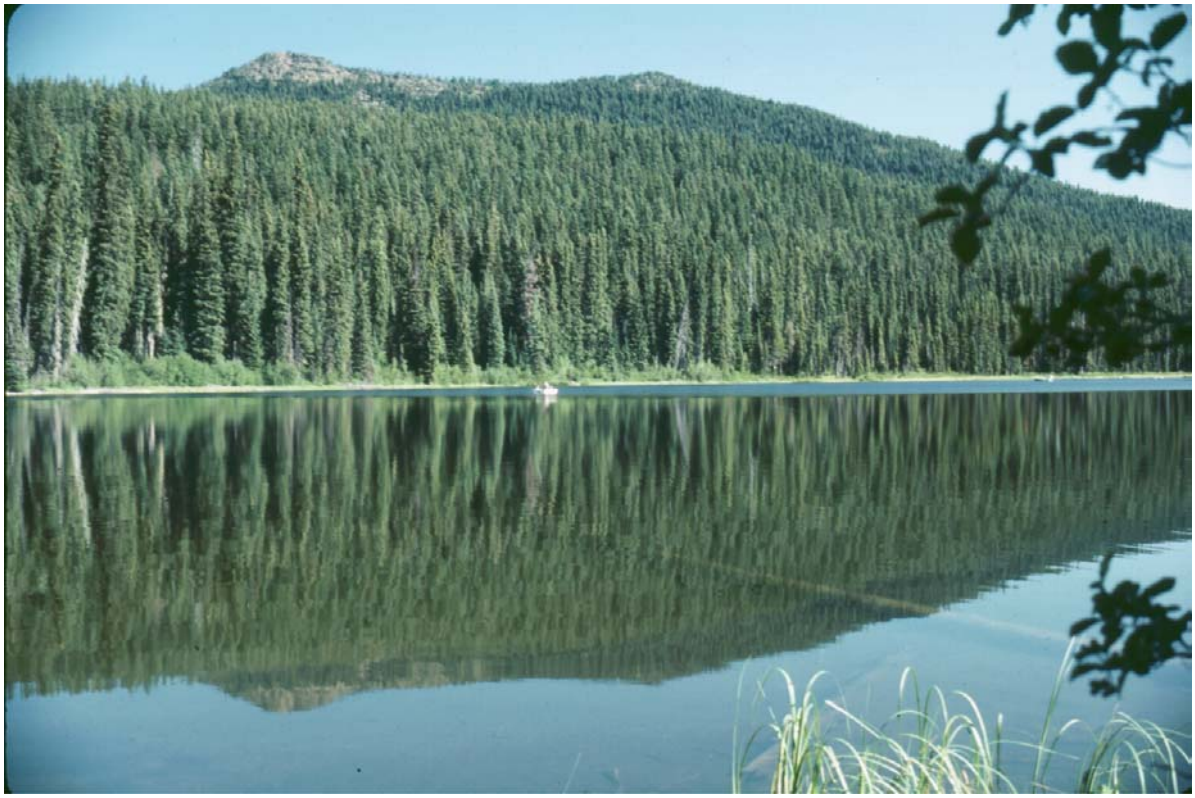
United States
Department of
Agriculture
Forest
Service

**Pacific
Northwest
Region**

Monitoring and Evaluation Report

Willamette National Forest

Fiscal Year 2006



*Gold Lake on the Middle Fork Ranger District,
Willamette National Forest*

May, 2007

I am pleased to present the Willamette National Forest's 16th Annual Monitoring and Evaluation Report for your review.

The climate in which we began implementing the Forest Land and Resource Management Plan (LRMP), in 1991, has changed considerably. The largest change occurred in 1994 when the Northwest Forest Plan amended our LRMP by establishing new land allocations.

The Forest Plan is a dynamic document, designed to adapt to changing circumstances. I am proud to say that the Forest has kept its promise to change as the world changes in order to keep our plan fresh and responsive. The Willamette is currently scheduled to begin Forest Plan revision in 2011.

Until we begin Plan revision, it is my commitment to keep you informed of the results of monitoring through this report; however if you would like more information, feel free to contact the Forest or visit our website at www.fs.fed.us/r6/willamette.

Your continued interest in the Forest Plan is just one way for you to stay current with activities on your public lands.

Sincerely,

DALLAS J. EMCH
Forest Supervisor
Willamette National Forest

r6-will-008-07

MONITORING AND EVALUATION REPORT

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

If you would like an additional copy of this report contact Judy McHugh (541 225-6305) or write to: Willamette National Forest; 211 E. 7th Ave ; Eugene, OR 97401.

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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 FY06 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.

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

PHYSICAL RESOURCES SUMMARY FINDINGS

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	Engineering FY06 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 FY06 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 101 sites during FY06. About one half 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 half includes monitoring related to specific forest management or restoration projects associated with species listed under the Endangered Species Act.

Of the 101 sites measured for temperature, 26 showed a 7-day average maxiumum temperature exceeding 64 degrees, the summer water temperature standard established by Oregon Department of Environmental Quality (ODEQ). These maximum water temperature conditions all occurred in the last 2 weeks of July, which is typical of past summer water temperature monitoring on the Willamette National Forest. 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 water temperature. As part of this effort, implementation plans are being developed that outline how ongoing stream restoration and riparian forest management will address critical riparian shading needed to protect surface water temperature 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.

Assisting Army Corps of Engineers in the operation of a temperature control tower at Cougar Reservoir

Also in 2006, the Forest assisted the Army Corps of Engineers (ACOE) with the operation of the Cougar Reservoir temperature control tower by taking temperature profiles once per month between May and September, 2006. The temperature control tower was built by ACOE to better regulate water temperatures, accommodating both bull trout rearing and spring Chinook spawning in the South Fork of the McKenzie River. Both species are listed under the Endangered Species Act. Vertical profiles measured water temperature at each depth along with turbidity, dissolved oxygen, pH, and specific conductivity.

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 2006 as part of planning for the Bruckart Boat Ramp relocation on the main stem McKenzie River. This boat ramp is being moved to a new location for better public safety and less long-term resource damage. Hand sampling of turbidity helped District personnel to determine what effects short term turbidity may have on ESA listed fish in this area.

Personnel on the Santiam River Zone at the north end of the Forest maintain close communication with the City of Salem during storm events that have potential to cause turbidity in the city's municipal water supply. USGS websites are tracked during winter storms, and when turbidity in certain rivers rise to levels that may affect the city's drinking water, Forest personnel do field reconnaissance to find the source of this turbidity and report back to the city of Salem. One such occurrence in November, 2006, was a large naturally occurring landslide that came out of the Mt. Jefferson Wilderness, down Pamelia Creek and into the North Fork Santiam River, which required reconnaissance and close communication between the Forest and the City of Salem.

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 two timber sales using the Aggregate Recovery Percent methodology. In each case, this modeling showed that peak flows would not be deleteriously affected by timber harvest.

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 2006 included long-term monitoring of Waldo Lake, and toxic blue-green algae monitoring of high use areas on several reservoirs and lakes on the Forest.

