United States
Department of
Agriculture
Forest
Service

**Pacific
Northwest
Region**

Monitoring and Evaluation Report

Willamette National Forest

Fiscal Year 2007

July, 2008

Welcome to the 2007 Willamette National Forest annual Monitoring and Evaluation report. This is our 17th 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.

My focus continues to be on streamlining our internal processes and organization so that we can most efficiently and effectively produce products and services. My staff and I also continue to emphasize working with partners – these dedicated individuals, groups, agencies and organizations are integral to our success. I believe that restoring and maintaining the health of our ecosystems depends on our ability to work together to share ideas, costs and solutions.

Some of the highlights from this year focus on the work accomplished through partnerships. Specifically, I'm proud of our gains in Bull Trout habitat improvement, cooperative weed prevention programs, growing volunteer program, and welcome Gold Butte Lookout and Timber Butte Cabin as additions to our recreation facilities. We are concerned about declining deer and elk populations and are working with partners to provide quality forage opportunities for those species.

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,

DALLAS J. EMCH
Forest Supervisor
Willamette National Forest

r6-will-006-08

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, that 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 2011 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.

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 FY07 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.

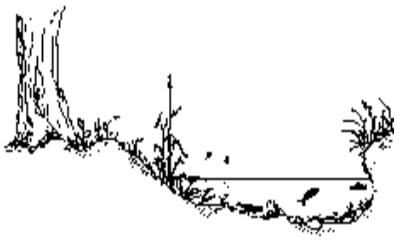
If the reader is interested in more information than what is provided in the following summary they may request the documents listed under "Supplemental Information".

CONTENTS

PHYSICAL RESOURCES SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Water Quality			
25 Water temperature	Water sampling	Results OK	Water quality FY06 monitoring report
26 Water turbidity	Field evaluations	Results OK	
27 Peak flows	No formal monitoring in 2006	No new results	
30 Lake quality	Field monitoring	Results OK	
Soil Productivity			
32 Soils, mass movement	Measurements using visual, electronic, and mechanical means	Results OK	Soil FY07 monitoring report
33 Soil productivity, mass movement	Routine monitoring	Results OK	Water quality FY06 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 FY06 monitoring reports and (Geiser and Neitlich 2007) article
Fire			
36 Fire protection	District reports	Results OK	Fire Management FY07 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 97 sites during 2007. About one third of these monitoring sites were on streams listed as water quality impaired for temperature under section 303(d) of the Clean Water Act. The other two thirds include monitoring related to stream habitat surveys, and specific forest management or restoration projects associated with species listed under the Endangered Species Act.

Of the 97 sites measured for temperature in the summer of 2007, 47 sites showed a 7-day average maximum temperature exceeding salmon and trout rearing and migration standards (16-18° C), the core cold water habitat standard (16°C) or the bull trout spawning and rearing standard (12°C) established by Oregon Department of Environmental Quality (ODEQ). These maximum water temperature conditions occurred throughout the month of July, 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.

Number of summer water temperature sites successfully monitored on the Willamette National Forest, summer 2007.

Sub-basin	Total # of Sites Successfully Monitored	# of 303(d) Listed Streams Monitored	# of Sites Exceeding Standards	# of Sites Meeting Standards
North Santiam Sub-basin	13	0	1	12
South Santiam Sub-basin	16	6	9	7
McKenzie River Sub-basin	32	11	20	12
Middle Fork Willamette Sub-basin	36	17	17	19
Totals	**97**	**34**	**47**	**50**

In October, 2006, based on both ODEQ and Forest Service water temperature data collected in past years, ODEQ issued the Willamette Total Maximum Daily Load (TMDL) for point and non-point sources of pollutants in the Willamette Basin. As a legal requirement, the Willamette National Forest has submitted a Water Quality Restoration Plan (WQRP) serving as an implementation plan for the TMDL for the North Santiam, South Santiam, McKenzie River and Middle Fork Willamette Sub-basins. 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. 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.

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 is an issue. One example includes monitoring that took place in 2007 as part of the Jim's Creek Oak Savannah Habitat Restoration project in the Upper Middle Fork Willamette River. As part of this habitat restoration, conifers dominating the site will be cut to enhance existing oak vegetation. Consultation with National Marine Fisheries Service required the Forest to monitor turbidity in adjacent streams, both pre- and post-treatment. In the Fall of 2007, sites were selected above and below treatment areas so that turbidity during seasonal storms could be monitored and effects from treatments can eventually be analyzed. This data will be used to inform future management decisions at similar restoration sites.

Personnel on the Santiam River Zone at the north end of the Forest 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. For example, USGS websites are tracked during winter storms, and when turbidity in certain rivers rise 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 rely on 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 2006 for stream flow. 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 timber sales using the Aggregate Recovery Percent methodology. In each case, this modeling showed that peak flows would not be deleteriously affected by young stand thinning.

Monitoring Questions 30: Water Quality: Lakes

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

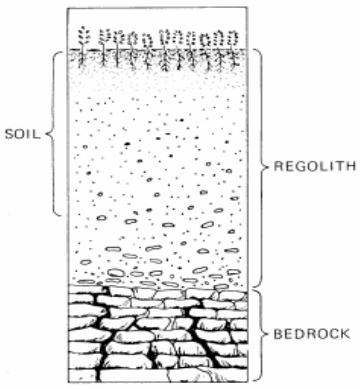
Lake monitoring for the Forest in 2007 included monitoring of key chemical and biological properties of Waldo Lake. High use recreation areas on several reservoirs and lakes on the Forest were also monitored for the presence of high concentrations of potentially toxic blue-green algae.

The Willamette National Forest contracted with Cascade Research Group to perform three monitoring trips to Waldo Lake in 2007 as part of the long-term monitoring program for the lake. Chemical and biological samples and data were collected on three dates: July 31, August 19, and September 9. In addition, under an agreement with Portland State University, lake water temperature data was collected from instruments that recorded temperatures at various depths from two locations. This information will be used to develop and calibrate a model of the thermal characteristics of the lake. Forest personnel continued to monitor lake outflow and weather data to provide data for the development of a water quality model and completion of the water balance and hydrodynamic models.

Monitoring visits were made primarily to developed recreation sites on water bodies that had the potential to have blooms of toxic blue-green algae. Site visits were made to approximately 25 locations on Detroit, Marion, Daily, Gordon, Cougar, Blue River, Hills Creek, Lookout and Fall Creek Lakes. Trailheads, swimming areas and boat ramps were posted with educational information about the health hazards of toxic algal blooms and how to identify them. As a result of this monitoring and in cooperation with the Oregon Department of Health Services (ODHS), public health advisories were issued on both Hills Creek Reservoir and Detroit Reservoir in 2007. Monitoring of sites on these waterbodies indicated the presence of potentially toxic blue-green algae (*Anabaena flos-aquae*) at concentrations above health base thresholds established by ODHS. The first bloom occurred in Hills Creek Reservoir and the health advisory was in effect between May 10th and June 5th, 2007. The health advisory for Detroit Reservoir was issued on May 30th and was lifted on June 13th, 2007.

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



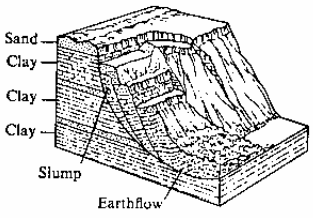
Monitoring Questions 33 & 34: Soil Productivity and Mass Movement

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 transect monitoring accomplished by the Forest Geologist on units of the Gordon Wiley, Thread Thin, Kinkoe, Bull Thin, and Shore Nuf Timber Sales in 2007 revealed that Best Management Practices (BMPs) were being used properly to protect soil productivity. This included use of ground-based machines only on slopes under 30%, proper road use and disturbance ranging from 7 to 15%, well below the Forest Plan standard of 20%.

The Forest Geologist also conducted post-prescribed fire monitoring of soils to check for damage in two units of the Dusty Timber Sale. 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. On-the-ground monitoring results showed 50 to 90% duff layer retention and no signs of severely burned soils. In addition, the report mentioned that overstory vegetation was not damaged and a live intact root mat still covered the ground for both areas surveyed.

Additional soil monitoring is routinely completed during the Forest Supervisor's monitoring reviews. See section "Implementation Monitoring".



Monitoring Questions 32: Water Mass Movement

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

In past years, the monitoring of mass movements involved the evaluation of typical sites of existing and previously unstable failures where road construction activities occurred. The sites were 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. No sites were monitored this year; however, positive trends have been reported in for the last several years.

There are at least 9 active sites on the Forest that are currently being monitored, and the majority of these sites are on the north end of the Forest in the Santiam River basin. The

content of this year's report will be directed these large, active, naturally occurring slumps or slump / earthflow complexes, their effects on our transportation system, and some efforts the Forest has done or is doing to evaluate that movement and adjust to it. This report will document the slide areas and discuss some site specific aspects. In future years, the results of the ongoing investigations or repairs will be evaluated.

A. 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. In brief, Rd. 19, part of the scenic byway, crosses near the midpoint of an approximately 45 acre semi-active slump / earthflow (the toe of the slide is below the highpool of Cougar Reservoir). 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.

B. 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 to the "big crack", a geologic feature noted on the Forest Map. 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. The Poly wall has been surveyed twice since it was installed to evaluate its effectiveness in the unstable terrain. Again, the area shows movements, but at a much reduced rate.

C. 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. Unlike the other failures in this study, this slide has the potential to catastrophically fail and eliminate the road way. 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. This slide also creates the most restrictive grade and alignment control along Hwy. 20 of all the failures mentioned. 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 ten 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, attached). 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. Slope deformation above the highway indicates that this area has been unstable for decades or centuries.

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. This is the most notorious section of road way as it is the most actively unstable and often has only had a gravel surface to minimize the impacts of the tension cracks. 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. Though the east and west boundaries of this unstable area are easily identified along the road way, the adjacent non-moving slopes are not necessarily stable over the long term.

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 six or seven years ago to improve driver safety. Reports related to that work are attached. This slide area has been extensively drilled by ODOT and/or Federal Highways over the years. Evidence of numerous drill holes can be found along the road or in the plantation above the roadway.

