**	
Miles of Road Constructed	0	*Miles of Road Decommissioned*	7.2
Miles of Road Reconstructed	87.2		
Road Suitability (Miles)		**Traffic Volumes**	
Roads Suitable for Passenger Cars	555	Traffic volumes were not monitored in FY10	
Roads Suitable for High Clearance Vehicles	5,005		
Closed Roads	978		
Total Miles	6,538		

Though much of the road system is not at the levels predicted in the Forest Plan and the TOV in some cases has been exceeded, the differences can be explained by changes instituted with the Northwest Forest Plan and changing policies. Adjustments should be made during the next Forest Planning effort to reflect current road management policy.

Social, Economic, and Budget

This section of the monitoring report describes the social and economic environment, which is affected by management on the Forest.

If the reader is interested in more information than what is provided in the following summary they may request the documents listed under Supplemental Information

CONTENTS

ECONOMIC & SOCIAL RESOURCES SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
41 - Economic & Social	Review of economic reports, agency policies, and public contacts	Results OK	Economic and Social FY10 monitoring reports

Economic and Social Assumptions

Monitoring Question 41: Economic and Social Assumptions

Are economic and social assumptions, values, and projections valid?

The Forest monitors a wide variety of sources addressing general local economic and social trends. Key economic facts from the FY10 monitoring are presented in summary on the following page.

An additional objective of MQ 41 is to evaluate whether there has been significant changes in public attitudes, beliefs, or values or changes in National or Regional Direction. At times this can be gleaned from initiatives, plans, and laws passed over the course of 2010.

A great deal has occurred in the course of the last two years, specifically the American Recovery and Reinvestment Act of 2009. It was an unprecedented effort to jumpstart our economy, create or save millions of jobs, and put a down payment on addressing long-

neglected challenges so our country can thrive in the 21st century. The forest has several project underway as a result of this effort.

FISCAL YEAR 2010 FINAL EXPENDITURES

Description	FY10[1]
American Recovery and Reinvestment Act	$8,162,151
Facilities Capital Improvements & Maintenance	$1,532,778
Flood Activities	$25,764
Forest Products	$6,011,203
General Administration	$12,233,632
Inventory and Monitoring Activities	$293,726
Knutson/Vandenburg Funds	$1,929,861
Land Management Planning Activities	$56,414
Land Ownership Management	$1,152,638
Minerals and Geology Mgt	$246,855
Payments to Counties	$2,538,517
Recreation/Heritage/Wilderness Activities	$1,412,944
Roads and Trails Improvements & Maintenance Activities	$4,723,878
State and Private Forestry	$54,419
Vegetation and Watershed Mgt	$869,335
Wildland Fire Management / Fuels Treatment	$17,788,339
Wildlife and Fisheries Habitat Mgt	$975,334
TOTAL	**$60,007,788**

[1] Knutson/Vandenburg Funds are funds used for post harvesting improvement activities. Primary beneficiaries of these funds are Recreation, Watershed , Wildlife, and Fisheries Management

Climate change is another issue the Forest Service nationwide as included in its mission and incorporated into its program direction. The mission of the Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. To inform the public of its efforts two documents have been created "National Roadmap for Responding to Climate Change" (http://www.fs.fed.us/climatechange/pdf/roadmap.pdf) and "Performance Scorecard

for Implmenting the Forest Service Climate Change Strategy" (http://www.fs.fed.us/climatechange/pdf/performance_scorecard_final.pdf).

The Forest Service, the Willamette included, have historically been focused on water and timber but that focus has now broadened to include forest health, diversity, aesthetics, fire risks. These goals, though at times appear to be opposed, provide the Forest with opportunities to bring our constituents together through education and reflect changing societal values.

Summary of FY 2010 Forest Receipts and Payment to States.

Forest Receipts (FY 2010)	Payments to States (FY2010)[1]	
$3,145,641	**$29,598,558**	
Forest Plan estimated receipts are not longer calculated. It is quite clear the Forest's receipts are only a fraction of the Forest Plan estimate.	**County Breakdown**	
	Clackamas	$8,770
	Douglas	$917,805
	Jefferson	$2,357
	Lane	$18,280,885
	Linn	$8,316,807
	Marion	$2,071,935

[1]Based on Title I, Title II, Title III funds identified in Secure Rural Schools and Community Self-Determination Act of 2000.

Implementation Monitoring

MQ 1 could be paraphrased, "Did we do what we said we were going to do?" This is the definition of implementation monitoring and the focus of many of the monitoring activities that occur on the Forest. Various levels of interdisciplinary monitoring reviews were carried out in 2010 to focus specifically on compliance with the Forest Plan.