The Willamette National Forest contracted with Cascade Research Group to perform three monitoring trips to Waldo Lake in 2006 as part of the long-term monitoring program for the lake. Chemical and biological samples and data were collected on three

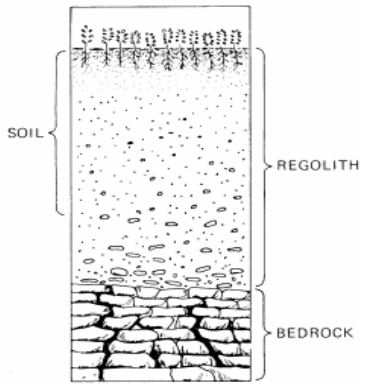
dates: July 17, August 21, and September 24. In addition, under an agreement with Portland State University, lake water temperature data was collected from instruments that recorded temperatures at various depths from two locations. This information will be used to develop and calibrate a model of the thermal characteristics of the lake. Forest personnel continued to monitor lake outflow and weather data for the development of a water quality model and completion of the water balance and hydrodynamic models.

For 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, and wilderness rangers were given training on how to spot algal blooms in the hundreds of wilderness lakes on the Forest.

In cooperation with the Oregon Department of Health Services, there were two health advisories posted on the Forest in 2006 related to toxic blue-green algae blooms, both on Hills Creek Reservoir. The first occurred between June 2nd and June 23rd, 2006, and was the largest bloom on record for the Forest, covering most of the lake. A second bloom was posted in the Larison Cove Canoe Area starting on July 18 and the public health advisory posting remained up for the remainder of the summer. This second bloom was more typical of those usually listed on this lake, occupying one cove or upper arm of the lake as opposed to what was seen in June on the whole lake.

The Puzzle Fire occurred in the Mt. Jefferson Wilderness in August/September, 2006. Runoff from this fire may have potential to affect nutrient levels in Marion Lake downstream and will be monitored closely in subsequent years.

Soil Productivity



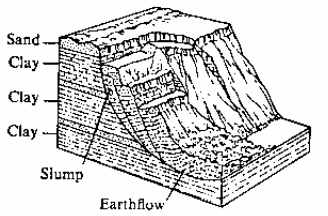
Monitoring Questions 33 & 34: Soil Productivity and Mass Movement

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 centered around limiting the extent of compaction and displacement related to the use of ground-based equipment on forest soils. 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. Transect monitoring accomplished by the Forest geologist on units of the Shore Nuf, Sten, and Kinkoe Timber Sales in 2006 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 5 to 13%, well below the Forest Plan standard of 20%.

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?

Mass movements on potential highly unstable landtypes, where land management activities have occurred, were monitored either visually or through electronic and/or mechanical instrumentation. The sites were divided into five categories based on type of management. A detailed report from this annual monitoring is available. Conclusions from 2006 monitoring include:

- Temporary spurs tributary to Rd 1926 were evaluated with respect to adequate "winterization." The spurs are currently stable but will be winterized.

Efforts to minimized mass movement have been effective.

- Current practices for site-specific slope stabilization and post-stabilization mitigation have been effective.
- Current practices for road maintenance are effective in eliminating, reducing or mitigating existing mass movements as well as preventing new slope movement.

In preparation for multiple timber sales out of the Christy Basin area and Capital Investment money, Rd 19 was intensively inventoried and a multi-year plan developed to distribute maintenance activities over these multiple funding sources. This effort is in its third year and has already had a noticeable effect on reducing the potential for impacts from overtopped or plugged culverts.

- Decommissioning projects have been effective. Projects on actively unstable landforms have not increased or decreased the rate of movement. Decommissioning projects on steep, rocky landforms have been effective by not allowing an accumulation of water that could result in a fill failure.
- The large active earthflows that were monitored in 2006 have continued to move, but not at an increased rate compared to the previous year. No management activities have occurred on these landforms for a number of years.

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 2006, at no time were thresholds of variability for air quality exceeded while prescribed burning on the Forest nor were their 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 2006. 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. 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.

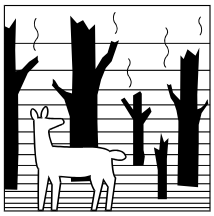
Air pollution monitoring using lichens continues on the Forest.

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

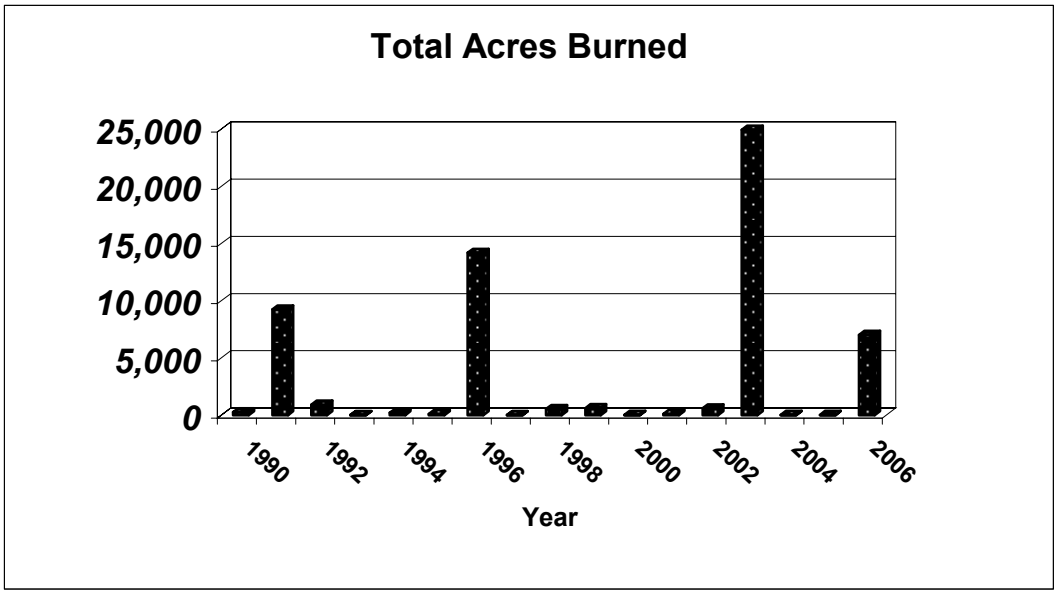
Are the acres burned by wildfire within the levels considered in the plan?

There was a total of 65 acres burned stemming from 111 fires in FY06 in non-wilderness areas. As compared with 6,938 acres from 52 fires in the wilderness. As illustrated by the graph below, this fiscal year continues to depict the high degree of variability among fire patterns across the Forest.

Willamette National Forest had an extremely active fire year, with a 20% above normal fire occurrence. This was due to 5 separate lightning episodes. The first episode was in late May and the fifth was in late August. The most significant episode was on August 8, when over 60 fires were suppressed in less-then a one week period.

The two largest fires: the lightning caused, Lake George fire, driven by an East wind, burned from the Deschutes National Forest on to the Willamette National Forest, consuming 550 acres in the Mt. Washington Wilderness area; and, Puzzle fire, undetermined cause, burned 6,340 acres in the Mt. Jefferson Wilderness.

The 2006 fire season ended abruptly on October 16, 2006 when the Willamette National Forest received significant rainfall in the Cascades.



Monitoring Question 37: Fuels treatment

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

The Forest completed 2,885 acres of fuel treatment or 97% of the 2,956 acres of fuel treatment predicted in the Forest Plan. These acres were treated as a direct result of management activities on the forest. With an increasing harvest level, the future outlook is for a continuing upward trend in fuels activities on the Forest.