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.

In another example on Forest, the Forest Geologist conducted a review of thinning in two actively unstable areas of Flam Thin (1998) and Sheep Soda Thin (2005 and 2006) Timber Sales on the Sweet Home Ranger District to determine if this management had affected long-term slope stability. Reconnaissance by the geologist included looking for any recent change in lean by trees, development of tension cracks or any other signs of hill slope movement. It was found that there was no new instability created. In Flam Thin, it had been 9 years since harvest and leave trees were beginning to more fully utilize the site. This was evidenced by recent increased growth in increment bores of trees within the unit as compared to trees outside the unit showing no growth response. This data was used to inform decisions being made in the Middle Santiam Thin Environmental Assessment completed in 2007.

Monitoring information on mass movements on Forest to date have shown that current practices for road location, design, construction, and reconstruction are effective in eliminating, reducing or mitigating existing mass movements. In addition, road drainage improvements have been shown to be effective in eliminating road-related mass movements, but funding is often lacking across the Forest to carry out all the needed work.

Air Quality

Monitoring Question 35: Air Quality

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

Results and findings for air quality monitoring are based on daily Region 6 computer program FASTRACS accomplishment reporting, Oregon Department of Forestry daily Smoke Management Forecast, Oregon Department of Forestry air quality monitoring systems and 2006 Approved Exceptions to the Smoke Management Instructions listing. Fuel and particulate tonnages, for daily prescribed burning, were based on the Consume Program that runs in FASTRACS.

Air quality remains high on the Forest during burning activities.

In fiscal year 2007, at no time were thresholds of variability for air quality exceeded during prescribed burn projects on the Forest nor were there requests for deviations from the Oregon State Smoke Management daily forecast. No intrusions occurred in designated or smoke-sensitive area in this fiscal year, due to smoke from prescribed burning off the Willamette National Forest. Willamette National Forest did not contribute to or intrude in any designate or smoke-sensitive area from smoke generated by prescribed burning and finally, here were no reported or measured impairments of visibility standards in Class I areas on the Willamette National Forest in fiscal year 2007. Measurements were based on visibility monitoring by fixed detection sites on the Forest.

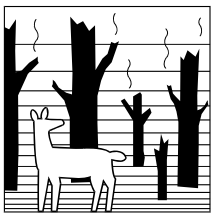
In addition to the activities above, the Forest has participated in a regional in-house air quality biomonitoring program since 1993. Lichens, a highly sensitive component of the forested ecosystems, help federal land managers detect and delineate air pollution and its effect. No new monitoring was reported in FY2007. In 2006, the primary air quality monitoring activities on the Willamette National forest were 1), continued processing of samples from 10-year revisits to biomonitoring plots Forest-wide, 2) an assessment of long term changes in the acidity, nitrogen and sulfur loading of precipitation from the NADP site in the HJ Andrews Experimental Forest, and 3) an evaluation of long term changes in visibility from IMPROVE data for the Three Sisters Wilderness.

Air pollution monitoring using lichens continues on the Forest.

Identifications and data entry are nearly complete for ten-year revisits made to more than 100 air quality bio-monitoring plots across the Willamette National Forest on the Forest Inventory and Analysis grid in 2004 and 2005. Monitoring encompassed all Forest wildernesses, including the Class I Wildernesses: Mt Jefferson, Mt. Washington, Three Sisters, and Diamond Peak, for which air quality is stringently protected by the federal Clean Air Act. In 2007 we will be using a model developed from the original baseline data (Geiser and Neitlich 2007) to score these 10 year revisits and find out whether there have been any detectable ecological responses, as indicated by lichen community composition, to air quality and climate changes.

Nitrogen-containing compounds in precipitation and fine particulates are the pollutants that most threaten natural resources and ecosystems in the Pacific Northwest. They originate as gases: nitrogen oxides emitted by vehicle and industrial combustion of fossil fuels, and ammonia emitted by animal husbandry and crop fertilizers. Unlike sulfur dioxide, a pollutant that has been successfully addressed since the 1970s by regulating industrial point sources, nitrogen-containing pollutants are tied to population size. Atmospheric pollutants like nitrogen, sulfur, and lead can accumulate in the environment as they are washed from the air in precipitation or dry deposited as fine particulates. High nitrogen and sulfur deposition causes acidification and eutrophication of terrestrial and aquatic ecosystems, which can have widespread adverse effects on biological diversity, soil productivity, plant growth, and water quality. In the atmosphere these compounds form smog that scatters light and reduces long distance visibility. In sufficient levels smog is also a human health concern. Lichen sulfur content on the Willamette National Forest decreased by about 14% during the past ten years, but nitrogen content increased by about 18%, about the same as the increase in the population of Oregon during this time. Trend analyses of regional IMPROVE (fine particulate chemistry) and NADP (precipitation chemistry) data are also showing steady-state or slight increases in nitrogen deposition whereas sulfur-containing pollutants are decreasing. Rainfall has become slightly more acidic over the past twenty years but as yet, pH is high enough that acid rain is unlikely to pose an ecological threat. From a visibility standpoint, visitors to Three Sisters Wilderness still enjoy some of the best visibility in the Pacific Northwest, and visibility has not declined since measurements began in 1993.

Fire

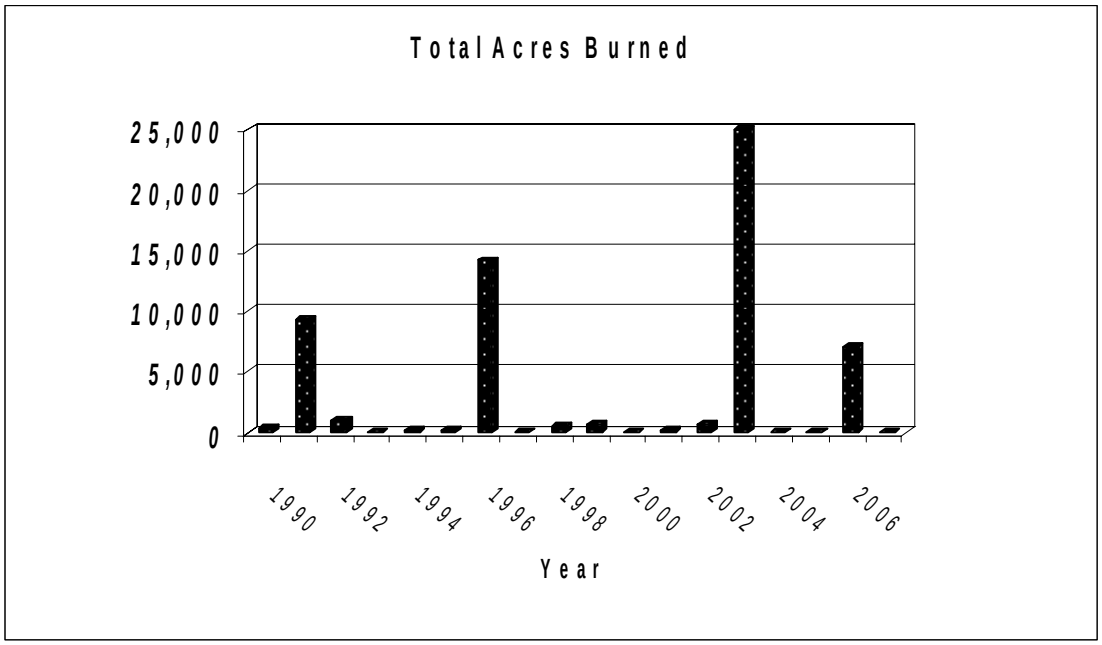


Monitoring Question 36: Fire protection

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

There was a total of 3 acres burned stemming from 24 fires in FY07 in non-wilderness areas. One fire resulting in less than 1 acre burned in the wilderness was reported. 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 17yrs since the Forest Plan has been implemented, over 33,000 acres have burned in both wilderness and non-wilderness. This exceeds the threshold expected by more than twice. Fires, when they do occur also exceed in size considerably.



Monitoring Question 37: Fuels treatment

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

The Forest completed 3,893 acres of fuel treatment in FY2007 or 159% of the annual average of 2,456 acres of fuel treatment predicted in the Forest Plan. The acres treated were a direct result of timber harvest activities on the forest. With an increasing harvest level, the future outlook is for a continuing upward trend in fuels treatments on the Forest.

For 2007: acres treated were 59% over the projected BDBD accomplishment planned on Willamette National Forest. This was primarily due to the excellent burning conditions due the Spring and Fall prescribed burning periods. Targets were renegotiated in the 2rd and 3th quarters to increase target (acres) and funding.

Biological Resources

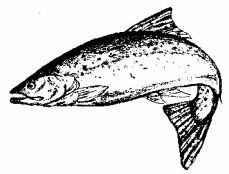
The Forest Standards and Guidelines provide direction to enable the Forest to meet the goals of protecting and improving species populations and their habitat. Threatened, endangered, and sensitive species as well as indicator species are monitored for species viability. Below is a summary of FY07 monitoring 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

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Fish Populations			
13 Fish Populations	River monitoring, field observations	Results OK	Fish FY07Monitoring Report
Habitat Diversity			
14 Aquatic Habitat	Field evaluations	Results OK	Fish FY07 Monitoring Report
28, 31 Riparian & Wetlands	No formal monitoring in 2007	No new results	
40 Biological Diversity	Field surveys and Spotted Owl demographic study	Results OK	Biological Diversity FY07 Monitoring Report
Wildlife			
15 Bald Eagle	District surveys	Results OK	Wildlife FY07 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	Forest and district records and field activities	Results OK	Botany FY07 monitoring report
Noxious weeds		Results OK	
Native species		Results OK	



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: Population trends for Chinook smolts appear to be stable and at adequate numbers. Many of the major tributaries continue to receive more adult salmon then they historically held. Smolt counts appear to be consistent even when the variability of adults is considered.

Many major tributaries continue to receive more adult salmon than historically held.