CONTENTS

IMPLEMENTATION MONITORING SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Standards and Guidelines			
1 - Implementation Monitoring	Environmental documentation and field reviews.	Results OK	Monitoring trip documentation

Standards & Guidelines

Monitoring Question 1: Standards & Guidelines

Are Forest Plan standards & guidelines being incorporated into project level planning and decisions?

A Forest Supervisor monitoring team visited all of the districts and monitored several projects in 2010. The results and findings of each monitoring trip were documented and used to generate communication between districts and forest personnel as well as contribute to the overall evaluation of the Forest Plan. Very often these trips also result in recommendations to the Supervisor's Office (SO) for changes or clarifications to the Forest Plan standards and guidelines. The projects to be monitored may be from any resource program area. Criteria for projects are those under the current Forest Plan as amended by the NWFP standards and guidelines and those with a substantial amount of on-the-ground work accomplished.

Forest Plan Standards and Guidelines, Northwest Forest Plan direction, and overall consistency of projects to the general goals and objectives of the Forest Plan were

reviewed. The documentation (NEPA analysis, decision documents, prescriptions) and the on the ground results were checked for compliance with the Forest Plan. The monitoring team consisted of the Forest Supervisor or, Deputy Forest Supervisor, SO Staff Officers, the Forest Interdisciplinary Team Leader, SO technical staff, District Rangers, and District staff.

PROJECTS MONITORED IN 2010

Ranger District	Activity Monitored
Detroit	Breitenbush Thin Timber Sale
Sweet Home	Camas Prairie Restoration and Moose Creek Steelhead Habitat Improvement Projects
McKenzie River	Andy 6 Timber Sale
Middle Fork	Jim's Creek Savanna Restoration Project

Forest Supervisor Reviews

Detroit Ranger District

The monitoring team stated their primary objectives in monitoring this project included interest in consistency of project design and implementation and learning from future project implementation. Also of interest was a dialog on implementation experiences with public issues in order to improve the process for future work in meeting goals of the Forest and about process of planning to presale to contract implementation.

Review GAPS, Riparian Reserves, and Visuals: One of the purposes of the proposed action was to use silvicultural methods to reduce tree density to enhance residual tree growth, and promote structural and species diversity in stands. The gaps provide places where minor tree species can be planted and short term forage sites for wildlife. For this thin, Breitenbush Thin, 354 acres are thinned and 30 of those acres will have gaps created, between the sizes of one half acre to three acre.

Gap placement was found within the Riparian Reserve and out of compliance with Unit 35a prescription. The gap should have been 2 site trees distance away from creek. Location of 2 acre gap was about 100 feet away from creek; some loss of shade, but due to steep topography (cliff) between gap and stream, temperature affects are minimal –if any. Ribbon of trees remain between gap and cliff, trees removed in gap were on a bench further away from creek and would not have fallen in creek and provided down wood recruitment or shade. Cliff or hill slope was already actively eroding and harvest activity occurred away from hill slope and had no effect to creek. Gap retention of three dominant TPA met.

Visual prescription met of variable retention from the paved road. Do not want to create new dispersed sites here.

Review Thinning Prescription and Gaps: In June post harvest 1/10 acre plots were taken by the Forest's silviculturists to determine if retained trees were within 80 to 100 TPA prescriptions. The thinning prescription was met with an average of 96 TPA retained. Canopy cover was also determined with a moose horn and averaged at 48%. Canopy closure retention of 50% was met for the shade zone for aquatics, since it is generally larger than the canopy cover measured.

Gap placement met direction and was in compliance with prescriptions. Gaps were posted as separate units within the thinning unit. Gaps will be jackpot burned for site preparation for grass which will provide short term big game forage. Western red cedar will be planted in the shady part of the gap and white pine will be planted in the sunny part of the 2 acre gap to ensure survival.

Review Prescription and Fuels Prescription of Grapple Piling: A fire fuels specialist spoke about how the grapple piling occurred within 33 feet of the main road. The purpose was to reduce hazardous fuels in high risk areas. There was some discussion about the slash piling and the potential to scorch or kill some of the residual thinned trees. The contract states these piles should be 25 feet away from a tree. This generally seems to have occurred; however, due to the constricted options to pile slash on the steep slopes next to the road there may be instances where it was impossible to meet this standard. In the future contract language could be amended to state "Piles will be greater than 25 feet or as far away from residual trees as feasible".

Sweet Home Ranger District

The monitoring team set forth the objectives of consistency in project design and implementation. There was an initial presentation on mining, its laws, local history, mine closure types, and dangers of abandoned mines.