The Forest is now starting to treat hazardous fuels not created as the result of management but would otherwise increase fire danger. These acres are separated into acres near communities, also called "wildland urban interface (WUI), or acres outside these populated areas. The Forest treatment of acres inside the WUI and outside the WUI were undetermined at the time of this reports publication.

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 ecological indicator species are monitored for species viability. Below is a summary of FY06 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".

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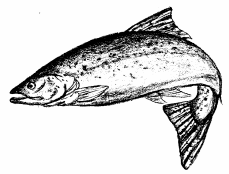
BIOLOGICAL RESOURCES SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Fish Populations			
13 Fish Populations	River monitoring, field observations	Results OK	Fish FY06 Monitoring Report
Habitat Diversity			
14 Aquatic Habitat	Field evaluations	Results OK	Fish FY06 Monitoring Report
28, 31 Riparian & Wetlands	No formal monitoring in 2006	No new results	
40 Biological Diversity	Forest accomplishments	No new results	Ecology FY06 monitoring report
Wildlife			
15 Bald Eagle	District surveys	Results OK	Wildlife FY06 monitoring report
18 Perigrine Falcon	District surveys	Results OK	
19 Primary Cavity Excavators	District surveys	Results OK	
20 Marten & Pileated Woodpecker	None	No new results	
21 Deer & Elk	District surveys	Results OK	
Plants			
16 TE&S Plants	Forest and district records and field activities	Results OK	Botany FY06 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. Today, many of the major tributaries continue to receive more adult salmon then they historically held. For example, records show that Fall Creek historically maintained a spring Chinook run size of around 300 to 500 adults before the dam was constructed. In recent years Fall Creek has had between 800 and 2700 adults transported around the dam. Smolts produced 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 2006, ODFW, U.S. Army Corps of Engineers and the Forest Service successfully implemented improved methods of outplant holding and transportation that increased the survival rate of adult salmon. More studies will be conducted in 2007 to determine what means are necessary to further increase production.

Bull trout habitat: In 2006 we observed at least 17 adult bull trout returning to spawning areas of the Middle Fork Willamette. At least four bull trout redds were documented in the Middle Fork Willamette and tributaries. These are the first verified redds and adult bull trout to return in at least 15 years. The population is increasing 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 2006 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. The Forest Service works in conjunction with ODFW on nearly all bull trout and salmon related research projects.

Bull trout habitat on the Middle Fork Willamette River is improving each year with numerous habitat enhancement projects. In the last few years the Forest has completed several instream restoration projects to increase spawning habitat in areas used by bull trout. In 2006 over 700 logs were placed at numerous sites frequented by bull trout. We are preparing to place another 600 logs to create or enhance several more miles of habitat. Work is also being completed to replace an impassable culvert at Indigo Springs. By replacing this culvert, bull trout will regain access to prime spawning habitat in the upper Indigo Springs area.

Bull trout populations: In 2006 we observed at least 17 adult bull trout returning to spawning areas of the Middle Fork Willamette. These are the first verified adults to return in at least 15 years. The population is increasing and is expected to maintain that trend for the next several years as new age classes begin to mature. Juveniles are still present in all release areas however no fry transfers occurred in 2006. The bull trout Working Group is currently working out details with US Fish and Wildlife Service to transfer fry in 2007. Rearing fry in a hatchery setting is a discussion topic for 2007 as well.

In 2006, adult bull trout appear to be more common in the Middle Fork Willamette. Each year the Forest Service and ODFW see numerous adult bull trout migrating upstream in the Middle Fork Willamette River. Additional reports are also common from fishermen during spawning season.

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. Project objectives of the Cougar Temperature Control Project in the South Fork McKenzie River were to improve salmon (and bull trout) production downstream of Cougar Dam.

Survival rates through Cougar Dam disappointing.

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, unpublished results, November 2006), 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 destined spring Chinook

(currently hauled from McKenzie Salmon Hatchery) and their offspring, and bull trout.

The USFS is planning a fourth channel restoration/wood placement project in the South Fork McKenzie River and Roaring River to address restoration of spring Chinook and bull trout rearing habitat needs (side channel habitat). Following completion of restoration actions, the project will conduct effectiveness monitoring of the project with habitat and large wood surveys, which will help in answering the question of land management effects on Chinook and bull trout habitat availability. ODFW and ACOE will monitor spring Chinook salmon production above and below Cougar Dam in 2007 and future years, and that data will be useful in answering the same question.

Bull trout habitat: Recent declines in McKenzie River population bull trout are not attributable to modification or degradation of habitat critical to bull trout. Frequent spawning surveys, temperature monitoring and snorkel surveys provide continuous the direction of improving.

Partnerships and natual events work to restore large woody material to several streams 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 by creating log complexes in an area that was salvaged following the 1964 flood. A recent windstorm in December 2006 has added large woody material to the upper McKenzie River. The new material has not yet been inventoried but is expected to result in further improvement of spawning, rearing and foraging habitat for bull trout and spring Chinook upstream of Trail Bridge Dam.

The McKenzie River Ranger District conducted habitat improvement projects in cooperation with Eugene Water & Electric Board within Trail Bridge Reservoir. Brush bundles were placed near the margins and on the reservoir bottom to provide cover habitat for juvenile bull trout. The same partnership implemented a project downstream of Trail Bridge Dam that included improvement of conditions in a man-made spawning channel utilized by rearing bull trout juveniles.

Bull trout migration routes, rearing and foraging habitat will be improved in a project in the planning phase in South Fork McKenzie River. Approximately 8.5 miles of upper South Fork McKenzie and Roaring Rivers will be enhanced through addition of large woody material and closure of vehicle access to dispersed recreation sites along Forest Road 19. Project implementation is planned for 2007. Restoration of McKenzie River side channels (bull trout rearing and foraging habitat) are in the analysis stage and are slated for implementation during 2008.

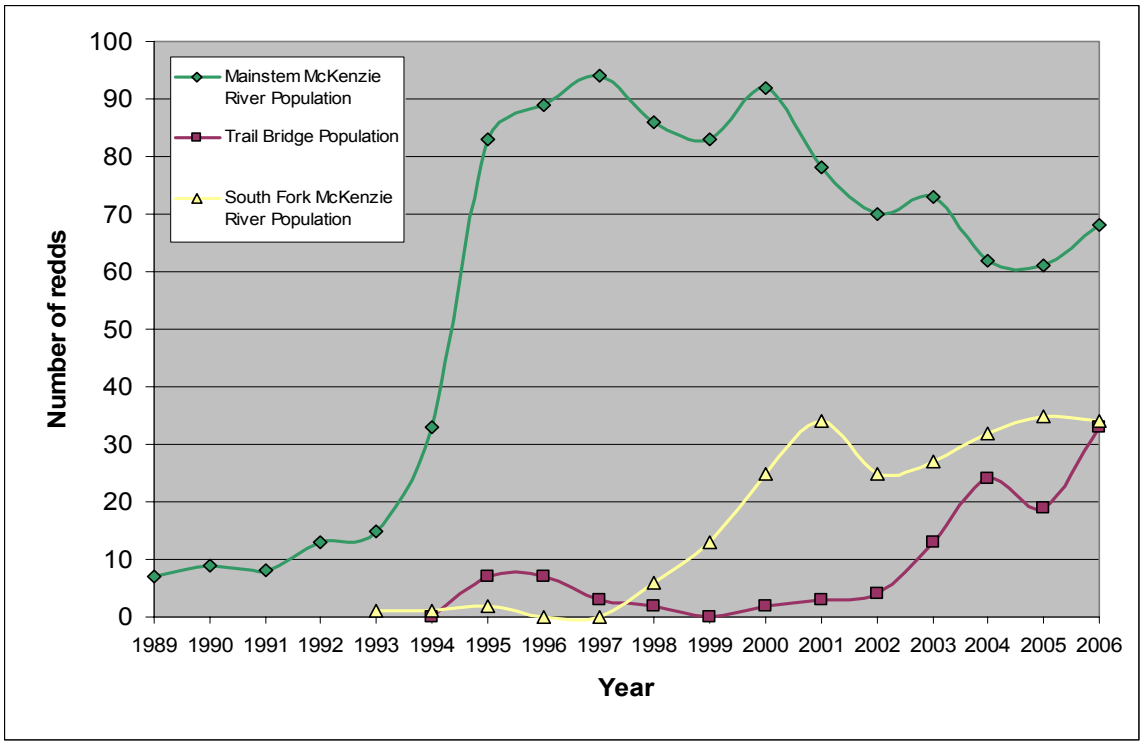
Bull trout populations: In 2006 there was an increasing or stable population of redds recorded. See the figure below.