In the Middle Fork Willamette River salmon are released in areas that were unlikely occupied historically and the fish do very well. The Paddy's Valley area was probably not occupied by salmon historically. Today, several hundred adults are released in the area and it is a strong producer of salmon fry that redistribute throughout the entire river.

In 2008, we continue to be more successfully with our outplant holding and transportation techniques that increase the survival rate of adult salmon.

Bull trout habitat: In 2007 we observed at least 14 adult bull trout returning to spawning areas of the Middle Fork Willamette. At least eight bull trout redds were documented in the Middle Fork Willamette and tributaries. This is a 100% increase over last years estimate. The population continues to increase and is expected to maintain that trend for the next several years as new age classes continue to mature. The Forest Service works in conjunction with ODFW on nearly all bull trout and salmon related research projects.

In 2008 we monitored all previous projects and have determined that 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 now implanted with a recorded tag so biologists can determine seasonal migration patterns and location of spawning.

In 2007, several miles of bull trout habitat on the Middle Fork Willamette River was improved. In the last few years the Forest has completed several instream restoration projects to increase spawning habitat in areas used by bull trout. In 2007 over 350 logs and root wads were placed at numerous sites frequented by bull trout. We are now able to pull over entire trees to create solid foundations for our stream structures. We are preparing to place another 500 logs to create or enhance several more miles of habitat. Also in 2007, work began on the Indigo Springs spawning channel project. When finished, this project will remove an impassable barrier for bull trout to some of the most

important habitat on the forest and provide an additional 400 feet of engineered channel for spawning. This project was recently awarded grant funding from the USFWS and is due to be completed in 2009

Bull trout populations: In 2007 we observed at least 14 adult bull trout returning to spawning areas of the Middle Fork Willamette. 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 over 1000 bull trout fry in the McKenzie Hatchery again this year. These fish were released in the fall of 2007.

McKenzie River

Spring Chinook: McKenzie Sub-basin dams remain the most significant influence on the landscape by fragmenting habitat, modifying flow and temperature regimes, and impeding migration of downstream migrant offspring of Chinook transported above those projects. Objectives of the ACOE Cougar Temperature Control Project in the South Fork McKenzie River were to improve salmon (and bull trout) production downstream of Cougar Dam.

Focus by partners on limitations within the sub-basin.

Following completion of the Temperature Control Project in late 2005, monitoring of migrant Chinook smolts through the Cougar Dam regulating outlet found survival rates near 50% (Mark Wade, ODFW; unpublished results, November 2007), much poorer than results seen in 1998-2000 (Taylor, 2000). As upstream passage solutions through Trap-and-Haul facilities at the base of Cougar Dam are currently being pursued by ACOE, downstream passage improvement has not been addressed. Continuing monitoring by ODFW will track passage issues and temperature control operation on South Fork McKenzie spring Chinook (currently hauled from McKenzie Salmon Hatchery) and their offspring. Bull trout migration through the project is also monitored.

The USFS continued a multi-year in-stream project in the South Fork McKenzie River and Roaring River to address restoration of spring Chinook and bull trout spawning habitat and rearing habitat (side channel restoration). Approximately 8.5 miles of upper South Fork McKenzie and Roaring Rivers are being enhanced through addition of large woody material and restriction of vehicle access to waterways along Forest Road 19. Following completion of restoration activities in 2008, the project will conduct post-project effectiveness monitoring through examination of habitat conditions, which will help in answering the question of Chinook and bull trout habitat availability and production conditions. ODFW and ACOE continue to monitor spring Chinook salmon production above and below Cougar Dam in 2008 and future years, and that data will be useful in answering restoration effectiveness.

Spring Chinook spawning surveys were conducted in the Carmen Smith spawning channel below Trail Bridge Dam, and upstream of the dam between Trail Bridge Reservoir and Kink Creek. However, the fish upstream of Trail Bridge were hatchery adults released by ODFW. Sixty-six pairs were released above the dam and 52 redds were

observed. The salmon that utilize the spawning channel are considered "wild" Chinook. In the spawning channel 57 spring Chinook redds were tallied during 2007 which is an increase from 47 redds in 2006.

Bull trout habitat: Recent fluctuation in McKenzie River population bull trout is not attributable to degradation of habitat critical to bull trout. Frequent spawning surveys, temperature monitoring, and adult and juvenile migration monitoring provide continuous data on bull trout production. During 2007 significant increases were observed during bull trout spawning counts, suggesting habitat conditions for three populations of bull trout are maintained or improved (figure below).

Partnerships and natural disturbance work to restore large woody material and spawning habitat to channels on the Forest.

Based on what was learned in Roaring River, the McKenzie Watershed Council, Oregon Water Enhancement Board, Eugene Water & Electric Board, ODFW and McKenzie River Ranger District implemented a bull trout habitat improvement project in the mainstem McKenzie River upstream of Trail Bridge Reservoir during the summer of 2005. The project restored large woody material to the river channel utilized by spawning and rearing bull trout and spring Chinook by creating log complexes in an area that was salvaged following the 1964 flood. Following implementation, a windstorm in December 2006 nearly doubled large woody volume to the upper McKenzie River. The storm-derived material was inventoried by the Oregon State University Stream Team in 2007 and is expected to result in further improvement of spawning, rearing and foraging habitat for bull trout and spring Chinook upstream of Trail Bridge Dam. Findings of the OSU Stream Team confirmed that the river segment upstream of Trail Bridge Reservoir is sediment poor. The Forest Service is working with Eugene Water & Electric Board, ODFW, NMFS, USFWS and Non-Government Organizations on a future project that would add spawning gravels to this reach. If that project moves forward, it is expected to be implemented in 2010 or 2011.

The McKenzie River Ranger District is planning, in cooperation with Eugene Water & Electric Board, a project downstream of Trail Bridge Dam that includes improvement of conditions in side channels. The project objectives are to increase spawning habitat and fry rearing for spring Chinook salmon, and is slated for implementation during 2009.

Bull trout populations: In 2007 there was an increasing number of redds recorded among the three bull trout populations on McKenzie River (figure below).

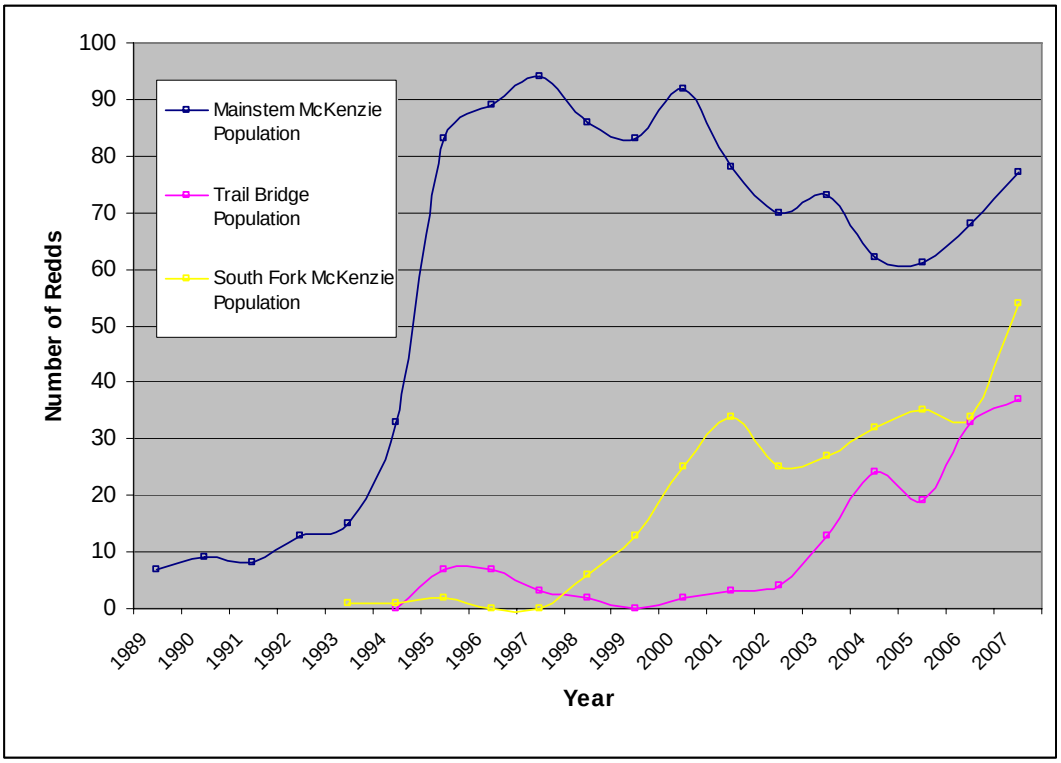
On the mainstem of the McKenzie River, a steady number of redds recorded in Anderson Creek stood in contrast to a steady decline in Anderson redd counts recorded 2001-2005. Bull trout fry migration recorded in 2007 at the Hwy 126 trap in Anderson Creek saw a substantial increase over the previous year. Juvenile bull trout migration (Age 1+ and older) from Anderson Creek increased slightly, holding near a remarkably consistent level compared to past years. In 2007, redd counts recorded in Ollalie Creek were up 87% from 2006. Overall, we saw a 13% increase in the number of redds from the previous year for the entire mainstem McKenzie River population (compared to an 11% increase for the population in 2006).

In 2007 there was also an increase in the number of redds recorded in both the Upper McKenzie above Trail Bridge Reservoir (25% increase), which includes habitat restored in

2005, and Sweetwater Creek. Overall, we saw a 12% increase in the number of redds from the previous year for the Trail Bridge population.

Based on redd survey results, the South Fork McKenzie population experienced a substantial increase over prior years. An increase of over 58% is likely attributable to resumption of pool elevations at Cougar Reservoir, following completion of the Temperature Control Project (adfluvial adult and juvenile habitat diminished during construction; 2001-2005).

Bull trout redd counts by sub-population from spawning surveys by ODFW, Stillwater Sciences and Forest Service; 1989-2007.