An abandon mine

Luck Happens mine – foam closure: Objectives for mine closure are are for health and safety. Standards and Guidelines (S&Gs) in documentation for mine closures were – minimize ground disturbance, reduce the spread of weeds and avoid noise disturbance to northern spotted owls during spring nesting. In general, S&Gs to follow are resource protection during closure operation. Stated S&G's followed and resource protection

were met. Duration of closure operations is short, one to five days depending on the abandoned mine.

Lawler Patent: Looked at abused patent where fraud and theft occurred. This patent was private property where heavy equipment was left as trash, the patent was unlawfully resold, and timber was cut and sold illegally. There was a long unsavory history of nefarious activities. The result was that the original owner called law enforcement (tipped off by the lands people concerning easement rights) and there was a recovery of $400,000 to investors and a replanting of trees.

Red Heifer mine – rock closure: There were multiple abandoned mine openings in the rock wall along the road. These openings were being explored by people who used rock claiming equipment. Rope was left attached to the rock wall which could be a safety hazard. Heavy equipment was used to place large rocks in openings to close mine and remove hanging ropes and attachments. Safety precautions were taken during operations.

An abandoned mine closed off with large rocks.

McKenzie River Ranger District

Objectives for this trip were consistency of project design and implementation, and learning for future project implementation.

The intent of the project was to implement meadow restoration and enhancement activities at Box Canyon Meadow because conifer encroachment is threatening the meadow plant community. The restoration project includes the cutting of conifers and prescribed burning to slow the encroachment of conifers and increase the diversity of plants and enhance forage.

Box Canyon fenced : Most mitigation measures were met, barriers were created at points along the edge of the meadow to prohibit motor vehicles from entering the meadow. As the group entered the meadow it was also evident that there was a lot of plant diversity and other species too – snakes, gophers and butterflies.

The meadow was burned in 2003 and 2007 by the District fire crew. The YCC crew cut and girdled small trees along the meadow edge. The burn was relatively hot and got about

50% coverage; other portions of the meadow were burned patchier. A strip along the alder/willow bordered riparian area was mowed to successfully keep fire out; this maintained the integrity of the riparian area and vegetation. Gophers turned the soil which help released seed after the burn. Golden rod was the dominant plant, mixed with monkshood, aster, blue wild rye, cow parsnip, wild rose, bog orchids and many other plants.

St. John's Wort is considered a noxious weed; it was not conclusive that populations increased with fire. One population was burned over and another population was flagged and not burned. Both populations persisted but did not noticeably spread beyond their original area. A concerted effort was made to reduce the small population.

Landis Cabin: All efforts to avoid any damage to Landis cabin, interpretive signs, and structures was made and mitigations met. Untreated areas were maintained within the immediate Riparian Area (40 to 70 feet buffer, dependent on riparian vegetation. There was some debate on if there was a need to numerically describe the riparian buffer – could of just said maintain willows and alders along creek. The same could have been said for: Protection of all conifers within a stream buffer of 50 feet. These conifers were protected when fire was introduced within 20-25 feet of stream.

Hydrological issue discussed was the fact that the meadow used to be wetter but when Road 19 was built the drainage pattern was changed and water was channel to certain areas. One drainage ditch observed will be a future project to fill in.

Landis Cabin

Also the burned areas released nutrients, reduced thatch and appeared to have more vegetation than in the past.

The fire crew did cut conifers, pile and burned the piles. Also some burnt conifers were left standing. It was estimated that the meadow burned hotter the first time because there was enough thatch built up and it may take another 3 to 5 years before we could burn again.

The intent of the project was to restore the meadow plant community and reduce conifer encroachment. That goal was met. Mitigation not to burn along the road was met as well; no potential hazard trees were created along the road.

Middle Fork Ranger District

Monitoring objectives stated were consistency of project design and implementation. interest in planning for future maintenance of meadows; early seral habitat; and meadow restoration; and integration of resource participation.

Big Pine Opening: The purpose of the project was to restore/maintain a series of meadows, by reducing conifer encroachment. Overall, the treatments were consistent with the actions described in the Decision Memo. The results of meadow burning protected the ponderosa pine greater than 20 inches; mortality was within guidelines of less than 10%. Target of 80% mortality in shrubs was achieved. However, small trees less than 10 inches, incurred greater mortality than designed; too much whip felling and infrequent burning affected this outcome. The district last burned this meadow 20 years ago. Fire control was maintained without digging fire lines as prescribed.

The relatively hot burn did reduce the competition of trees and shrubs, providing a clear way for manual treatment of reappearing weeds. Also a relatively healthy component of returned native vegetative species out-completed the noxious weeds.

A secondary benefit of treatment was an improvement of browse conditions for deer and elk.

Mutton Meadow: One of focus element in this meadow restoration was to determine virtue of spring burning in reduction of encroachment of tree species. It was determined that burning in the early spring can be done, resulting in fewer tree species. However, the participants were not sure if enough pine or oak were removed. Without silvicultural prescription, focus residual habitat not determined between woodland or oak savannah.

