



# Monitoring and Evaluation Report

## Willamette National Forest Fiscal Year 2001

Pacific  
Northwest  
Region



*Near Fall Creek National Recreation Trail*



May 2002

Dear Reader,

Enclosed you will find the Willamette National Forest "Monitoring and Evaluation Report" for fiscal year 2001. This represents the 11<sup>th</sup> year of implementing our Land and Resource Management Plan (L&RMP), and the 7<sup>th</sup> year of implementation in accordance with the Northwest Forest Plan.

Some of the lessons learned from 2001 Monitoring:

The success of our bull trout reintroduction program, which focuses on areas with the greatest likelihood of supporting fry and juveniles, is exceeding our expectations. Bull trout appear to be rearing successfully and dispersing naturally at all release sites.

Last year our Survey & Manage program resulted in the discovery of new population of *Bridgeporus nobilissimus*, or fuzzy sandoze, extending its known range to the south.

Forest visitors are impacting dispersed recreation sites in the Elk Lake area and Santiam Pass. Visitors occasionally exceed use levels or party sizes; sometimes user activities are not consistent with the Recreational Opportunity Spectrum (ROS). We increased our presence at Elk Lake to reduce these inconsistencies, but other types of control may be necessary. Barrier posts have been installed to keep 4-wheel drive vehicles on the main access roads.

These are but a few of the highlights from our FY2001 monitoring program. This report is also available on our website at [www.fs.fed.us/r6/willamette](http://www.fs.fed.us/r6/willamette).

A final note about this year's report: The Northwest Forest Plan was the basis for significant modifications to land allocations and to our Standards & Guidelines. With these changes, coupled with declining budgets, notable differences between the Willamette's Forest Plan projections and subsequent accomplishments are becoming increasingly evident.

We appreciate your taking the time to review the results of our efforts. Your continued interest in the Forest Plan is just one way for you to stay current with activities on your public lands. Don't hesitate to visit, call or write us about your interests in the Forest Plan.

Sincerely,

Y. ROBERT IWAMOTO  
Acting Forest Supervisor  
Willamette National Forest

R6–WILL–004-02

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# MONITORING AND EVALUATION REPORT

This report focuses on the monitoring and evaluation process described in Chapter V of the Forest Plan. An overview of the many diverse Forest activities and program accomplishments can be found in another document, The 2001 Willamette National Forest Annual Report.

*If you have not received a copy of the 2001 Annual Report and would like a copy, please contact Sue Olson (541-465-6539) or write: Willamette National Forest; PO Box 10607; Eugene, OR 97440.*



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# Introduction and Background

**T**he 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 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 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. *The Forest participates in the province level monitoring and evaluation reviews in concert with BLM and the Regional Ecosystem Office.*
5. *Publish a report displaying the results of monitoring and evaluation reviews. The REO office publishes a report of province monitoring.*

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 2009 will alter predicted outputs to a level probable under the Northwest Forest Plan.

## Monitor and Evaluation

Monitoring and evaluation provide the control system over management activities on the 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

**T**he 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 FY01 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.

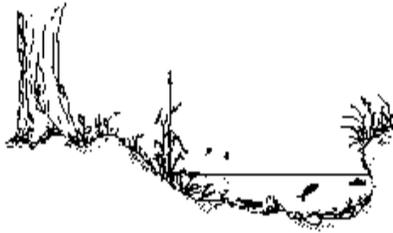
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	Summary Results
	Water Quality
	Soil Productivity
	Air Quality
	Fire