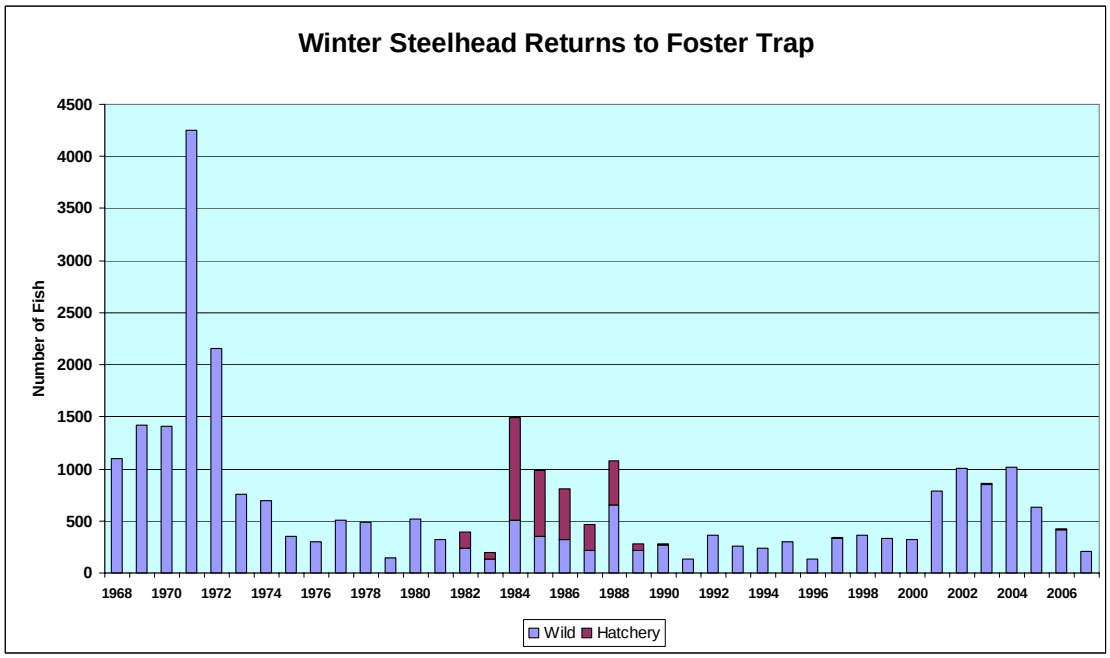


Santiam

Spring Chinook: There has been no monitoring in the North Santiam River, Little North Santiam River, the South Santiam River or the Calapooia River that would indicate whether smolt numbers are increasing, decreasing or are stable. In the North Santiam River, hatchery supplementation and natural spawning of Chinook moved around Big Cliff and Detroit Dams continues. Redd counts show that trap and haul operations are producing naturally spawned Chinook, but smolt survival through the dams not been monitored. Habitat studies completed by the Army Corps of Engineers show that there is quality spawning habitat above the Breitenbush and Upper North Santiam watersheds. The only way to get a handle on smolt production is to place traps on the three systems.

Unsuccessful attempts to place traps were made in 2006. A new design for trapping needs to be identified. ODFW is coordinating plans to identify a way to monitor smolts on the South Santiam river.

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.



Bull trout habitat: Potential Bull Trout habitat in the North Santiam and South Santiam River Systems are being maintained.

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.

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

In 2007, Oregon Department of Fish and Wildlife (ODFW) was the primary agency monitoring Oregon chub, and the Willamette National Forest worked cooperatively to monitor populations on the Forest. In 2008, the Middle Fork District will take over this responsibility. 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 abundance for at least 5 years. In 2008, the Forest will complete an additional restoration pond on private property in conjunction with ODFW. This pond will be another step towards down listing the chub.

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. These areas are prioritized and restoration occurs as funding allows. 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 FY07; however, riparian area protection is monitored during the Forest Supervisor monitoring trips. Projects reviewed during the Forest Supervisor monitoring trips were Parks Overstory Removal Timber Sale, Chuckle Springs and Middle Fork Willamette River enhancement project, and Upper Arm day use project. In all three projects riparian reserve protection measures and enhancements were reviewed and found consistent with Forest Plan S&Gs.

Protection given through the NWFP for riparian and wetlands areas maintains the quality and diversity of these areas beyond the Forests' original expectations.

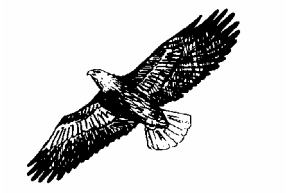
Monitoring Questions 40: Biological Diversity

Is biological diversity being maintained or enhanced on the Forest?

Effects to federally threatened and endangered and Forest Service sensitive species are evaluated for each proposed project. The northern spotted owl demographic study was continued on the HJ Andrews Demographic Study area. Surveys were conducted forestwide in meadow habitat with a species expert to locate mardon skippers, a sensitive butterfly that has been found both north and south of the Forest. No individuals were found on the Willamette. Other surveys for sensitive species include twenty six miles of river surveyed for harlequin ducks on the McKenzie River Ranger District, 40 acres of pond habitat surveyed for western pond turtles on the Middle Fork Ranger District , and 340 acres of harvest units surveyed for Oregon slender salamanders on the Sweet Home Ranger District. Results from these surveys are available at the specified ranger districts. Six MAPS stations were run with numerous partners to capture and record neotropical breeding birds. The data captured add to a nationwide database kept on migratory birds. The U. S. Geological Survey surveyed in Mink Lake Basin and Gold Lake for spotted frogs. This population was found to be stable or slightly increasing. Reports from these surveys, though to complicated and numerous for this report will provide a solid foundation of data to derive trends.

Formal assessment to answer MQ 40 will take place during plan revision. Given the modest scale of timber harvest under the current plan and budget levels, it appears unlikely that a catastrophic loss in plant association group/seral stage biodiversity is occurring.

Wildlife



Monitoring Questions15: Bald Eagle

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

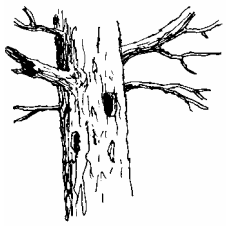
Yes. 2007 was a landmark year for conservation as the bald eagle in the continental United States was removed from federal listing as threatened under the Endangered Species Act. Recovery objectives have been fully met on the Forest. Bald eagles will now be managed as a Sensitive species on Forest Service lands. Where activities have taken place in bald eagle habitat or MA8, Forest Plan S&Gs have been applied to protect the birds, primarily in the form of seasonal restrictions. Annual monitoring reported an increase in known bald eagle territories on the Forest from 14 in 2006 to 15 in 2007. Many of these territories have multiple nest trees that are used in alternate years. Since 1990, the number of known bald eagle nest territories on the Forest has increased from 5 to 15 (300%).

Monitoring Questions18: 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). A requirement of the Endangered Species Act is to monitor a delisted species for at least 5 years. The Forest has 27 known sites, of which seven are included in the 2003 National Monitoring Program. Twenty two sites were monitored in 2007, including the 7 national monitoring sites.

Reproductive behavior was documented at 68% of the 22 monitored sites. Of these 15 nests, 11 (73%) produced young at a rate of 1.5 young per active site and 20% failed reproductively. The outcome of one site was unknown. Twenty one sites where the outcome is known produce 23 young in 2007 (mean = 1.1). The 7 national monitoring sites produced 5 young (4 sites were unsuccessful or unoccupied). In 2006, 26 sites where the outcome is known produce 32 young (mean = 1.2) and the 7 national monitoring sites produced 5 young. Peregrine falcons are now managed as a Sensitive species on Forest Service lands.

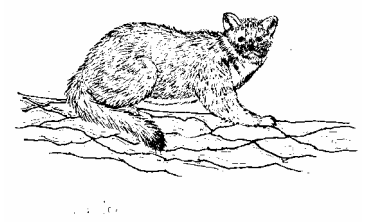


Monitoring Questions19: Primary cavity excavators

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

Each year, newly harvested areas are monitored to determine whether the number, size, species, and distribution of wildlife trees are retained after harvest as prescribed in the accompanying Environmental Assessment. Of the 90 harvested units monitored in 2007, 100% were in compliance with wildlife tree retention prescriptions. Because timber harvest practices have shifted from clearcutting to partial harvests and commercial thinning, large numbers of green trees are left in addition to specific wildlife trees which helps provide long-term habitat for cavity nesters.

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 2007, 908 wildlife trees were surveyed across the forest for cavity use. Most snags were surveyed about 3-5 years post-treatment; however, 100 wildlife trees were surveyed 12-13 years post-treatment on one district. Monitoring shows substantial use of wildlife created snags by primary cavity excavators and suggests that this practice helps maintain and promote cavity nesting species in areas of timber harvest.

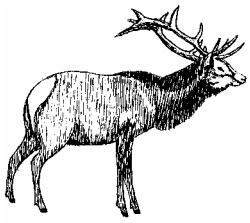


Monitoring Questions 20: Marten & Pileated

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 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 of wildlife trees in one area in 2007 showed that pileated woodpeckers responded positively to snag creation mitigation. Thirteen years after treatment, 64% and 44% of base-girdled and mid-stem girdled trees, respectively, were functioning snags greater than 20 feet tall. Nineteen percent of these created snags had cavity use by pileated woodpeckers and the species was readily detected within the 60-80 year-old thinned second growth with wildlife created snags.



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?

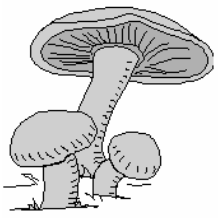
Regionally the consensus among elk biologists in Oregon and Washington is that Forest Service and Bureau of Land Management Elk management plans developed during the past couple decades, such as the Willamette Forest Plan, are based on science that is outdated (Wisdom et al. 2007). Substantial research 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] 2007). The development of an updated elk habitat model reflecting current science has been proposed by a group of elk researchers. ODFW is currently developing a statewide management plan for black-tailed deer. Both these efforts 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.

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. District wildlife biologists identified 5600 acres of projects that were planned in 2007 that would benefit elk and deer habitat. Road densities in some drainages continue to exceed desirable levels, and closure maintenance is limited by available funding. Some new road closures are implemented annually.