Regardless, importance of edge meadow (between forest and meadow) habitat was recognized and restored.

Extensive data collected on noxious weed populations, including two years pretreatment. Important result of post treatment determined the noxious weed St. John's wort did not increase after burning.

Rigdon Meadow: A history of the meadow was given by the archeologist Steve Hamilton. The meadow complex is a multi level site. The native peoples used the meadow during travels between Klamath and the Willamette Valley for 7000 years. This site contains a portion of the Oregon central military wagon road built in the 1800's and a Forest Service administration site or guard station around 1930. Sheep have also grazed this meadow.

Protection of features identified was important for this meadow restoration. Sites were flagged and protected during burning operations. These 19 acres were burned in 2008 and burning also exposed new archeological sites.

Burning achieved desired reduction of conifer encroachment. Stream buffer prescription of protect all conifers within 50 foot changed after DM signed. The change was to ten feet buffer and some thinning of small conifers within 50 feet of creek. This new mitigation was compiled to, in some places along the creek there were no conifers beyond 10 feet. The creek looked to have been channelized or to have been an artificial feature developed during the homestead period. There was debate about the relative importance of enhancing early seral habitat vs. protection of a minor stream. However, shade was needed to maintain cold temperature of creek which feed into important fisheries.

Jim's Oak Patch: Burned 30 acres and achieved less than 10% overstory mortality with whip felling. Without whip felling in portion of area had greater than 10% mortality of overstory and some loss of oak/cedar/sugar pine. What is also important to note is type of habitat affected. If only dispersal habitat may accept more mortality than if habitat was suitable for NS Owls. In future need to focus attention on protected resource. The team needs to acknowledge unpredictability of fire. Overall, objectives were met and enough oak survival for meadow restoration.

Accomplishments

The following table compares the actual accomplishment of selected Forest Plan objectives during the fiscal year 2010 (FY10), October 2009through September 2010) with the predictions in the Forest Plan (Chapter IV, pages IV-10 to IV-12). Also shown are the cumulative outputs and accomplishments since the Plan was implemented. The cumulative results are expressed as average annual. This provides the closest comparison to the Forest Plan averages, which are based on a 10-year planning period.

Outputs may vary annually for many reasons including year-to-year scheduling decisions, market conditions, budget appropriations, and even weather conditions. Thus, comparison of a single year may not provide enough information for an adequate evaluation. As we continue to monitor over several years, trends or averages of accomplishments will provide a better basis for evaluation.

The Northwest Forest Plan was the basis for significant modifications to land allocations and to Standards and Guidelines. With these changes coupled with declining budgets, notable differences between Forest Plan projections and subsequent accomplishments are evident. The following table (Summary of Program Accomplishments) reflects adjustments to the Forest Plan projections for timber related activities; however, no other projections were altered.

Summary of Program Accomplishments

Output or Activity	Units	Projected Forest Plan Level	FY 2010 Accomplishment		Cumulative Avg. Accomplishment[1]	
			Units	*%*	*Units*	*%*
RECREATION AND WILDERNESS						
National Forest Visits [2]	Visits	–	1,360,400	**Projected recreation estimates made in the Forest Plan no longer apply. Methods and units for measuring recreation us have change substant-ially. The units reported represent 2008. Next reporting year 2012.**		
Site Visits [2]	Visits	–	1,656,600			
Wilderness Recreation Use [2]	Visits	–	134,700			
Trail Construction/Reconstruction	Miles	78.0	4.0	5%	1.6	26%
Developed Recreation Construction	PAOT	327.0	0.0	–	56.2	17%
Developed Recreation Reconstruction	PAOT	844.0	75	9%	236.9	28%
TIMBER MANAGEMENT						
Timber Sale Program	MMBF	136.0	72.9	66%	52.2	43%
Timber Harvest Treatments						
Regeneration Harvest	Acres	3,144.0	537	17%	238.6	8%
Commercial Thins	Acres	2,808.0	5,591	86%	1,803.9	64%
Partial Harvest	Acres	--	2,414	--	606.8	--
Other	Acres	--	1,097	--	297.4	–
Timber Stand Improvement	Acres	18,100.0	3889	21%	8,745.5	48%
Reforestation	Acres	3,144.0	331.0	4%	1,347.6	43%
Fuel (Slash) Treatment	Acres	3,144.0	1,999.0	64%	1946.6	62%
ROAD MANAGEMENT						
Road Construction	Miles	40.0	0.0	0%	2.9	7%
Road Reconstruction	Miles	174.0	87.2	50%	102.4	59%
Roads Closed	Miles	890.0	978.0	110%	767.0	86%
Roads Suitable for Passenger Car	Miles	1,580.0	555.0	35%	1,216.7	77%
Roads Suitable for High Clearance Vehicles	Miles	4,530.0	5,005.0	110%	4,187.8	92%
FISH / WATER / WILDLIFE / LIVESTOCK						
Watershed Improvement	Acres	533.0	3,464.0	420%	660.3	124%
Anadromous/Inland Fish Habitat Improvements	Miles	12.0	214.0	508%	27.5	233%
Wildlife Habitat Improvements	Structures	451.0	---	**Projected wildlife estimates are no longer measured in structures but in acres. For tracking purposes we will report in acres.**		
	Acres	---	30,920			
Livestock Grazing (AUMs)	AUMs	200.0	0	0%	53.3	28%