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
<b><i>Water Quality</i></b>			
25 Water temperature	Water sampling	Results OK	Water quality FY01 monitoring report
26 Water turbidity	Field evaluations	Results OK	
27 Peak flows	No formal monitoring in 2001	No new results	
30 Lake quality	No formal monitoring in 2001	Results OK	
<b><i>Soil Productivity</i></b>			
32 Soils, mass movement	Measurements using visual, electronic, and mechanical means	Results OK	Engineering FY01 monitoring report
33 Soil productivity, mass movement	No formal monitoring in 1999	Results OK	Water quality FY01 monitoring report
34 Soil productivity	No formal monitoring in 1999	Results OK	
<b><i>Air quality</i></b>			
35 Air quality	Reported smoke intrusions, lichen surveys	Results OK	Fire Management and Lichen FY01 monitoring reports
<b><i>Fire</i></b>			
36 Fire protection	District reports	Results OK	Fire Management FY01 monitoring report
37 Fuels treatment	MAR Forest reports	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 conducted water quality monitoring at 123 stations during FY01. This approximates the same number of sites over the last couple of years but lower than expected when the Forest Plan was completed. Water quality monitoring parameters included temperature, turbidity, suspended sediment, flow and, on a limited basis, pH and conductivity. Not all stations collected all parameters listed. Of the 118 stations with complete data, 33 showed a maximum 7-day temperature exceeding 64 degrees. These sites exceed the Oregon State Department of Environmental Quality standards. Sweet Home RD monitored 4 stations not included in the reported 123 stations. Data is not available for these stations. Detailed information on water temperatures is available in the FY01 Water Quality Monitoring Report.

Data collection begins at Blue River Reservoir for temperature control tower. Also in 2001, water conditions at Cougar reservoir were sampled eight times at four locations during October through November and April through September in order to establish baseline data prior to the 4-5 year seasonal drawdown and construction of a temperature control tower within the reservoir. Vertical profiles of water temperature, turbidity, dissolved oxygen, percent DO saturation, pH, and specific conductivity were collected. A cursory look at this data indicates establishment of a well-developed thermocline in the reservoir during these months. As subsequent years of data are collected during actual project operations, this pre-implementation data will provide a reference point to determine if operations are affecting water quality and thermocline development. If effects appear that could be detrimental to bull trout, this information would be used to develop additional mitigation. Beginning in June, at the COE request, we began a similar monitoring regime in Blue River Reservoir to collect pre-project information for a potential similar retrofit project at Blue River Reservoir.

These same measurements were conducted at 4 sites through the winter months in order to get a better understanding of the annual variation of these parameters in the reservoir.

Water monitoring is continuing or expanded to various areas on the Forest. Examples include:

- 34 sites on Blue River as part of an ongoing AMA study of the effects of forest management activities on stream channels, water temperature, and amphibian species.
- Data collections measuring water quality related to the North Fork Quartz, Blue River Face, and Wolf Mann Timber Sales.

Based on evidence of temperature exceeding standards, a declining trend in water quality, or beneficial use impairment, 23 streams on or near the Forest were listed in 2000 due to temperatures exceeding standards. The listing is intended to protect the most sensitive beneficial use within the waterbody. Listing of streams and waterbodies under the Clean Water Act takes place every two years. A new listing is anticipated at the end of the summer of 2002. Four Water Quality Management Plans are currently in preparation or have been submitted to the Oregon Department of Environmental Quality for review. Below is the status of those reports.

Management Plan	Status
Blowout	Approved
McKenzie	Waiting for approval
Middle Fork	Editorial changes being made before approval
North Fork of the Middle Fork	Planned to be submitted in 2002 or 2003.

MQ 26 is concerned with water quality as measured by turbidity levels. Following a large mid-winter storm and subsequent flooding in early February 1996, the waters of Detroit Reservoir and the North Santiam River downstream of the reservoir experienced high and persistent levels of turbidity. Concern was expressed by the City of Salem officials about the high levels of turbidity that persisted at the Salem water intake for months subsequent to the flood. A cooperative study among technical specialists for the Willamette N.F., City of Salem, Pacific Northwest Forest Research Station, and Oregon State University was completed in 1997.

Preliminary findings available from a new study of the Santiam watershed following the 1996 flood.

A subsequent study has been conducted on the same sub-basin. Significant findings reveal a complex and often contradictory web of management objectives among the agencies and parties responsible for water management in the Santiam. It highlighted how management for one narrow set of objectives might exacerbate problems of another sector. For example decades of logging in the North Santiam basin targeted the most unstable piece of ground, thereby potentially exacerbating sediment production during storms. The operation of dams for flood control prolongs the release of persistent turbidity downstream, causing problems for municipal water users. Relying on the *normal* behavior of a watershed to produce clean water under all circumstances leaves the downstream communities vulnerable to geologic events that require time to return to normal behavior.