Based on hunter statistics and annual census counts by ODFW, population trends of black-tailed deer appear to be declining. The availability of forage appears to be a contributing factor. As the forest matures, the availability of high quality forage declines. In addition, overstocked managed stands have reduced understory forage. Elk populations are more stable 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.

Oregon Department of Fish and Wildlife. 2007. Oregon black-tailed deer management plan (draft) 2007. Salem, Oregon.

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.



New Monitoring Question: Survey and Manage[1]

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

In 1994, the Northwest Forest Plan listed specific species for special protection. Known sites of these species should be managed for their protection and surveys are to be conducted for selected species whose habitat is planned for ground-disturbing activity. This "survey and manage" provision provides benefits to amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropods.

In 2007 498 acres were surveyed for great grey owls, 514 acres were surveyed for red tree voles, and 5 acres were surveyed for mollusks. All required surveys for Category 2 species were completed before any ground disturbing activity. Many projects protected the habitat of Survey and Manage species by buffering their habitat in lieu of surveys.

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?

Most of our survey efforts this year (except those special projects elaborated on below) have centered on timber sale surveys. Approximately 11,600 acres were surveyed across the Forest this year on six major project areas.

The following sensitive plant populations were located during summer surveys:

Arabis hastatula	1
Aster gormanii	1
Bridgeoporus nobilissimus	1
Dendriscocaulon intricatulum	1
Nephroma occultum	3
Peltigera pacifica	33
Pseudocyphellaria rainierensis	3
Rhizomnium nudum	23
Romanzoffia thompsonii	2
Usnea longissima	8

Sensitive Plant Monitoring and Results

Both *Botrychium montanum* and *B. minganense* were monitored on Sweet Home District and both are still in decline. These are the only populations on the Forest.

Ophioglossum pusillum populations were monitored on Middle Fork, McKenzie River and Sweet Home and all populations were stable, even the population that had a test burn through it.

Two populations of *Cimicifuga elata* and two populations of *Frasera umpquaensis* were monitored on Middle Fork District. The *Cimicifuga* is still extant at both sites and reproducing at one. The *Frasera* was also in plots and vegetative effort was within the expected parameters. No evidence of seedling recruitment has been found for either of these species.

New Monitoring Question: Noxious Weeds[1]

Has the Forest implemented a noxious weed prevention program? Has the effectiveness been monitored?

Planning and NEPA

The Willamette National Forest was the first in the Region to complete an EA for invasive plant management that tiers to the Region 6 EIS, incorporating the new standards. The Decision was signed June 25, 2007 and was implemented late August, 2007. The EA outlines allowable treatments on 9700 acres of known infestations. It expands the herbicides available to use on the Forest from only *glyphosate* and *triclopyr* (Garlon 3A only) to these plus *imazapyr, clopyralid* and *sethoxydim*. It also expands options to use herbicides in campgrounds, trailheads and riparian areas to the waterline. Restrictions are placed on where chemicals can be used and methods of application, depending on how close water bodies are, whether there are TES sites nearby, etc. Early detection rapid response is built in and assumes that an additional 10,000 acres of similar sites could be covered over the next 10 years. An annual analysis and environmental review places mitigation restrictions on treatments of sites if necessary.

Partnerships

Forest Staff engage with a variety of partners through participation in many organizations. The Forest Botanist is FS representative on the Steering Committee for Northwest Weed Management Partnership. District Botanists participate in the Upper Willamette and Polk, Marion and Yamhill Cooperative Weed Management Areas. Staff also participate in False Brome and Knotweed Working Groups.

Individual partnerships for weed treatment are forming, The Middle Fork Ranger District engaged East Lane Soil and Water Conservation District in an education and outreach project on knotweed in the Oakridge and Westfir areas (Title 2-funded). The SWCD contacts potential landowners with weeds and, if successful, has them sign agreements allowing for inventory, treatment and restoration of their lands. ODA treats the weeds and the SWCD applies for OWEB grants for restoration materials. Sweet Home Ranger District is working with the South Santiam Watershed Council on weed control projects. The Forest is also involved with a start-up false brome working group that is functioning under the umbrella of the Middle Fork Willamette Watershed Council. MFWWC received an OWEB grant to fund an education/outreach coordinator targeting private landowners in the lower part of the watershed "(upper part is state and federally owned).

[1] This monitoring question was established in 1999 as part of the Noxious Weed EA completed under Forest Plan Amendment 42.

[2] This monitoring question was established in 1999 as part of the Native Species Revegetation Program. No Forest Plan amendment.

Weed Control Projects

Most of our weed treatments this year come from out KV Program (2422 acres) and our annual contract with the Oregon Department of Agriculture (1171 ac). We treated populations of false brome and blackberry using Title 2 funds (approx. 137 ac). Staff at HJ Andrews Experimental Forest are eradicating false brome from their roadsides because invasion into long-term ecological plots is a possibility; they treated approx 150 acres of brome along roadsides this year. Challenge cost-share funds paid for Walama's manual control treatments on McKenzie and Sweet Home Districts (53 acres, 3 stream miles).

Payment to Counties Projects

All Ranger Districts received funding for noxious weed inventory and treatment through the Payment to County Program:

These projects funded:

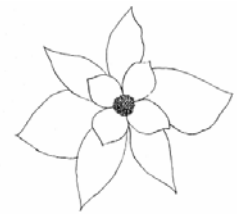
- Invasive plant inventories in five watersheds on the Middle Fork RD totaling 4,500 acres via Title 2-funded contract work, including Buckhead, River Corridor, NFMF Invasive Species, MK/MF False Brome Title 2 Projects)
- Manual control of invasive plants including blackberries, Japanese knotweed, false brome and English ivy in Middle Fork Invasive Species Project area – 27 acres using YCC (20 acres) and contract labor (7 acres)
- Mechanical control of various invasive plants in Buckhead Wildlife Area – 106 acres using contract labor
- Mechanical control of various invasive plants in Middle Fork Invasive Species Project Area– 5 acres using in-house labor
- Chemical control of slender false brome- 142 acres using contract labor
- Noxious Weed control at Wilderness trailheads by YCC students
- Northwest Youth Corps (NWYC)-a week manually controlling blackberry along several miles of road.
- NWYC week on the Detroit District manually removing Scotch broom from the office grounds.
- Five acres of blackberry were mechanically mown with a brush cutter in the vicinity of Camas Prairie.
- Herbicide treatment of false brome on a 22 acre meadow

Prevention

The Forest has been active in implementation of most prevention measures outlined as standards in the Regional EIS (weed prevention in gravel, equipment cleaning clauses). The Forest Botanist has worked with Public Affairs and Recreation Staff to help implement the weed free forage in Wilderness including creating packets for Wilderness Rangers, posting closure orders, and traveling to District Staff meetings to brief co-workers on the EIS and new prevention standards.

Inventory

A huge amount of energy from Forest personnel went into a weed inventory contract because inventories are hard to fund and continued Title 2 funding was uncertain. Hundreds of miles of roadside in the Middle Fork and McKenzie River Districts were surveyed and just as many new weed sites were located. Also inventoried was the shoreline of the Wild and Scenic North Fork of the Middle Fork because spot surveys had documented false brome along the riparian shoreline. The lower Middle Fork Willamette, too brushy to walk, was surveyed via raft. Most of the surveys were funded with Title 2 dollars.



New Monitoring Question: Native Species Revegetation[2]

Is the Forest using native species for re-vegetation purposes for all projects?

The Willamette NF received $ 40,000 of Northwest Forest Plan funding to develop grass seed sources this fiscal year. With these funds we have contracted growout of seed collected by our staff:

1600# California brome

2250# Blue wildrye

1554# Columbia brome

360# California fescue

In addition, we have .5 acre of legumes in production at the Salem BLM's Horning Seed Orchard. Horning Staff grew out plugs of legumes and oversaw contracted planting in 2006. This year the BLM staff CORs a contract to weed and collect seed under and Interagency Agreement. The following are yields from year 1:

Broadleaf lupine- 50 #

Riverbank lupine- 13#

Penstemon- .2#

Big deervetch- .6#

We have used Title 2 funds to conduct extensive collections of native grasses, forbs and shrubs including cascara, blue elderberry, red currant, Indian plum, salmonberry,

thimbleberry, blue wildrye, California fescue, California brome, broadleaf lupine, and big deervetch.

Shrubs will be grown out and planted in habitat restoration project areas. Grass will be used for erosion control and weed competition, mostly along roads but also in meadows.

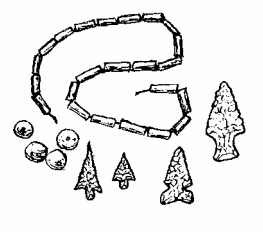
Resources and Services to People

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

Monitoring Question		Monitoring Activities	Monitoring Results	Supplemental Information
Cultural Resources				
2	Cultural Resources	Site visits	Results OK	Heritage FY07 monitoring report
Specially designated unique areas				
3	Wilderness	District reporting, on-site visits by district personnel	Results OK	Recreation FY07 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 FY07 monitoring report
Recreation				
6	ROS	District reporting, on-site visits by district personnel	Results OK	Recreation and Scenic FY07 monitoring report
7	Recreation Visitor Use		No new results until 2008	
8	Scenic Resources		Results OK	
10	Trails	District reporting, site visits	Limited results	Trail FY07 monitoring report
11	Developed Recreation	District reporting, on-site visits by district personnel	Results OK	Recreation FY07 monitoring report
12	Off-road vehicle use		Results OK	
Timber				
22	Timber Suitability	Review of land allocation changes	No new results	Timber Suitability FY07 report
23	Timber Program	Review of timber records	Results OK	Timber records
24	Silvicultural Practices	Review of silvicultural records	Further evaluation	Silvicultural records
Transportation				
38	Transportation System	Reports, databases, traffic counts	Results OK	Transportation FY06 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 approximately 2200 known historic properties - the legal term- which includes archaeological and historic sites, trails, and structures, as well as a multitude and variety of isolated finds and features. The forest is managing and protecting these sites consistent with the Forest Plan direction and law.