[1] Cumulative Average Accomplishment is reflective of the average since the Forest Plan was implemented. Timber management numbers are an exception. The accomplishments are measured since the Northwest Forest Plan was adopted. These accomplishments' can only be considered a general trend. The methods and units used to assess and report accomplishments' has changed over time.

[2] In response to the need for accurate recreation use data, the National Visitor Use Monitoring project was developed at the National level and is being implemented by all National Forests. This process provides a consistent methodology for scientifically credible, repeatable, reliable, and defensible set of recreation use data.

Forest Plan Amendments

Your Forest Plan is a dynamic document that can be amended in response to:

- *Errors and/or discrepancies found during implementation.*
- *New information.*
- *Changes in physical conditions.*
- *New laws, regulations, or policy that affect National Forest management.*

We frequently learn about the need for amendments through monitoring.

Since first published in the summer of 1990, there have been 43 non-significant amendments to the Willamette National Forest Plan. In addition, during 1994 the Northwest Forest Plan was completed and amended all Forest Plans in the range of the Northern Spotted Owl including this Forest. Because all Forest Plans were amended at the Regional level, the amendment did not receive a number.

The following summarizes the amendments to the Forest Plan:

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
1	10/30/1990	Vacates Regional Guide for spotted owls. (Decision by Assistant Secretary of Agriculture John Evans; Federal Register Notice published 10/03/1990.)
2	12/10/1990	Allows snowmobile use in certain parts of Santiam Pass area.
3	8/5/1991	Corrects errors and omissions in Forest Plan (errata).
4	8/5/1991	Requires roadside brush management methods be consistent with scenic resource needs and allows machine mowing.
5	8/5/1991	Corrects mapping error in boundary of Diamond Peak Wilderness.
6	8/5/1991	Changes and clarifies direction about retention of downed wood to better meet functional and operational objectives.
7	3/22/1992	Established Management Plan for the McKenzie Wild and Scenic River; places the river in a new Management Area(MA), MA-6d; and establishes a new Special Interest Area Carmen Reservoir.

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
8	3/22/1992	Establishes Management Plan for the North Fork of the Middle Fork of the Willamette River Wild and Scenic River; places the river in a new Management Area, MA-6e; and changes the scenic allocation of about 29,000 acres of viewshed near the river from Modification Middleground to Partial Retention Middleground.
9	2/20/1992	Changes official Forest Plan Map from manually drafted management areas on mylar USGS quadrangles to a digital version on Forest's Geographic Information System.
10	3/14/1992	Changes about 67 acres in Spring Butte area (Rigdon) from General Forest (MA-14a) to Special Habitat Area (MA-9d).
11	3/14/1992	Changes about 65 acres in Beaver Marsh area (Rigdon) from Special Interest Area (MA-5a) to Special Habitat Area (MA-9d).
12	4/4/1992	Adds Habitat Conservation Areas (HCAs) for northern spotted owl and adopts the standards and guidelines recommended by the interagency Scientific Committee. (Decision by Assistant Secretary of Agriculture James R. Moseley.)
13	7/29/1992	Makes initial allocation of about 640 acres of land acquired by land exchange not far from the South Pyramid area on the Sweet Home Ranger District to General Forest (MA-14a).
14	7/29/1992	Changes about 51 acres in the Long Ranch area, Sweet Home Ranger District, from Dispersed Recreation - lakeside Setting (MA-10f) to Special Habitat Area (MA-9d).
15	7/6/1992	Adds standard and guideline MA-1-20a to clarify that the visual quality objective for wilderness is Preservation, and deletes FW-059.
16	7/29/1992	Establishes new Management Area, Integrated Research Site (MA-3b) to support research on long-term site productivity on about 1,500 acres on Blue River Ranger District, and moves a pileated woodpecker site within the area. Also, relabels the H.J. Andrews Experimental Forest as MA-3a.
17	2/17/1993	Extends deferment of timber harvest and road construction in the Opal Creek area for up to an additional two years to allow time for resolution of various issues surrounding management of the area, including decision about how the Forest Service will meet Recovery Plan objectives for the northern spotted owl.
18	2/17/1993	Clarifies direction in Forest-wide standard and guideline FW-018 to provide more site-specific and objectives-based analysis for placement and remedial actions associated with dispersed campsites.
19	6/2/1993	Relocates about 1,100 feet of Bornite Brook and 900 feet of Vanishing Creek, and by so doing interchanges the actual location of affected lands between MA-14a and MA-15. Upon reclamation of the bornite project's tailings impoundment, creates about 5 acres of wetlands converting that acreage from MA-14a to MA-15.