Monitoring Questions 27: Water Quality: Peak Flows

*Are management practices causing changes in streamflows?*

No new monitoring was conducted in 2001. Results from past studies have been noted in past issues of this monitoring report and the reader is directed to those for information.



Monitoring Questions 30: Water Quality: Lakes

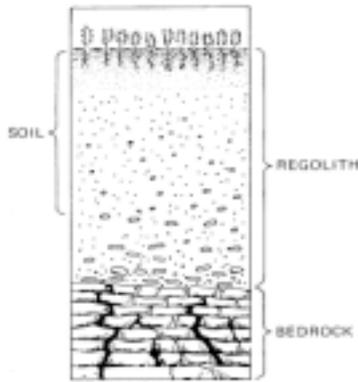
*Are Standard and Guidelines for Water Quality and Riparian Areas effective in maintaining or enhancing water quality and riparian conditions of lakes?*

Monitoring activities in 2001 consisted of:

- continued sampling of Waldo Lake on the Middle Fork District (a report of findings can be found at [http://www.fs.fed.us/r6/willamette/mgmt/monitor/water/waldo\\_mr2000.htm](http://www.fs.fed.us/r6/willamette/mgmt/monitor/water/waldo_mr2000.htm),
- sites monitored at Cougar Reservoir (discussed under Water Temperature),
- a second year of temperature data collected at 2 sites in Penn Lake and 2 sites at a nearby un-named lake in support of a spotted frog habitat, and finally
- lake sampling of Scout Lake located in the Mt. Jefferson Wilderness (results summarized below).

Scout Lake was sampled in July, 2001 to gather information to assist the Forest Service staff in assessing its suitability as a long-term monitoring site for air quality purposes (the full report is available at the Willamette N.F. Supervisor's Office- Watershed Management). The results indicate that the lake is virtually devoid of acid neutralizing capacity and has extremely low concentrations of all major ions and nutrients. The chemistry of the lake differs little from distilled water. The phytoplankton and zooplankton communities are indicative of an undisturbed alpine/subalpine system in the Cascades. The transparency is high and light transmission provides ample light extending to the bottom of the lake. From a chemical and biological perspective, it has a number of features that make it a highly desirable site for long-term monitoring, particularly with respect to air quality concerns.

## Soil Productivity



Monitoring Questions 33 & 34: Soil Productivity and Mass Movement

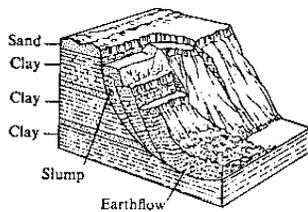
*Are Standard and Guidelines effective in maintaining soil condition and conditions for nutrient cycling? Are the Forest Plan predictions of mass movement valid?*

Soil compaction was monitored in two locations on the Forest.

In July 2001, the Blue River R.D. evaluated soil compaction on two harvest units. A field reconnaissance of the harvested units was conducted in order to evaluate the effects of processor/forwarder harvesting on soil compaction. One unit compacted approximately 8% of the area. The second unit impacted approximately 15% of the area. In summary, both units met the compaction standard of 15%. Little exposed soils is present, and off-site erosion is not anticipated.

Detroit R.D., in April 2001 conducted a soil compaction and ground vegetation survey of the Detroit Lake State Park. Approximately 63% of the area is highly compacted or is paved. Although the Forest presently does not have a specific guideline for soil compaction of recreation sites and paved surfaces are a necessary outcome of campground management, several immediate actions were recommended. Examples include requiring vehicles to remain on paved surfaces through the use of barriers, anchoring picnic tables to reduce the size of the core campsite area, restore areas where unplanned trails were created by visitors and increase the prominence of designated trails.

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



Monitoring Questions 32: Soil Mass Movement

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

Mass movements on potential highly unstable landtypes or 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 2001 monitoring include:

- Current practices for road location, design, construction, and reconstruction are effective in eliminating, reducing or mitigating existing mass movements. In addition, improvements to the road drainage system have been effective.  
Positive trend noted in minimizing and controlling mass movement.
- Current practices for site-specific slope stabilization and post-stabilization mitigation have been effective. Six out of the 9 sites monitored over ten or more have stabilized and 2 of the remaining 3 are within the TOV.
- Maintenance practices have been effective where applied. Lack of funding, however, prevents some of the work from being completed. A significant number of fill failures associated with storm events of the past 5 years can be tied to deficiencies in maintenance of the road drainage system.
- All 6 large earthflows monitored experienced movement in 2001. This would be expected considering continued periods of high rainfall.