During FY07, Heritage staff reported monitoring visits to 60 sites, about 3% of the total inventory. These monitoring visits occurred most often in conjunction with proposed project surveys or as fallow-up to recent projects. About 20% were monitored in conjunction with heritage hikes and projects. Significant new impacts were noted at four sites. Individual impacts noted were generally minor. One site monitoring visit was in response to possible looting in conjunction with metal detectorists' activity, which resulted in a formal damage assessment. One historic structure was struck by a wind-thrown tree, resulting in extensive damage to the roof. Repairs to this structure are expected in 2008. One site was unexpectedly disturbed during site preparation for a revegetation project which improved big game forage. A dendroglyph site is fading away due to natural bark encroachment on the carvings.

Most historic buildings are being maintained to standard, while some which are not actively used are not being well maintained and may be subject to vandalism. A few instances of cumulative impacts were reported, primarily include recreation use (e.g., OHV), road use, erosion, vegetative encroachment, and "benign neglect" (structures). Measures could be taken to avoid more serious continued and cumulative effects. Preservation signing is encouraged at historic buildings and other site areas where public use is concentrated, such as campgrounds. We are working in conjunction with broader forest efforts to curtail access to sensitive resource areas. Protection by avoidance or project redesign is recommended for sites monitored in conjunction with project planning.. Field archaeologists did not report on the success of specific mitigation measures this year.

Consultation with the State Historic Preservation Office (SHPO) continued in FY07 under a Programmatic Agreement for compliance with the National Historic Preservation Act. Improvement continues with consultation with local tribes. Review of a sample of environmental documents indicates consistent consultation with SHPO and improved documentation of consultation with Tribes.

The heritage program staff hosted numerous interpretive talks and hikes, classroom visits and Outdoor school presentation. We also participated in the High Cascades Forest Volunteer training program in May, enlisting several new volunteers as Historic Site Stewards. The Sweet Home RD continues to host the annual Conservation Civilian Corp

alumni picnic, as well as numerous Heritage hikes and an annual Heritage Expedition, 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 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. A permit system is still in place to monitor visitor use in all wildernesses on the Willamette National Forest. Based on data submitted, use levels are within the established limits with some exceptions. These include the Pamelia Lake and Obsidian Cliffs Limited Use Areas, though the limited entry has resulted in improved resource conditions. Use numbers for the Obsidian Limited Area remain stable with some seasonal fluctuations due to field conditions. Also Marion Lake, the Jefferson Park, and the Eight Lakes Basin/Duffy Lake areas will at times exceed use limits. Significant rehabilitation work was completed in the Jeff Park area, using volunteers through Americorps to restore fragile vegetation and re-route visitor traffic to hardened trails. This project will be completed in 2008. These are areas on the Detroit Ranger District and in close proximity to the Portland metropolitan area. Recent fires in the Mt. Jefferson Wilderness are also displacing users into unburned portions of the Wilderness.

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

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. A decision was made to relocate boat launch facilities at Frissell and Bruckart boat launch sites, and to reconstruct the existing boat launch at Paradise Day-Use Area, as analyzed in the Upper McKenzie Boat Launch Projects Environmental Assessment (EA). These actions will improve safety, accommodate the current level of use, and reduce resource impacts. Plans are to relocate Bruckhart boat launch, decommission the existing launch site, and reconstruct the Paradise launch site in 2008. Frissell boat launch relocation is deferred until additional funding is available. 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 2007.

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 2007. 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).

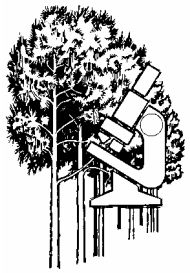
Monitoring Questions 9: Special Interest Areas

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 such as Fall Creek, Hardesty Mountain, and Bradley Lake, but overall area attributes are being protected.

In 1998 the Opal Creek Wilderness and Scenic Recreation Area was created along with the Opal Creek Advisory Council. A comprehensive management plan was completed in 2002 and implementation of the plan is in progress.

Monitoring of Hidden Lake SIA and Terwilliger Hot Springs shows management actions over the past several years aimed at correcting overuse, inappropriate visitor behaviors, and unacceptable resource damage are having positive effects. Social and biological conditions are moving in a direction consistent with the reason the areas was designated an SIA.



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 initiated on the WNF forest this year. The Middle Fork Ranger District has three new volunteer stewards. Their work is coordinated jointly between the Forest's RNA Coordinator and the Middle Fork RNA Coordinator.

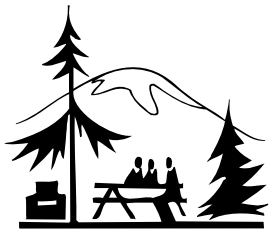
Ridgon Point RNA, which includes the northern limit of knobcone pine, was the location of a prescribed burn in June of 1997. Fire is important to the longterm survival of knobcone pine. Monitoring from our volunteer documented locations within the burn where knobcone was regenerating and sapling were as tall as 10 feet and as low as 4 to 18 inches. Except for the stand of young pines in the experimental burn, significant regeneration of this pine was essentially absent in the locality visited.

Gold Lake Bog RNA was also visited by two volunteers in 2007. They are monitoring recreational use and exploring the bog area by foot and by canoe. Next year they may establish some photo points and visit sensitive plant species. Recreation use between Gold Lake and the RNA was low. The RNA was fairly undisturbed though there were indications of use. Amphibians and small fish were present as well as elk.

He visited Torrey Charlton RNA once.

Given the success of the first summer volunteer stewardship programs plans are beginning to expand the program during the summer of 2008.

On Sweet Home District, the Botanist treated a large population of false brome located directly adjacent to the Middle Santiam RNA in conjunction with ODA.



Recreation

Monitoring Questions 6: Recreation Opportunity Spectrum

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

Standard and Guidelines in Forest Plan manage activities for the removal of resource products and actions taken to accommodate or control human use to reduce their negative affect 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, and recreation areas adjacent to lakes and streams on the McKenzie River RD.

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

Elk Lake, Piety Island and Santiam Flats Campgrounds occasionally exhibit use levels and party sizes or user activities that are inconsistent with the designated ROS setting. Increased Forest Service presence and a variety of management actions were implemented, including designating campsites, installing picnic tables, fire rings and traffic barriers to restrict resource damage. In 2008, use limits will be set for campsites and fees will be charged at Elk Lake and proposed to be implemented at Piety Island. On the Detroit District actions were taken to reduce dispersed camping impacts along the North Santiam River and Marion Creek, including delineating camping and parking areas, and "Respect the River" educational signing and public contacts.

In the Waldo Lake Basin there have been encroachments of snowmobiles in non-motorized areas. However, little evidence was seen of illegal bike use in wilderness areas. A decision was made in 2007 to prohibit use of motorized boats on Waldo Lake, following a two-year transition period to educate visitors. In the Three Sisters, Waldo and Mt. Washington Wildernesses, snowmobile encroachment is on the rise. A decision is also expected in 2008 for the Santiam Pass planning area where unmanaged ORV use is creating resource damage. Social problems include alcohol abuse and loud group gatherings. Increased patrol, enforcement and cleanup of abandoned camps is required.

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 will be available in 2009. Current use figures are largely based on 2002 NVUM numbers. Other use numbers come from wilderness permits, permittee records (ski areas and campgrounds). In 2006, the forest developed a recreation site facility master plan (RSFMP) which will focus the forest's efforts on managing use along the scenic corridors and waterways.

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 do not fully meet the standards set forth in the Forest Plan specific to each trail management class 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. The 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. Additional emphasis has been placed on higher maintenance standards for the recently designated Middle Fork National Recreation Trail, with the help of partners and volunteers.

Trail maintenance limited by funding; trail construction also down.

The November 2006 floods severely impacted Pamelia Lake Trail and the Pacific Crest Trail (PCT) crossing at Milk Creek, leaving behind large boulders, rock and mud deposits. To reopen these popular routes, about 2 miles of trail was relocated or reconstructed in 2007.

New trail construction continued on the North Fork Trail, including bridge construction, utilizing Secure Rural School funding and youth conservation crews. Several trail bridges were reconstructed on the McKenzie River Ranger District utilizing Secure Rural School funding. While 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 by a trail committee comprised of representatives from the Westfir-Oakridge area. The International Mountain Bike Association, in cooperation with forest, local tourism groups and the community trail committee, will complete an MOU to designate Westfir-Oakridge as a mountain bike Ride Center in 2008.

.

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. Other sites are managed 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. Fee increases were implemented at Shady Cove and Trailbridge Campground to help align with operation and maintenance costs, and improve services. A new lookout rental, Gold Butte was brought online and public demand yielded high occupancy rates. Timber Butte Cabin rental will be available for public use in 2008.

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 can be partially addressed as the Forest implements the Recreation Site Facility Master Plan. In 2008, the forest will implement significant Recreation Site Improvement projects, based on the recreation site facility analysis (RSFMP), to reduce critical deferred maintenance at four high priority recreation sites, including water system upgrades at Waldo Lake, and site improvements at Paradise, Gold Lake, Cove Creek and Clark Creek Campgrounds. Secure Rural School funding has allowed 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, Hills Creek. The Recreation Site Facility Master Plan (RSFMP), now referred to as the Recreation Site Facility Analysis, proposed in 2006 that the Forest continues to provide a range of sites and activities, with additional development on the Detroit Ranger District. Reconstruction and/or redesign of Ice Cap, Lakes End, and Trail Bridge Campgrounds associated with the Carmen-Smith Hydropower Project are future proposed actions as a result of the new Carmen-Smith license. A decision to either decommission, or find an adaptive use for the Shady Dell Campground on the Middle Fork Ranger District is expected in 2008.

Monitoring Questions 12: Off-road vehicle use

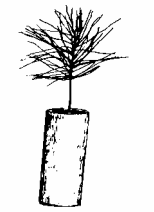
Are ORV opportunities providing a quality experience to the customers, ensuring their safety, and the safety of the general public? Are conflicts being minimized between users, with wildlife (and their habitat), and is resource damage being minimized – in areas that are suitable for each appropriate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

Trails and roads will be designated for OHV use.