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
20	5/17/1993	Adds S&G to require an integrated management approach for weed management. After identification, noxious weed sites should be analyzed for the most effective control methods, based on site-specific conditions.
21	6/23/1993	Makes initial allocation of 123 acres acquired through land exchange on the Blue River RD, 59 acres allocated to MA-5A (Gold Hill SIA); 64 acres allocated to MA-11d near Blue River Reservoir.
22	11/24/1993	Allows temporary reduction in availability of elk cover in Mill Creek and Anderson Creek High Emphasis areas (McKenzie RD) to allow stand management practices which will accelerate the development of high quality cover.
23	1/5/1994	Establishes the Forest's Special Forest Products Management Plan, including implementing direction through several new Forest-wide S&Gs.
	5/20/1994	Establishes land allocations and S&Gs as described in the Record of Decision for Amendments to the Forest Service and Bureau of Land Management management plans.
24	9/29/1994	Changes 1/2-acre in the Westfir area from Scenic-Partial Retention (MA-11c) to Special Use-Permits (MA-13a).
25	5/26/1995	Modifies the S&Gs for riparian reserves, wildlife tree provisions, and fueling loadings in MA-3b and AMA Long-Term Ecosystem Productivity project. This was a nonsignificant amendment to the Forest Plan.
26	5/17/1995	Modifies the S&Gs for visual objectives, big-game management, and the retention of large woody material. This was a nonsignificant amendment to the Forest Plan.
27	6/22/1995	Designates approximately 110 acres as MA-9d, Special Wildlife Habitat, in the Heart Planning Area on the Oakridge RD.
28	11/29/1995	Designates the electronic site as a Special-Use-Permits area (MA-13a). Prior to this decision the site was located within Scenic-Modification Middleground (MA-11a). For specifics see Santiam Cellular Environmental Assessment and Decision Notice.
29	1/12/1996	Expand the current Special-Use-Permit area (MA-12b) from 732 acres to 802 acres. Master Plan provides for improvements to the alpine ski facility, as well as adding other year-round recreational opportunities. For specifics see the Hoodoo Master Plan FSEIS and ROD.
30	4/17/1996	Within the Browder Cat timber sale boundary, decreases riparian reserve widths to 50 feet for both sides on four intermittent streams within and adjacent to harvest units and establishes riparian reserves of 175 feet for both sides on two perennial non-fish bearing streams adjacent to a proposed unit.
31	5/15/1996	Established the Rigdon Point RNA.

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
32	9/4/1996	Decreases the interim Riparian Reserve widths 21 acres for Class IV streams and 5 acres for Class III within the Augusta Timber Sale Planning area located in South Fork McKenzie Tier 1 Key Watershed.
33	1/23/1997	Assigns a management area to recently acquired land in the following way: 13 acres to McKenzie River Wild and Scenic River corridor (MA 6d), 11 acres to Scenic Partial Retention/ Middleground (MA 11c) and .25 acres to Special Interest Area (MA 5a).
34	1/23/1998	Changes approximately 1,900 acres of land from Scenic Modification/Middleground (MA 11a) to General Forest (MA 14a) and removes 275 acres of inventoried roadless area on the Middle Fork Ranger District.
35	5/17/1997	Temporarily reduced winter range cover for elk in a high elk emphasis area below the 0.5 Habitat Effectiveness rating required by S&G FW-149 in the Robinson-Scott project area.
36	7/8/1997	Establishes new S&Gs for four sensitive plant species; Gorman's aster, *Aster gormanii;* Common adders tongue, *Ophioglossum pusillum;* selected populations of tall bugbane, *Cimicifuga elata;* and selected populations of Umpqua swertia, *Fraseran umpquaensis.*
37	5/19/1997	Assigns initial allocations for about 2,180 acres of acquired lands located on Detroit and Sweet Home Ranger Districts.
38	1/21/1998	Changes management emphasis to provide for a proposed action to build a replica fire lookout station museum on the Lowell Ranger District.
39	6/1/1998	Establishes two new communication sites on the Sweet Home Ranger District. The development involves less than 1/4 acre.
40	7/13/1998	Establishes the 2,877 acre Torrey-Charlton Research Natural Area (RNA). The RNA spans over both the Willamette and Deschutes National Forests.
41	8/24/1998	Establishes two new communication sites on the Detroit Ranger District. The development involves less than 1/4 acre.
42	8/30/1999	Allows the Forest to continue a program of noxious weed treatment based on the type of infection.
43	2/15/2000	Changes approximately 1,060 acres of MA 14a (General Forest) to MA 9b (Pileated Woodpecker habitat). Also a slight modification of MA 10e (Dispersed recreation) with no net change in acreage.
44	12/21/2001	Established the Walldo Lake Management Plan which addressed management issues in and around the lake. This decision has since been rescinded.
45[1]	7/1/2002	Establishes Opal Creek Scenic Recreation Area as Management Area 2C and includes goals, objectives, and Standard & Guidelines. [1]This Amendment 45 was inadvertently missed causing two amendments to be labeled Amendment 45.