On the mainstem of the McKenzie river, an increase in the number of redds recorded in Anderson Creek stood in contrast to a steady decline in Anderson redd counts recorded 2001-2005 (Table 3). Although redd counts in Anderson Creek during fall 2005 were at an all time low, fry migration recorded in 2006 at the Hwy 126 trap saw a substantial increase (Figure 3) over the previous year. Juvenile bull trout migration (Age 1+ and older) from Anderson Creek increased during 2001-2005 during poorest fry production years and declined in 2006 as fry production improved (Figure 4). In 2006 the number of redds recorded in Ollalie Creek were down 33% from 2005. Overall, we saw an 11% increase in the number of redds from the previous year for the entire mainstem McKenzie River population.

In 2006 there was also a substantial increase in the number of redds recorded in both the Upper McKenzie above Trail Bridge Reservoir (20% increase), and particularly in Sweetwater Creek, where the number of redds more than doubled (Table 3). Overall, we saw a 74% increase in the number of redds from the previous year for the Trail Bridge population.

Based on redd survey results, it appears the South Fork McKenzie population is relatively stable.

Bull trout redd counts by sub-population from spawning surveys by ODFW, Stillwater Sciences and Forest Service; 1989-2006.



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. 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. In the North Santiam River, hatchery supplementation and natural spawning of Chinook moved around Big Cliff and Detroit Dams continues, but smolt survival through the dams not been monitored. 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. Plans to continue to identify a way to monitor smolts are underway.

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.

With respect to Oregon chub populations, The Oregon Department of Fish and Wildlife (ODFW) is the primary agency monitoring Oregon chub, and the Willamette National Forest works cooperatively to monitor populations on the Forest. There are several populations on the Willamette National Forest. Of those populations, three sites 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 (Buckhead Creek, Wicopee Pond, and Shady Dell). No Oregon chub were found in Oakridge Slough or Hospital Impoundment Pond in 2006 (Scheerer 2006). Seventy-five chub were collected for aging in April 2006 from Hospital Pond (ongoing ODFW / US Army Corps studies). Recording temperature monitors were deployed at various locations throughout this pond.

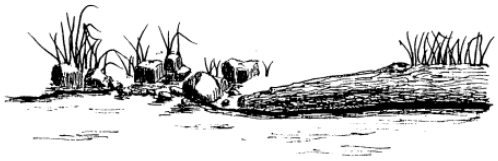
Concerns about the recent decline in the Oakridge Slough population have led to the planning of habitat restoration efforts. In 2004 a project to raise the water level and maintain inundation of aquatic vegetation longer to increase reproductive success and adult survival was planned. However, that project is on hold until the area can be further evaluated. In 2006 a project was initiated on private land near this location. It

was determined that this site had more potential than the originally planned location. The project is expected to be implemented in 2007.

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 FY06; however, riparian area protection is monitored during the Forest Supervisor monitoring trips. The Forest Supervisor monitoring trips focus on new project including those that may affect riparian areas. Monitoring completed in FY06, showed overall physical protection of channels appeared to be successful. Providing flexibility in reserve boundaries to meet site-specific conditions such as aspect, topography, and vegetation would further enhance protection.

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

Monitoring Questions 40: Biological Diversity

Is biological diversity being maintained or enhanced on the Forest?

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 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?

There are 13 bald eagle territories with a total of 25 known historic and current nest sites. Of these, the nest has been destroyed or the nest tree has fallen on eight sites between 1990 and 2006. Monitoring in 2006 yielded the following results at the remaining 17 known nest sites (Isaacs and Anthony 2007):

- Two sites were alternate nest trees which bald eagles did not use for reproduction.
- Bald eagles were observed to be reproductive at five nest sites.
- Two nest sites showed reproductive failure.
- Results at the other eight sites were inconclusive or unknown for a variety of reasons.

Midwinter surveys were also conducted with adults observed during these surveys. Bald eagle numbers on the Forest are relatively stable, as shown by the data compiled by Isaacs and Anthony (2007) for 1971-2007.

Where activities have taken place, Forest Plan S&Gs are applied to protect the birds, primarily in the form of seasonal restrictions. Monitoring of bald eagle numbers across the Forest indicate that habitat is adequate.

There are four bald eagle management plans on the Forest. Three were completed since the Forest Plan was implemented. Of these two are being updated in 2007. The fourth bald eagle plan was developed prior to the implementation of the Forest Plan. One bald eagle management plan is currently in progress. A few sites are either in the wilderness or do not have a current verified nest tree (the former nest tree blew down) and thus do not have plans associated with these sites.

Citation:
Isaacs, F.B. and R.G. Anthony. 2007. Bald eagle nest locations and history of use in Oregon and the Washington portion of the Columbia River Recovery Zone, 1971 through 2006. Oregon Cooperative Fish and Wildlife Research Unit, Oregon State University, Corvallis, Oregon, USA..

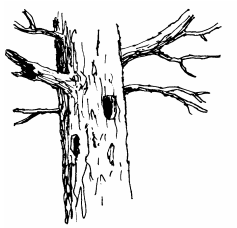
Monitoring Questions18: Peregrine Falcon

Are the objectives for peregrine falcon recovery being met 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. All 27 sites were monitored in 2006, and breeding season outcomes were determined for 25 sites.

Reproductive behavior was documented at 67% of monitored sites. Of these, 89% produced young at a rate of 1.8 young per active site and 11% failed reproductively. In comparison to 2005, overall productivity increased by 58% in 2006, nest success increased by 67% and the average number of young produced per active site increase by 64%. Monitoring continues on the Forest and positive trends remain consistent with those prior to delisting. Habitat objectives for the recovery of peregrine falcons are being met.

No management plans have been completed since de-listing of the peregrine falcon in 1999. A DRAFT programmatic plan for all known sites has been prepared, but a decision has been delayed as implementation would require a Forest Plan Amendment.