The Forest has begun its comprehensive assessment of OHV use on the Forest. Culminating in 2009, trails and roads will be designated for OHV use; the remainder of the Forest will be closed to OHV use. This is part of a nationwide effort to manage OHV use and reduce resource damage and user conflict. On the Forest, pockets of use show signs of resource damage, particularly around existing dispersed recreation

sites and near adjacent private lands. A decision was made in 2007 to expand the Huckleberry Flats Trail, on the Middle Fork Ranger District by 30 miles, using primarily existing trails, roads and skid roads. A decision for the Santiam Pass Area located on the McKenzie Ranger District is expected in 2008. Snowmobile incursions into the Three Sisters and Mt. Washington Wilderness areas continue to be an issue despite enhanced wilderness boundary signing and patrolling. Enhanced wilderness boundary signing was added on the Taylor Burn Road within the Waldo Lake Wilderness.

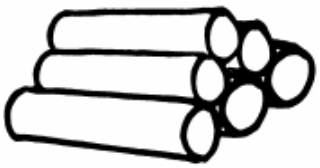
Timber



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?

Starting in FY'06, target accomplishment shifted from "volume offered" to "volume awarded". In 2007 the Willamette NF assigned target was 79.7 mmbf. Total volume awarded in FY2007 was 74.3 mmbf. This included 71.5 mmbf. offered through advertisement in the newspaper, and any product that could be converted and measured in board feet such as firewood, posts, poles, and so on. These "convertible" type products are often sold without advertisement. Of the volume awarded in FY'07, 3.41 mmbf was awarded from sales previously offered in prior years. This volume was utilized to replace volume currently under contract but enjoined as a result of litigation. Less than 4% of the awarded volume came from salvage sales. Approximately 4 mmbf offered in FY'07 received no bids. Market down turns and projected operational costs (especially fuel) contributed to the "no bid" situation. These amounts are all included in meeting our PSQ levels. FY'07 offer amounted to 64% of the PSQ with FY'07 award being 66%.

The majority of the timber harvesting program in the past few years, including FY 2007 has been in the general forest (MA 14) and matrix land allocations. However, since commercial thinning has become the predominate 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 30 to 40 percent of the total acres thinned in a project area have been in parts of the riparian reserve. Several timber sale projects have also focused exclusively on thinning in the late successional reserves to accelerate the development of late successional habitat characteristics.

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 of 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 resources values", to the extent necessary to ensure a variety of resource protection.

Directional falling is a common design element and contract requirement where specific resource protection is identified.

Monitoring Question 24: Silvicultural Practices

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

Answering the question above involves looking at stocking levels, growth responses, fertilization accomplishments, use of growing stock, insect and disease on the forest.

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. Fertilizer when applied results in an overall increase of 8% towards culmination of mean annual increament (CMAI)[2]. The forest is moving away from fertilization due to the high cost of fertilizer, which negates the economic benefit of the increased growth.

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 884 acres reported as being harvested using a stand regeneration harvest method in FY 2002. Of these, 874 acres were reported as being certified as reforested, and the remaining acres are satisfactorily stocked but not yet certified. The data source for this information is the Stand Tracking Database the FACTS database and the VEGIS database. Stocking is being established and maintained at the recommended levels and within the required time.

[2] Willamette National Forest, 1985. Land and Resource Management Planning. Timber Yield Tables. Eugene, Oregon.

Reforestation by tree planting occurred on 1142 acres. A large portion of the need for reforestation was created by wildfire, particularly the Clark and B&B fires. Related to reforestation needs planned clearcuts are much smaller than the maximum limits set forth in the Forest Plan..

Timber Stand Improvement (TSI) accomplishments of thinning, release, and fertilization totaled 8340 acres. Accomplishments are about half of the amount predicted in the Forest plan. A significant backlog of plantations in need of thinning is building on the Forest.

Monitoring of insect and disease activity on the forest is completed each year. In 2007 bear damage was common throughout the forest, and was noted as high North of Lookout Point reservoir and north of Christy Flats. There are endemic levels of fir engraver and Douglas-fir bark beetle at levels that are considered to be normal.

Transportation

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 2007 and only 60 miles of road reconstruction (see table below). This falls far below estimations in the Forest Plan of 40 miles and 174 miles, respectively.

Timber related road use and road maintenance budgets have fallen significantly during the last fifteen years. As a result the Forest has not had the means or ability to maintain its road system. 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 predicted when the Forest Plan was completed. 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 increased which is now 13 % above the threshold of variability for roads suitable for high clearance vehicles.

STATUS OF THE FOREST'S TRANSPORTATION SYSTEM FOR FY2007

Road Construction and Reconstruction		Miles of road removed	
Miles of road constructed	0.0	Miles of road decommissioned	0.0
Miles of road reconstructed	60.0		
Road Suitability		**Traffic volumes**	
		Traffic volumes were not monitored in FY07	
Roads Suitable for Passenger Cars	569		
Roads Suitable for High Clearance Vehicles	5,099	**Key Watersheds**	
Closed Roads	890		
Total Miles	6,558		
		Miles of new roads constructed	0.0

Though much of the road system is not at the levels predicted in the Forest Plan and the threshold (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
Economic & Social			
41 Economic & Social	Review of economic reports, agency policies, and public contacts	Results OK	Economic and Social FY07 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 FY07 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 2007.

Travel management efforts highlight how important national forest system lands are to the recreating public. Some of the most spirited public meetings hosted by forest staffs across the nationa are those focused on travel management. The end result, a system of designated routes, gives some level of certainty to recreation users whether hunting, fishing, ATV'ing, mountain biking, hiking, bird watching, geo-caching, etc. It also ensures protection of resources with sustainable use. By November of 2009, the Willamette National Forest will publish a Motor Vehicle Use Map (MVUM) designating roads, trails, and areas open to motor vehicle use by class of vehicle and if appropriate, by time of year.

FISCAL YEAR 2007 FINAL EXPENDITURES

Description	FY07[1]
Facilities Capital Improvs & Mtce.	4,159,663
Flood Activities	0
Forest Products	6,749,515
General Administration	0
Grazing Management	171,823
Knutson/Vandenburg Funds [1]	5,064,775
Land Management Planning Activities	76,264
Landownership Management	1,336,297
Law Enforcement	0
Minerals and Geology Management	201,256
Recreation/Heritage/Wilderness	1,285,928
Road Capital Improvs & Mtce.	1,043,663
Senior Program	6,541
State and Private Forestry	7,000
Trails Capital Improvs & Mtce.	427,290
Vegetation and Watershed Management	732,329
Wildland Fire Management	5,068,480
Wildlife and Fisheries Habitat Management	938,997
TOTAL	**33,099,339**

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

Forest Receipts	Payments to States	
	Fiscal Year 2007	$40,502,794[1]
Fiscal Year 2007 Receipts…..… 6,010,590	[1]Based on Title I, Title II, Title III funds identified in Secure Rural School and Community Self-Determination Act of 2000.	
	County Breakdown	
	Clackamas	$12,332
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.	Douglas	$1,254,684
	Jefferson	$ 3,240
	Lane	$24,991,150
	Linn	$11,369,505
	Marion	$2,871,892

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 2006 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

Monitoring Question 1: Standards & Guidelines

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

A Forest Supervisor monitoring team visited four projects in 2007. The results and findings of each monitoring trip were documented and used to generate communication between district 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 clarification to the Forest Plan standard and guidelines. The projects to be monitored may be from any resource program area. Criteria for projects are those planned 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.

Project implementation and documentation is checked for consistency with current direction.

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 as well as 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.

Forest Supervisor Reviews

Results from the Forst Supervisors Reviews are summarized in the table below.

Project Name and Type	Findings – Consistent with Forest Plan	Findings – Not consistent with Forest Plan	Comments
Parks Overstory Removal Timber Sale (regeneration timber harvest)	• Slash treatment • Green tree retention • Riparian Reserves • Survey & Manage • Road closures • Soils protection	None	More attention to timing & sequencing of post-sale projects Better signing of road closures Verify mitigation and enhancement needs after the timber sale
Chuckle Springs & Middle Fork Willamette R fish habitat enhancement (spawning gravel and large wood augmentation)	• Gravel source (washed & weed-free) • Log source (off-site, NEPA covered) • Seasonal operating restrictions for wildlife and water quality • Recreation user safety • Fish use monitoring • Restoration guided by and consistent with watershed analysis	None	Need to ensure all project operations involving helicopters meets FS safety protocols, employees or contractors Consider Forest watershed priority setting exercise when developing next round of restoration work & strategy

Project Name and Type	Findings – Consistent with Forest Plan	Findings – Not consistent with Forest Plan	Comments
Bunchgrass Meadow Restoration (vegetation removal and prescribed burning)	• Soils impacts • Roads (no roads) • Meets Management Area goals & objectives • Commercial harvest meets MA S&Gs • Wildlife objectives	Visual quality objective – uncertain if high VQO is appropriate for this area, could consider plan amendment, provide rationale in documentation for not meeting VQO	Good research & management partnership on the project Need to evaluate restoration projects at landscape scale, will project create the desired effect at a large enough scale? Project was in Inventoried Roadless Area, consistent with 2001 Roadless Rule
Upper Arm Day-Use Area (developed recreation area development and improvements)	• Visual quality objectives • Seasonal restrictions for wildlife • Invasive plants measures • Consistent with Management Area S&Gs • Project follows recommendations from Watershed Analysis	None	Good example of using Watershed Analysis recommendations to improve resource protection and meet recreation user needs

Evaluation and Recommended Actions

This section of the monitoring report was traditionally reserved for Recommended Action items applied to the Forest Plan. Recommended Actions items are developed as a result of our monitoring efforts over the year. This section proved to be invaluable source for progress during the first several years of plan implementation. Recommended Action items resulted in the correction, where needed, of estimates in the Forest Plan, changes to management practices as needed to comply with the Forest Plan, clarifications to the Forest Plan, and many other adjustments including amendments to the Forest Plan.