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
45	6/16/2004	Thins 5.2mmbf on approximately 491 acres within management areas LSR and AMA. Three units are within Three Creek Old-Growth Grove requiring a non-significant Forest Plan amendment.
46	8/22/2006	Exempted the project from strict compliance with five specific Forest Plan standards and guidelines relating to the amount of even-aged harvest and size of harvest units within trail corridors and scenic allocations.
47	4/16/2007	Waldo Lake Managing Recreation Use – Phased in a prohibition internal combustion boat motors on Waldo Lake and the use of internal combustion engines (chain saws, generators, etc.) in the dispersed, nonmotorized management area around the lake.
48	6/25/2007	Updated the Forest Plan direction concerning the prevention and control of invasive plants to be consistent with the Region 6 USFS ROD for Preventing and Managing Invasive Plants.
49	8/31/2007	Huckleberry Flats OHV Trail Expansion - Changed the designation of the Huckleberry BGEA (Big Game Emphasis Area) from Medium Emphasis to Low Emphasis and changed the designation of the adjoining South Christy BGEA from Medium Emphasis to High Emphasis.
49	10/22/2008	There are two parts to this amendment. First an implementation guide was not created for the Santiam Wagon Road. Second Standard and Guideline MA-10b-04 as changed to limited travel of all wheeled motorized vehicles to only designated trails and/or roads.
50	4/18/2008	Forest Plan Amendment #50 for Bridge Thin was required because we proposed work in the McKenzie River SIA, but had no Implementation Guide completed, which is required under the Forest Plan.
51	9/17/2009	Changed the location of MA9c- marten habitat from its current location. The new location is of higher quality habitat fuel reduction treatments could also take place.
52	10/14/2009	Travel Management Rule Amendment prohibits motorized travel off of a designated system travel routes in all Management Areas.
53	12/15/2010	Expanded the Gold Lake RNA to 463 acres. The original RNA did not incorporate the key wetland system.

Forest Plan Updates

Forest Plan Amendments (discussed above) change decisions made by the Forest Plan, consequently, they also require environmental analysis under the National Environmental Policy Act (NEPA). From time to time other changes to the Forest Plan are needed which are not intended to affect earlier decisions or Plan objectives. Examples of such changes include corrections; clarification of intent; changes to monitoring questions; and refinements of management area boundaries to match management direction with site-specific resource characteristics at the margin. We call these types of changes "Updates." Since they do not change any Plan decision, they do not require NEPA analysis. F

There have been eight updates to the Forest Plan:

Forest Plan Updates

Update	Implementation Date	Type of Change
1	7/6/1993	Makes two minor management area boundary adjustments on the Oakridge Ranger District (RD). Two acres were changed from MA-6e to MA-9d to correct a boundary line running through a pond. Two hundred sixteen acres were changes from MA-11c to MA-14a so management for visual sensitivity would better match actual topographic characteristics.
2	10/18/1993	Clarifies the Forest-wide S&Gs for prescribed fire in nonwilderness. Accomplishes this by deleting FW-248 through FW-252 and substituting in their place rewritten FW-248 through FW-250. The changed S&Gs better reflect management intent to conduct objectives-based fuels analysis considering a range of resource protection and enhancement needs appropriate to site-specific conditions.
3	10/18/1993	Updates and reprints the Forest's Monitoring Tables from Chapter V of the Forest Plan. Eliminates duplication, improves clarity, and refines data, and analysis requirements to better address monitoring concerns.