Monitoring Questions19: Primary cavity excavators

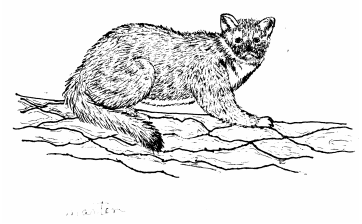
Is adequate amount, quality, and distribution of snag habitat being maintained to ensure viable populations of cavity nesting species?

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

Assessment. Wildlife trees as well as other green trees are retained with current uneven aged management practices, reducing the importance of this question. Of the 76 harvested units monitored, 100% were in compliance with prescriptions.

Snags are created annually using a variety of methods such as tree topping and/or inoculation to create long-term nesting habitat as mitigation for some timber sales. Monitoring the effectiveness of these occurs every other year on most districts. Forest-wide monitoring for primary cavity excavators (PCE) will be conducted in 2007. Additional down woody debris is created as a result of tree topping or falling trees to create down woody debris after the timber sale is concluded.

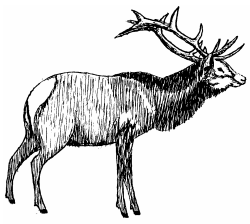
As an example, in 2006, one district reported surveying 1,276 snags (44% were created and 56% were natural in origin). Of these 456 (36%) showed PCE activity. Snags were surveyed about 3-5 years post-treatment.



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 network was 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 creation occurs throughout the forest as part of timber sale mitigation using KV funds and though this is intended for cavity excavators, it enhances habitat for these species. As a result of major changes in how pileated woodpeckers and marten are managed under the NWFP, changes are recommended to this monitoring section during Forest Plan revision.



Monitoring Questions 21: Deer and Elk

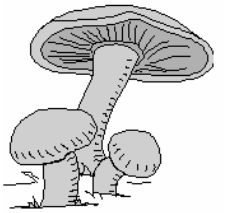
Are habitat effectiveness values for cover quality, forage quality, open road density, and size and spacing of food cover being increased or maintained as established for each emphasis level?

Deer and elk habitat is monitored for its effectiveness in maintaining elk population densities every two years. Forest-wide monitoring will be conducted in 2007.

Wildlife habitat improvement projects such as browse cut-back are implemented 2 to 5 years after sale completion as vegetation becomes woodier, less palatable, less nutritious and more inaccessible due to height. Browse cutback may be combined with pre-commercial thinning. Other habitat improvement projects include grass & legume (50% each) seeding in created meadows, and maintained with fertilization for forage for early

seral associated species and wintering big game. In addition, some existing summer range meadows are maintained through conifer encroachment reduction to maintain existing native forage. Road densities in most drainages continue to exceed desirable levels, and closure maintenance is limited by available funding. Some new closures are implemented annually. Both thermal and hiding cover exceeds forest standards throughout most forest watersheds.

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 reduce the amount of sunlight available for forage making it more difficult for deer to find high quality forage. Elk populations are more stable, partially due to their ability to consume larger quantities of forage in response to declining forage quality. In some areas, elk appear to be shifting from public to private lands, possibly in response to forage conditions. On the Forest they continue to use habitat with a good mix of cover and forage, such as areas that include meadows, riparian habitat and recovering burns.



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. In 1999 the Northwest Forest Plan was amended, changing the status of species into those for which predisturbance surveys were feasible (categories A and C) and rare (Categories A and B) and uncommon (Categories B and D). Sites of these species should be managed to maintain species viability 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. The bulk of the botanical work was spent on surveys in areas slated for timber harvest. In total 31 projects areas, over 4000 acres, were visited for fungi, vascular plants, bryophytes, and lichens. Many new lichen populations were documented including *Pseudocyphellaria rainierensis* and *Nephroma occultum*. These species are also found on the Regional Forester's sensitive plant list.

In addition, the Willamete National Forest was also the lead Forest in a multi-federal project to Calibrate a Habitat Prediction Model and survey for *Bridgeoporus nobillissimus*, the noble polypore fungus. A new model was developed for high probability habitat in four ecoregions within the Pacific Northwest and surveys were conducted for *Bridgeoporus* in 5 field units, yielding 3 new sites.

Surveys for red tree voles were completed on 1,700 acres north of the McKenzie River. Approximately 20 acres were surveyed for mollusks. Two site visits to a great grey owl breeding area were accomplished in late August. All surveys for Category 2 species were

completed before any ground disturbing activity. Some districts 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?

Botanists surveyed over 5,400 acres for several sensitive plant species and spent over 11 days monitoring known sensitive plan populations. New populations of *Pseudocyphellaria rainierensis* (22 sites), *Pseudocyphellaria mallota* (7sites), *Leptogium rivale* (4 sites), *Pannaria pacifica* (6 sites), *Nephroma occultum* (6 site) *Scheuchzeria palustris* populations were found during surveys. Also, 4 new sites and 2 populations extensions were documented for *Usnea longissima*.

Most were found to be stable. However, one population of *Cimicifuga elata* on Middle Fork District was reduced in number; we surmise the population is being suppressed by overstory vegetation. Both populations of *Botrychium*, *B. minganense* and *B. montanum*, found on the Santiam River District are declining in number. Both populations have been declining over the past couple of years. Cause is unknown since there have been no management activities near the populations.

The Botany program also initiated three new challenge cost share projects and a new partnership project spanning across the Forest.

Botanists working for Salix Associates surveyed high probability sensitive plant habitat in meadows in the Mink Lakes Basin of the Three Sister's Wilderness. They located populations of *Scheuchzeria palustris* and *Carex integra*.

Walama Restoration Project worked with the Forest on weed control in TES species sites (fish, wildlife and botanical sites on the McKenzie River and Santiam River Districts. They controlled weeds on 20 acres and 1.5 stream miles.

Institute for Applied Ecology surveyed for *Lathyrus holochlorus* on the Middle Fork and McKenzie River Districts. They relocated a known site above Lookout Point Reservoir and documented that road grading had adversely affected habitat for this species. They also surveyed a historic site on Lowder Mountain in HJ Andrews Experimental Forest. This population turned out to be *L. lanzwertii* , possibly ssp. *tracyi*.

We also contracted with Rob Weiss to look for a historic population of *Poa rhizomata* on Horsepasture Mountain, McKenzie River District. The grass he collected was identified as *Poa chambersii*, another rare alpine bluegrass. Another bluegrass he collected was annotated as the rare *Poa stenantha.*

Salix Associates surveyed 250 acres in Joe's Prairie and Spring Prairie on the Middle Fork District, They documented a noteworthy stand of quaking aspen at 5400' in elevation, one of four known populations in Lane County.

The Forest also participated in several activities that interacted with and educated publics interested in plants. These events included wildflower walks, a new plant photo guide at the McKenzie River District office, tours for mentally disable school children, Berry collection trips and early career day presentations.

Other projects on the forest aimed at maintaining unique habitats included monitoring of prescribed burns at Mutton Meadows to determine the effect of fall burning on native understory vegetation and desired oak trees, and small diameter tree removal at Chucksney and Grasshopper Meadows.