CONTENTS

The Forest has been implementing the Forest Plan since 1990. The Forest personnel routinely apply all standards and guidelines (S&Gs). In review of this Monitoring Report, we did not note areas that needed attention that could be accomplished with a Recommended Action item. This is not to say improvements to the Forest Plan are no longer needed. Many changes are needed, but primarily due to the Plan's age, this would result in recommendations that cannot be completed within a year or two (the expected timeline for results from Recommended Action items).

The Forest IDT agreed that a better use of limited resources is to focus on Forest Plan revision, scheduled to begin in FY2011. Some recommended actions are new and identified this year. Items that will be our focus will include:

- Establish a priority system for trail funding.
- Incorporate updated deer and elk habitat modeling based on upcoming research.
- Develop a scientifically credible process to determine a Natural Range of Variation by plant association.
- Conduct a retrospective evaluation of all past Monitoring Reports to identify trends developed in resource areas that will need attention in the Forest Plan revision. Past reports will also highlight issues best addressed with a holistic view of long-range forestwide plan

The Forest will continue to monitor and identify areas that can be improved without the need for a Plan revision.

The following actions are recommended to begin before or during Forest Plan Revision.

Trails

Establish a priority system for trail 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 except on a limited number of trails. Trails that do receive maintenance are normally restricted to one visit a year, usually in the summer.

With funding continuing to decline efforts will continue to utilize Recreation Pass receipts and Secure Rural School funding, however, a program review is needed.

Elk Habitat

Incorporate updated habitat modeling into effects analysis based on upcoming research.

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).

The Forest Service recognizes that recent research and shifting environmental conditions have changed the management emphasis for deer and elk. New research results show an increase emphasis on forage quality is needed in light of the cessation of clearcutting New results from updated habitat modeling will be incorporated into the effects analysis when available and will be considered when the Forest Plan is revised.

Natural Range of Variation

Develop a scientifically credible process to determine a Natural Range of Variation by plant association.

The 2005 planning regulations for the US Forest Service addresses assessment of range of variation in ecosystem component characteristics and disturbance regimes, comparison to current conditions, and developing status of ecosystem diversity (FSH1909.12, Ch.40, section 43). Procedures for these assessments are being developed as more national forests complete plan revisions under the new regulations. These assessments are anticipated at the subregional level, and will require analyses that go beyond a single national forest boundary.

Formal assessment to answer MQ 40.1 will take place during plan revision. Given the modest scale of timber harvest under the current plan and budget levels, it appears unlikely that a catastrophic loss in plant association group/seral stage biodiversity is occurring.

Monitoring Plan Study

Conduct a retrospective evaluation of all past Monitoring Reports to identify trends developed in resource areas that will need attention in the Forest Plan revision.

Forest Plan Revision has been rescheduled for 2011. This monitoring study is designed to inform Forest Plan Revision team of needed changes to the current Forest Plan. A study like this is best completed approximately 1 year before revision and so has been rescheduled to 1 to 2 years before Forest Plan Revision.

Accomplishments

The following table compares the actual accomplishment of selected Forest Plan objectives during the fiscal year 2006 (FY06), October 2005 through September 2006) 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 2007 Accomplishment		Cumulative Avg. Accomplishment [1]	
		Units	Units	%	Units	%
RECREATION AND WILDERNESS						
National Forest Visits	Visits	--	1,575,000.0	Projected recreation estimates made in the Forest Plan no longer apply. Methods and units for measuring recreation use have changed substantially. The units reported represent 2004. Next reporting year 2009.		
Site Visits	Visits	--	2,201,000.0			
Wilderness Recreation Use	Visits	--	50,500.0			
Trail Construction/Reconstruction	Miles	78.0	2.0	8%	20.6	26%
Developed Recreation Construction	PAOT	327.0	--	--	--	--
Developed Recreation Reconstruction	PAOT	844.0	--	--	--	--
TIMBER MANAGEMENT						
Timber Sale Program	MMBF	136.0	57.1	42%	50.1	37%
Timber Harvest Treatments						
Regeneration Harvest	Acres	3,144.0	0.0	0%	393.0	13%
Commercial Thins	Acres	2,808.0	2,006.0	71%	1,508.2	54%
Other	Acres	--	18.0	0%	364.7	--
Timber Stand Improvement	Acres	18,100.0	8,340.0	46%	9,263.0	51%
Reforestation	Acres	3,144.0	1,167.0	37%	1,409.0	45%
Fuel (Slash) Treatment	Acres	3,144.0	3,893.0	132%	1,591.7	54%
ROAD MANAGEMENT						
Road Construction	Miles	40.0	0.0	0%	3.8	10%
Road Reconstruction	Miles	174.0	60.0	34%	109.8	63%
Roads Closed	Miles	890.0	890.0	100%	818.3	92%
Roads Suitable for Passenger Car	Miles	1,580.0	569.7	36%	1,492.6	94%
Roads Suitable for High Clearance Vehicles	Miles	4,530.0	5,099.4	113%	4,563.5	101%
FISH/ WATER/ WILDLIFE/ LIVESTOCK						
Watershed Improvement	Acres	533.0	213.0	40%	427.9	80%
Anadromous/Inland Fish Habitat Improvements	Miles	12.0	60.0	508%	16.4	139%
Wildlife Habitat Improvements	Structures	451.0	--	Projected wildlife estimates are no longer measured ini structures but in acres. For tracking purposes we will report in acres.		
	Acres	--	1,963.0			
Livestock Grazing (AUMs)	AUMs	200.0	0	0%	65.6	33%

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.

[1] Cumulative Average Accomplishment is reflective of the average since the Forest Plan was implemented. Timber management numbers are an exception. The accomplishment is 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.

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 nonsignificant 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	08/05/1991	Corrects errors and omissions in Forest Plan (errata).
4	08/05/1991	Requires roadside brush management methods be consistent with scenic resource needs and allows machine mowing.
5	08/05/1991	Corrects mapping error in boundary of Diamond Peak Wilderness.
6	08/05/1991	Changes and clarifies direction about retention of downed wood to better meet functional and operational objectives.
7	03/22/1992	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.
8	03/22/1992	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.

FOREST PLAN AMENDMENTS, continued

Amendment	Implementation Date	Type of Change
9	02/20/1992	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	03/14/1992	Changes about 67 acres in Spring Butte area (Rigdon) from General Forest (MA-14a) to Special Habitat Area (MA-9d).
11	03/14/1992	Changes about 65 acres in Beaver Marsh area (Rigdon) from Special Interest Area (MA-5a) to Special Habitat Area (MA-9d).
12	04/04/1992	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	07/29/1992	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	07/29/1992	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	07/06/1992	Adds standard and guideline MA-1-20a to clarify that the visual quality objective for wilderness is Preservation, and deletes FW-059.
16	07/29/1992	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	02/17/1993	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	02/17/1993	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	06/02/1993	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.
20	05/17/1993	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.

FOREST PLAN AMENDMENTS, continued

Amendment	Implementation Date	Type of Change
21	06/23/1993	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	01/05/1994	Establishes the Forest's Special Forest Products Management Plan, including implementing direction through several new Forest-wide S&Gs.
	05/20/1994	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	09/29/1994	Changes 1/2-acre in the Westfir area from Scenic-Partial Retention (MA-11c) to Special Use-Permits (MA-13a).
25	05/26/1995	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	05/17/1995	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	06/22/1995	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	01/12/1996	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	04/17/1996	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	05/15/1996	Established the Rigdon Point RNA.
32	09/04/1996	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.

FOREST PLAN AMENDMENTS, continued

Amendment	Implementation Date	Type of Change
33	01/23/1997	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	01/23/1998	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	07/08/1997	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	05/19/1997	Assigns initial allocations for about 2,180 acres of acquired lands located on Detroit and Sweet Home Ranger Districts.
38	01/21/1998	Changes management emphasis to provide for a proposed action to build a replica fire lookout station museum on the Lowell Ranger District.
39	06/01/1998	Establishes two new communication sites on the Sweet Home Ranger District. The development involves less than 1/4 acre.
40	07/13/1998	Establishes the 2,877 acre Torrey-Charlton Research Natural Area (RNA). The RNA spans over both the Willamette and Deschutes National Forests.
41	08/24/1998	Establishes two new communication sites on the Detroit Ranger District. The development involves less than 1/4 acre.
42	08/30/1999	Allows the Forest to continue a program of noxious weed treatment based on the type of infection.
43	02/15/2000	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	06/16/2004	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	08/22/2006	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.

FOREST PLAN AMENDMENTS, continued

Amendment	Implementation Date	Type of Change
47	04/16/2007	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	06/25/2007	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	08/31/2007	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.

Forest Plan Updates

Forest 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.

There have been eight updates to the Forest Plan:

FOREST PLAN UPDATES

Update	Implementation Date	Type of Change
1	07/06/1993	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.
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.

FOREST PLAN UPDATES

Update	Implementation Date	Type of Change
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	01/23/1997	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	08/31/1998	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	04/03/2000	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.
9	04/09/2001	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	06/21/2006	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.

List of Contributors

FHe principal contributors to the 2006 Monitoring and Evaluation Report are listed below. Please contact one of us if you have questions or want further information abut the reported results.

Johan Hogervorst	*Hydrologist*
Jeff Trejo	*Timber Staff*
Joe Doerr	*Wildlife Biologist*
Doris Tai	*Recreation Staff / Wilderness*
Jennifer Lippert	*Botanist*
Neal Forrester	*Interdisciplinary Team Leader*
Stacey Smith	*Recreation*
Norm Michaels	*Silviculturist*
Cathy Lindberg	*Archeologist*
Cindy McCain	*Ecologist*
Phil McCulley	*Fire and Fuels*
Allison Reger	*Analyst (Economics)*
Judy McHugh	*Public Affairs Specialist*
Nikki Swanson	*Fisheries Biologist*
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.

r6-will-006-08