## 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 smoke management reports and air quality monitoring systems at Oregon Department of Forestry. Fuel and particulate tonnages, for daily prescribed burning, are based on the computer program CONSUME. Air quality monitoring at our Class I wilderness areas are based on reports from fixed detection sites on the Forests.

Air quality remains high on the Forest during burning activities.

In FY2001 there were no deviations from the Oregon State Smoke Management daily forecast nor did intrusions occur in designated or smoke-sensitive areas in 2001. The Forest also monitors Class I Wildernesses for air quality impairments. There were no reported or measured impairments of visibility standards in Class I areas. At no time was the air quality TOV exceeded.

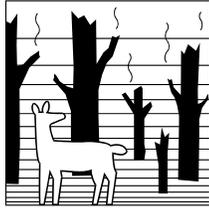
In addition to the activities above, the Forest has participated in a regional in-house air quality biomonitoring program since 1993. Lichens, a highly sensitive component of the forested ecosystems, help federal land managers detect and delineate air pollution and its effect. Air

Air pollution monitoring using lichens continues on the Forest.

quality data is collected weekly from the IMPROVE monitoring site located in the EWEB radio building on the McKenzie R.D. Monitoring apparatus include aerosol samplers, wind speed and direction sensors, nephelometer, ambient temperature and relative humidity sensor, and an automatic camera which takes three pictures daily. Data collected from the aerosol filters is sent to Air Quality Group, Crocker Nuclear

Laboratory, UofC for analysis. All other data is sent weekly to Air Resource Specialists, Inc. in Fort Collins, CO for analysis.

## Fire



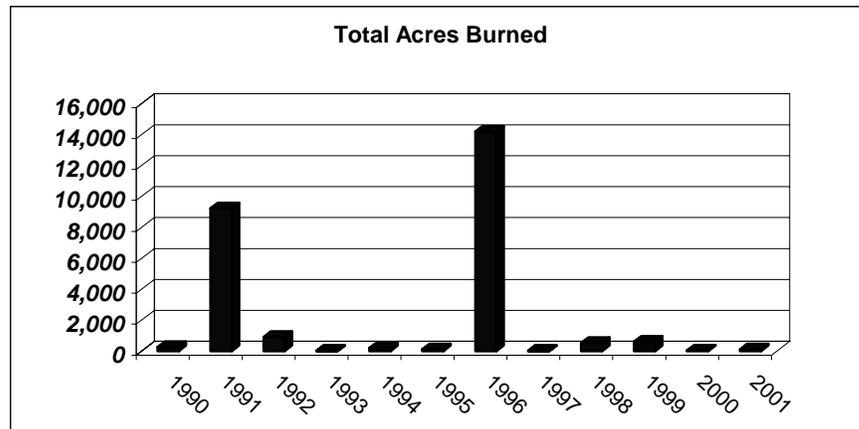
Monitoring Question 36: Fire protection

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

There was a total of 102 acres burned stemming from 121 fires in FY01. As illustrated by the graph below, the number of acres burned this fiscal year continues to depict the high degree of variability among fire patterns across the Forest. This natural variability coupled with changes in wildland fire policy prompts a need to review and validate contributing factors, both natural and human, based on the experiences of the last ten years.

The Forest has completed a Fire Management Plan (FMP) as mandated by the 1995 National Wildland Fire policies. The FMP has been sent to the Regional Office for review and approval. Once approved the FMP will be a dynamic document establishing guidelines for fire management on the Willamette. The FMP will be a baseline document when making decisions related to Fire and Aviation Management on the Forest. The Plan will be utilized, reviewed, and updated as needed to reflect fire managers needs on the Forest.