New Monitoring Question: Noxious Weeds[1]

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

Prevention continues to be implemented across the Forest through different activities. The State of Oregon created a certification program for animal feed so that certified weed free feed can be used for animals entering the Wilderness. Prevention guidelines such as using weed-free gravel and cleaning of vehicles that will used off- road have been integrated into timber sale contracting. We are actively updating the language in Special Use permits that come up for reauthorization to address weed treatment and limiting spread through prevention measures

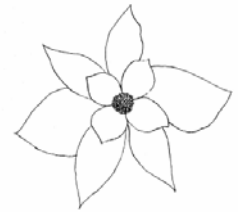
Treatments at Ranger Districts amounted to over 2,000 acres. Over 800 of these acres were manually controlled using Forest Service employees and cooperators such as County Correction Crews, Northwest Youth Corps, members of the Rocky Mountain Elk Foundation, the Oregon Hunter's Association. Beyond manual control, approximately 197 acres were treated with herbicide and 60 acres were treated by mowing.

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

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

Effectiveness of control methods has averaged 80%, except in the McKenzie River basin where new knapweed seed is continually introduced and in riparian corridors and high human use sites where we are unable to use chemicals.

The Forest initiated a new Environmental Assessment to develop Alternatives to help our Integrated Weed Management Program comply with the 2006 Record of Decision for Preventing and Managing Invasive Plants standards that amended the Willamette Forest Plan. The EA is due for public comment in spring 2007.



New Monitoring Question: Native Species Revegetation[2]

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

Native grass seed is being used more and more on the Forest for restoration purposes. We have fields of blue wildrye, California brome and California fescue in production. We also have riverbank lupine, big deervetch, bigleaf lupine and penstemon in fields at BLM's Horning Seed Orchard. All the native seed we produce is used on the Forest. Last year that accounted for over 3000 pounds.

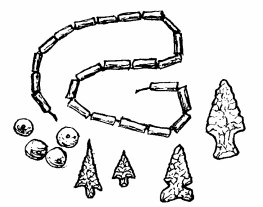
Resources and Services to People

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 FY06 monitoring report
Specially designated unique areas				
3	Wilderness	District reporting, on-site visits by district personnel	Results OK	Recreation FY06 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 FY06 monitoring report
Recreation				
6	ROS	District reporting, on-site visits by district personnel	Results OK	Recreation and Scenic FY06 monitoring report
7	Recreation Visitor Use		No new results until 2007	
8	Scenic Resources		Results OK	
10	Trails	District reporting, site visits	Continue to monitor	Trail FY06 monitoring report
11	Developed Recreation	District reporting, on-site visits by district personnel	Results OK	Recreation FY06 monitoring report
12	Off-road vehicle use		Results OK	
Timber				
22	Timber Suitability	Review of land allocation changes	Results OK	Timber Suitability FY06report
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 consists of a resource base of approximately 2,200 known historic properties, including archaeological sites, historic sites, trails, and structures, in addition to isolated finds and features. The forest is managing and protecting these sites consistent with the Forest Plan direction and applicable laws.

During FY06, Heritage staff documented visits to 86 sites, about 5% of the total inventory. These monitoring visits occurred most often in conjunction with proposed project surveys, or as follow-up to recent projects. About 20% were monitored in conjunction with heritage hikes and projects. No new significant impacts were noted at these sites. Some historic structures are being maintained to standard while others which are not actively used are not being well maintained. Only a few instances of cumulative impacts were reported, primarily include recreation use (e.g., OHV), road use, erosion, vegetative encroachment, benign neglect (structures). Individual impacts noted were minor and did not result in a formal damage assessment under the law. Yet measures could be taken to avoid more serious continued and cumulative effects. Field archaeologists reported successful mitigation measures at three sites. Protection by avoidance was recommended for sites monitored in conjunction with project planning..

Consultation with the State Historic Preservation Office (SHPO) continued in FY06 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, consultation with tribes is not consistently documented.

The heritage program staff hosted interpretive talks and hikes, and completed structural rehabilitation of Gold Butte Lookout primarily as a volunteer effort. The Sweet Home RD continues to host the annual Conservation Civilian Corp alumni picnic.

Specially Designated Unique Areas

Monitoring Questions 3: Wilderness

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

The Forest monitors the class settings and use levels of its wildernesses. The Wilderness Resource Spectrum class settings are consistent with the S&Gs for Wilderness management. 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 and resulted in improved resource conditions. Also Marion Lake, the Jefferson Park, and the Eight Lakes Basin/Duffy Lake areas will at times exceed use limits. These are areas on the Detroit Ranger District and in close proximity to the Portland metropolitan area. Recent burns in the Mt. Jefferson Wilderness are also displacing users into unburned portions of the Wilderness. The Districts continue to monitor resource effects in those areas…additional management actions may be needed in the future.

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

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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. New boat launches are planned for the Upper Mckenzie which will reduce congestion and associated resource impacts. 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 2006.

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 2006. 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). With this information in GIS tracking activities in or near the roadless areas will improve.

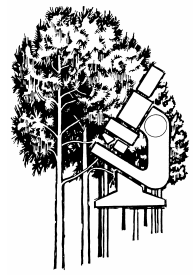
Monitoring Questions 9: Special Interest Areas

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 2006, a considerable number of fire-burned hazard trees were removed from Fall Cr. Limits of Acceptable Change (LAC) inventories were initiated to monitor post-fire use. The interpretive trail and trailhead for Johnny Creek Old Growth Grove, which was burned over in the fire, will be decommissioned.

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 and Terwilliger Hot Springs SIAs shows management actions over the past three 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

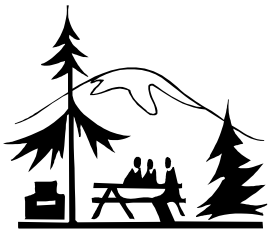
Are Research Natural Areas being protected and inventoried for use as ecological reference points?

Two RNAs were visited in 2006, Three Creek and Middle Santiam, both on the Sweet Home RD. Located on Three Creek was *Bridgeoporus nobilissimus*, a conk. The conk is alive and well and by far the largest one known on the Forest. In the Middle Santiam RNA a large population of false brome was located just outside the RNA boundary. Actions are being implemented to avoid spread of this invasive weed into the RNA. Also located in the RNA was residual equipment left behind by

researchers. Efforts were made to inform the researcher to remove the old equipment.

No other RNAs were visited in 2006, however, the RNA stewards were polled on the districts. No management related disturbances were observed nor expected to be present in 2006.

RNAs are getting more difficult to visit and provide a complete analysis of the RNA's health. This is partially due to a shrinking workforce and distance between the areas. The Forest is creating a RNA stewardship program which will look for qualified individuals to help the Forest monitor RNA system on the Forest.



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.

The Elk Lake area occasionally exhibits 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 taken in 2006, including barriers to restrict resource damage; however, some inconsistencies still occur and other types of controls are needed. There is potential to turn the site into a fee area. On the Detroit District actions were taken to reduce impacts along the river corridor, including designating camping and parking areas. In the Waldo Lake Basin there have been encroachments of snowmobiles in non-motorized areas and illegal bike use in wilderness areas. Planning continues for the Waldo Lake Basin. A decision is also expected in 2007 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. The Willamette National Forest is scheduled for 2007. 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 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 not consistent with S&Gs for trail management classes due to inadequate funding. Trail maintenance on much of the Forest has been primarily limited to removal of logs, trailside brushing and erosion structure maintenance. Heavy maintenance is not being done at a level to maintain trails consistent with Forest Plan standards on all trails. Trails that do receive maintenance are normally restricted to one visit a year, usually in the summer. The Northwest Forest Pass receipts and Secure Rural School funding have allowed the Districts to accomplish some heavy maintenance projects.

Trail maintenance limited by funding; trail construction also down.