Forest Plan Updates

Update	Implementation Date	Type of Change
4	10/17/1994	Special Forest Products (SFP) Table IV-32a shows a type of collection allowed by management area. To clarify that the exclusion of commercial SFP collection applies only to the large, mapped Late-Successional Reserves (LSR) and not to all of the owl activity centers that are now 100-acres LSRs.
5	12/15/1995	Updates pertaining to the role of natural fires in Wilderness. Insures direction for prescribed natural fire is consistent with Wilderness policy through adjustments to the Forest Management Goals, Desired Future Condition, Forest-wide S&Gs, Management Area prescriptions, and Monitoring Questions.
6	1/23/1997	Updates to the Forest Plan Map of Record with changes to Swift Creek (MA 10f); corrections to 100 acre Late Successional Reserves (MA 16b), an AMA designation correction (MA 11f to MA 17), and a Hoodoo Master Plan boundary correction (MA 12b).
7	8/31/1998	Updates the Forest Plan Map of Record with refinements to the LSR222 boundary, establishment of MA 13B for the Middle Fork Ranger Station, the incorporation of Pileated Woodpecker and Marten areas, changes to 7 owl cores on the McKenzie RD and one on the Lowell Ranger District, the location of the already established Huckleberry Lookout (MA 13b) onto the Map of Record, the assignment of management allocations to newly acquired private land, refinements to the boundary of the McKenzie work center.
8	4/3/2000	Updates the Forest Plan Map of Record with RNA boundary refinements, the creation of Ma 1 for Opal Creek Wilderness and MA 2C for Opal Creek Scenic Area; an update that finalizes the boundary of the North Fork of the Middle Fork Wild and Scenic River, small refinements of the Forestwide wilderness boundaries, an LMP layer adjustment to reflect private land changes, adjustments to the boundary of Hills Creek LSR to allow scenic enhancement activities, and the creation of a MA 6b for the Elkhorn Wild and Scenic River.

Forest Plan Updates

Update	Implementation Date	Type of Change
9	4/9/2001	Documents the change of Inventoried Roadless Area maps from paper copies to an electronic Geographic Information system layer in the Forest Planning records.
10	10/17/2002	Updates the Forest Plan Map of Record with a Guistina Land Exchange of 173 acres for 237 acres; correct Shadow Bay campground from 12a to a 12b; vertical integration of administrative boundaries; update with the Finberry Timber Sale, correct the Three Creek RNA boundary; change land allocation from 11c to 13a at Carmen Air Quality Monitoring Site; reflect the Drury Land Purchase of approximately 28 acres; add names of special features into the layer, change an allocation from 14a to 12a on Timber Butte Lookout; and finally add the boundaries of the seed orchards.
11	6/21/2006	Updates to the Forest Plan Map of Record. The updates included labeling errors to Opal Creek Wilderness and to Hills Creek Reservoir. Two other updates included refining the boundaries to 100 acre LSRs in the Blowout Thin EA and correcting a previous error in a Bald Eagle Management Area across from Hills Creek Reservoir. None of the updates resulting in significant change nor was a result of a change in direction. A final change to added several Bald Eagle Management Areas to the Map of Record was requested. No additional areas were added because no NEPA documentation supporting the areas was available.
12	5/19/2008	Updates the name of our elk emphasis' area from "Old Squaw" to "Latiwi". No boundary changes
13	9/5/2008	Adds the McKenzie Bridge Airstrip as a Management Area 13b.
14	9/17/2009	The updates stem from corrections to boundaries and from labelling errors. Updates included one 100 acre LSR, the Federal Highway Administration Easement, Hills Creek Reservoir, private land acquisition, Flat Creek warehouse, AMA Research Plots, Olallie Creek RNA, and a Pine Marten change documented in Amendent 51. A map of the changes are available.

List of Contributors

The principal contributors to the 2010 Monitoring and Evaluation Report are listed below. Please contact one of us if you have questions or want further information about the reported results.

Joe Doerr	*Wildlife Biologist*
Stacey Forson	*Recreation Staff / Wilderness*
Linda Geiser	*Ecologist*
Johan Hogervorst	*Hydrologist*
Cathy Lindberg	*Archeologist*
Jennifer Lippert	*Botanist*
Judy McHugh	*Public Affairs Specialist*
Norm Michaels	*Silviculturist*
Allison Reger	*Analyst (Economics)*
Suzanne Schindler	*Environmental Coordinator*
Doug Shank	*Geologist*
Dirk Shupe	*Fire and Fuels*
Nikki Swanson	*Fisheries Biologist*
Jeff Trejo	*Timber Staff*
Palmer Utterback	*Civil Engineering*
Sonja Weber	*Natural Resource Specialist*

Acknowledgments

Monitoring activity on the Forest involves many people, far too numerous to list here. A few of these contributors or their organizations are acknowledged in the Findings section as their related work is presented. In addition, many volunteers contributed their time and expertise, as did Ranger District employees across the Forest.