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

New trail construction has been eliminated due to recent budget short falls. Bridge replacements and short sections of reconstruction were implemented on the Forest in FY06, including Clear Lake and Daly Lake. While an adequate system of trails continues to be provided to the visiting public, trail conditions have fallen slightly reflecting maintenance backlogs.

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 Fee Demonstration 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.

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.

The Recreation Site Facility Master Plan 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 proposes that the Forest continues to provide a range of sites and activities, with additional development on the Detroit Ranger District. A handful of smaller, lesser used sited on the Middle Forlk and Mckenzie Districts are proposed for decommissioning. Many sites have seen upgrades or improvements, including barrier-free accessible toilets, through outside funding sources.

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.

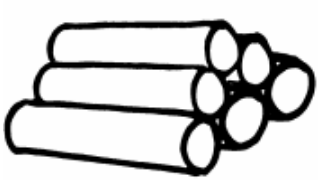
The Forest has begun its comprehensive assessment of OHV use on the Forest. Culminating in 2009, trails and roads will be designated for OHV use; the remainder of the Forest will be closed to OHV use. This is part of a nationwide effort to manage OHV use and reduce resource damage and user conflict. On the Forest, pockets of use show signs of resource damage. Smaller planning efforts are underway to address this use, including Santiam Pass, Hills Creek Reservoir, and Huclkeberry Flats. Snowmobile incursions into the Three Sisters Wilderness continue to be an issue despite enhanced wilderness boundary signing and patrolling.

Timber

Monitoring Question 22: Timber Suitability

Has the suitable land base changed?

Two types of changes usually result in an alteration to the total suitable acres for timber harvest. A change in the ability to adequately reforest a site within 5 years or a change in the timber harvest objectives for a piece of land. Changes to the suitability of lands for timber production have not occurred since FY98. At that time the Willamette National Forest Land & Resource Management Plan was amended by Northwest Forest Plan, changing the lands available for commercial timber harvest. Analysis completed in February 1998 indicated there are 98,978 acres suitable and available within the Adaptive Management Area and 297,628 acres suitable and available in matrix lands for a total of 396,606 acres.



Monitoring Question 23: Timber Program

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

Starting in FY06, target accomplishment shifted from "volume offered" to "volume awarded". In 2006 the Willamette National Forest assigned target was 55.19 mmbf. Total volume offered was 60.14 mmbf. The majority of this volume was offered through advertisement in the newspaper, although the totals do include any product that can 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 offered in FY06, 46.75 mmbf was awarded along with 29.72 mmbf of volume offered in FY05 but awarded in FY06. Less than 5% of the awarded volume came from salvage sales. Approximately 10 mmbf offered in FY'06 received no bids. Market down turns and projected operational costs contributed to the "no bid" situation. These amounts are all included in meeting our PSQ levels. FY06 offer amounted to 54% of the PSQ with FY06 award being 42%. With volume awarded in FY06 from sales offered in FY05, the award percent accomplishment of PSQ rises to 69%

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 National Forest 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?

Growth responses from Timber Stand Improvements (TSI) are consistent with expectation in the Forest Plan. Genetically improved stock is being used as planed and will maintain or exceed the growth of natural seedlings.

Regeneration of harvest stands within the National Forest Management Act mandate of 5 calendar years from harvest is tracked every year to assure compliance. Of the 189 acres reported as being harvested using a stand regeneration harvest method in FY 2001, all acres were on the Middle Fork ranger district. Of these acres, 46 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 and the FACTS database.

Reforestation by tree planting occurred on 738 acres. A large portion of the need for reforestation was created by wildfire.

Timber Stand Improvement (TSI) accomplishments of thinning, release, and fertilization totaled 9,718 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 2006 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 2006 and only 140 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.

During FY 2005 and FY 2006, based on future budget projections, current road condition, and future road use patterns, the miles of road "suitable for passenger cars" have been reduced to 575 miles. This reduction better reflects actual conditions on the ground and is more consistent with the trend of falling maintenance budgets

and managing for a road network more in line with current and future funding. The 991 miles of road once listed as maintained for "passenger cars" are now maintained for "high clearance vehicles." Due to the fundamental changes to the timber harvest targets and drastically reduced road maintenance funding, the miles of road maintained for passengers cars is over 36% below the threshold of variability. Though far below the threshold, the lower miles of "passenger car" roads is more in line, and consistent with current and projected road management and budgetary trends. As a result of reducing the miles of roads maintained for passenger cars, roads suitable for high clearance vehicles has increased and is now 14 % above the threshold of variability.

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

STATUS OF THE FOREST'S TRANSPORTATION SYSTEM

Road Construction and Reconstruction		Miles of road removed	
Miles of road constructed	0.0	Miles of road decommissioned	0.0
Miles of road reconstructed	140.3		

Road Suitability		Traffic volumes
Roads Suitable for Passenger Cars	574	
Roads Suitable for High Clearance Vehicles	5,142	Traffic volumes were not monitored in FY06
Closed Roads	839	
Total Miles	6,555	

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

Social, Economic, and Budget

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

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

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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 FY06 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 FY06 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 2006.

Fiscal year 2006 saw initiatives proposed not seen before. Primarily the proposal to sell government properties to provide an important funding source for habitat improvement and restoration, land acquisition and improved access to National Forest System lands. This proposal was not implemented in 2006.

In addition, the Healthy Forest Protection Act of 2002 was enacted with the intent to reduce the risks severe wildfires pose to people, communities, and the environment. A big part of this plan is the Community Wildfire Protection Plans. Lane County, the largest county that the Willamette National Forest serves, completed their Community Wildfire Protection Plan in 2004.

Partnerships between the forest and various organizations have increased. Partnerships provide opportunities for the entities to cooperate in meeting mutually beneficial results.

Global change is getting increased attention from the general public. Though most individual's perceptions may not change the attention received by mass media is increasing awareness.

New rules and policies express a shift from consumptive uses to protection and conservation of resources.

The common and consistent threads that run through these rules and policies clearly express a shift in attitudes and values from consumptive uses to protection and conservation of natural resources. The rules and policies themselves must be understood as a Department and/or Agency response to those expressed values.

Social and ecological values and characteristics that are becoming scarce in our Nation's increasingly developed landscape are being recognized as a paramount resource available on National Forest system lands. Protection of air and water quality, biodiversity, and opportunities for personal renewal are increasingly valued by an increasingly urbanized society. Conserving a legacy for future generations, a value expressed in the 1990 Forest Planning process, is finding wider audiences, crossing socio-economic and educational backgrounds, who willingly mobilize to have their message heard at the highest levels of government.

While the shift in attitude is not universal, it is widespread. The volume of public response at the proposal and draft stage of each of these initiatives was in the tens of thousands to over one million.

FISCAL YEAR 2006 FINAL EXPENDITURES

Description	FY06[1]
Facilities Capital Improvs & Mtce.	2,927,525
Flood Activities	65,376
Forest Products	4,498,749
General Administration	1,099
Grazing Management	174,663
Knutson/Vandenburg Funds [1]	4,921,137
Land Management Planning Activities	35,683
Landownership Management	372,144
Law Enforcement	0
Minerals and Geology Management	211,139
Recreation/Heritage/Wilderness	3,715,098
Road Capital Improvs & Mtce.	1,198,608
Senior Program	553,221
State and Private Forestry	87,819
Trails Capital Improvs & Mtce.	29,880
Vegetation and Watershed Management	430,092
Wildland Fire Management	304,425
Wildlife and Fisheries Habitat Management	3,881,903
TOTAL	**24,152,585**

[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 2006	$40,545,972[1]
Fiscal Year 2006 Receipts…..…11,276,968	[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	$12,063
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	$1,257,264
	Jefferson	$ 3,229
	Lane	$25,042,263
	Linn	$11,392,886
	Marion	$2,838,266

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.

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IMPLEMENTATION MONITORING SUMMARY FINDINGS

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

Standards & Guidelines

Monitoring Question 1: Standards & Guidelines

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

A Forest Supervisor monitoring team visited several projects in 2006. 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.

PROJECTS MONITORED IN 2006

Ranger District	Activity Monitored
Detroit	Shore Nuf Timber Sale
McKenzie	Aquatic Restoration Project
Middle Fork	Fall Creek SIA Fire Recovery Project reduction

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Forest Supervisor Reviews

Shore Nuf Timber Sale on Detroit consisted of a complex timber sale involving riparian treatments, temporary road constructing, visual concerns, and noxious weeds during sale preparations. In addition during implementation the sale required slash treatments, restricted operating season, wildlife concerns and monitoring.

Finding and items noted during the trip:

Riparian reserves were carefully reviewed. It was determined that the riparian reserves were met in all three units visited.

The review team noted that the temporary road was located and its dimensions were consistent with the descriptions in the EIS. Consideration for a leaving the road to serve as a bike trail was raised. This proposal must be considered in a separate decision.

Visual quality objectives were met. Prescriptions implemented in visual sensitive areas included 6 inch or lower stumps and the "chunks" of wood created were handled as slashed or provided as firewood. Slash was also appropriately handled in other areas.

Restricted operating seasons for various species of fauna was documented and followed. The review team questioned one change for spotted owl. The change was intended to benefit the owl but it should have been reviewed with USFWS.

Thinning prescriptions were followed.

Two units suffered snow and ice damage during a storm. Modifications to the units to address the damage were documented and were consistent with the objectives with the ROD/EIS.

Overall comments from the review team expressed an appreciation for an excellent job handling a complex project under a great deal of scrutiny.

Upper Mckenize Aquatic Restoration Project: This project restored habitat necessary for Endangered Species Act listed species bull trout and spring Chinook salmon. The project supplemented large wood in the Upper McKenzie River channel to recruit spawning gravel, then limiting in the spawning reach. Should spawning gravels not be recruited in sufficient quantities, supplemental gravels would be created in the future.

Specific findings included:

Surveys and research was completed in the planning stages. Findings consistently identified lack of large wood and gravels as limiting to bull trout and Chinook populations.

Recreational boating use of this river segment was considered and analyzed during the scoping and development. Adding large wood to the river was not a major concern to boaters or boater groups and determined to be consistent with wild and scenic river values.

Visuals were a concern because it was adjacent to the National Scenic Trail. Trees tipped to supply large wood were virtually indistinguishable to natural windthrow and breakage along the river. Overall consensus was that the visual standards for the highway, river, and trail were met.

Extensive analysis on tree tipping on streamside shade in the project area and the potential impacts to water temperature was conducted. The analysis clearly justified the small decrease in shade and increase in stream temperatures to providing overall

beneficial effect on the riparian resources. Better documentation on this fact was left wanting.

There was no verified bank disturbance noted during the monitoring trip.

Protections were enacted to prevent weeds from seeding.

Restricted operating seasons to protect spotted owl, harlequin duck, peregrine falcon and instream work restrictions from ODFW were followed.

Fall Creek SIA Restoration: The purpose of this project was to restore the Fall Creek Special Interest Area burned by the Clark Fire in 2003. The action removed hazard trees to provide for public safety around the recreational sites and along Forest roads and trail,; reforested the area to ensure the restoration of a forest setting, reduced fuel loadings to reduce future fire intensities and resource impacts; recovered the economic value of the burned wood; re-develop Johnny Creek Day Use site into an fire ecology interpretive site to promote public education; and implement recreation trail improvement projects.

Specific findings included:

A very complex project; actions on the ground look good and logging evidence is minimal.

The objective to provide a relatively safe corridor along road 18 was met. Need to follow through with the remainder of mitigation measure (seeding, fertilization, recreation site and road decommissioning, closing and cleaning helicopter landings).

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.

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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. Items that will be our focus will include:

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

Review all resource databases developed for flora, fauna, terrestrial ecosystems, vegetation, field sampled plots, forest infrastructure, and recreation information.

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.

In the 2004 Monitoring and Evaluation Report, the following actions were recommended as progress towards a Forest Plan Revision. Below is a status report on these recommended actions

Databases

Review all resource databases developed for flora, fauna, terrestrial ecosystems, vegetation, field sampled plots, forest infrastructure, and recreation information.

This work was completed in 2006. The databases were reviewed in light of the Forest Plan Revision. A report and action plan was generated. Work will continue as the data gaps are discovered filled.

Recommendations include updating key data items in the Forest's vegetation database, emphasize the collecting of biological survey data and entering the data into the our National database. This data will be essential to Forest Plan Revision.

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 2006 Accomplishment		Cumulative Avg. Accomplishment	
		Units	Units	%	Units	%
RECREATION AND WILDERNESS				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.		
National Forest Visits	Visits	--	1,575,000.0			
Site Visits	Visits	--	2,201,000.0			
Wilderness Recreation Use	Visits	--	50,500.0			
Trail Construction/Reconstruction	Miles	78.0	2.0	3%	10.5	13%
Developed Recreation Construction	PAOT	327.0	--	--	--	--
Developed Recreation Reconstruction	PAOT	844.0	--	--	--	--
TIMBER MANAGEMENT						
Timber Sale Program	MMBF	136.0	46.8	39%	55.1	40%
Timber Harvest Treatments						
Regeneration Harvest	Acres	3,144.0	117.0	4%	509.7	16%
Commercial Thins	Acres	2,808.0	2,599.0	93%	1,557.0	55%
Other	Acres	---	125.0	--	582.2	--
Timber Stand Improvement	Acres	18,100.0	9,718.0	40%	9,510.8	53%
Reforestation	Acres	3,144.0	738.0	23%	1,641.2	52%
Fuel (Slash) Treatment	Acres	3,144.0	2,855.0	33%	1,413.2	48%
ROAD MANAGEMENT						
Road Construction	Miles	40.0	.6	0%	2.6	6%
Road Reconstruction	Miles	174.0	140.3	110%	100.7	58%
Roads Closed	Miles	890.0	839.0	87%	711.3	80%
Roads Suitable for Passenger Car	Miles	1,580.0	574.0	37%	1,360.3	86%
Roads Suitable for High Clearance Vehicles	Miles	4,530.0	5,142.0	115%	3,977.8	88%
FISH / WATER / WILDLIFE / LIVESTOCK						
Watershed Improvement	Acres	533.0	0.0	6%	402.1	75%
Anadromous/Inland Fish Habitat Improvements	Miles	12.0	21.0	0%	6.1	--
Wildlife Habitat Improvements	Structures	451.0	---	129%	470.3	104%
Livestock Grazing (AUMs)	AUMs	200.0	0	0%	65.625	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.

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	Jim's Creek

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.

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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.

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