Year	Acres by wilderness status	
	Wilderness	Non Wilderness
1997	0	6
1998	163	369
1999	3	609
2000	15	9
2001	6	97

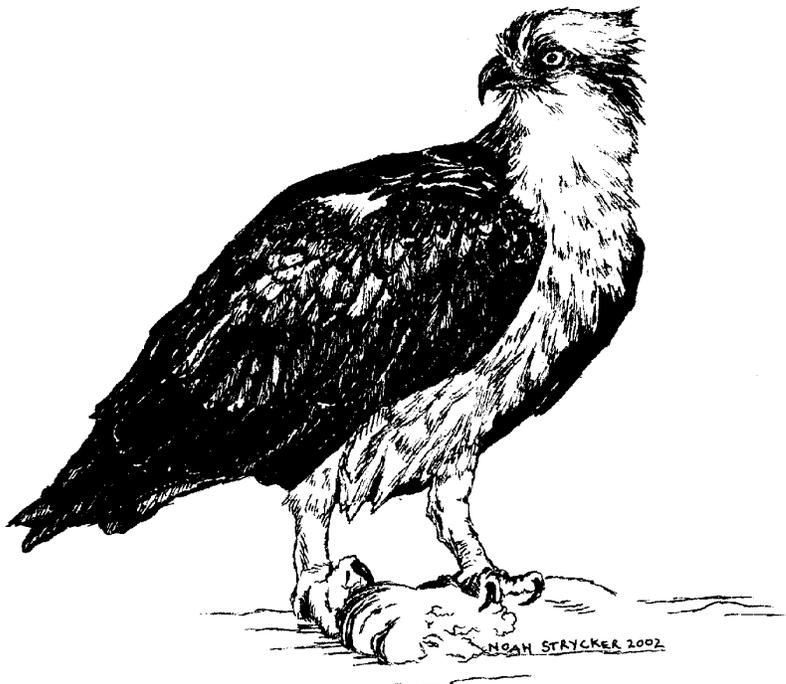




Monitoring Question 37: Fuels treatment

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

Information sources used for Forest fuel monitoring were based on Forest annual reports and from district input from prescribed burn plans. Total acres of prescribed burning were up 8% from the projected plan. The additional acres were originally scheduled to be burned in 2000; however, a 30-day moratorium was placed on all prescribed burning across the Western United States in the spring of 2000 causing some prescribed burning to be delayed until the following year. The TOV has not been exceeded.



OSPREY, *Pandion haliaetus*

# Biological Resources

**T**he 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

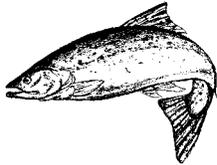
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for species viability. Below is a summary of FY01 monitoring questions designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards and Guidelines in meeting the Forest's goals.

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".

## BIOLOGICAL RESOURCES SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
<b><i>Fish Populations</i></b>			
13 Fish Populations	River monitoring, field observations	Results OK	Fish FY01 Monitoring Report
<b><i>Habitat Diversity</i></b>			
14 Aquatic Habitat	Field evaluations	Results OK	Fish FY01 Monitoring Report
28, 31 Riparian & Wetlands	No formal monitoring in 2001	No new results	
40 Biological Diversity	Forest accomplishments	Results OK	Ecology FY01 monitoring report
<b><i>Wildlife</i></b>			
15 Bald Eagle	District surveys	Results OK	Wildlife FY01 monitoring report
18 Peregrine Falcon	District surveys	Results OK	
19 Primary Cavity Excavators	District surveys	Results OK	
20 Marten & Pileated Woodpecker	District surveys	Results OK	
21 Deer & Elk	District surveys	Results OK	
<b><i>Plants</i></b>			
16 TE&S Plants	Forest and district records and field activities	Results OK	Botany FY01 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 nor ODFW monitor winter steelhead and Chinook smolt numbers due to safety and efficiency concerns. Stream systems where trapping would take place to monitor smolts are too large to be trapped safely and efficiently. The completion of the a water temperature control tower associated with Cougar Dam scheduled to be completed in 2004 may provide an opportunity to conduct juvenile monitoring of Chinook.

New opportunity to make juvenile Chinook monitoring safer and more efficient may exist.

With respect to chub habitat, areas on the Forest are being maintained. The evidence of this finding is a stable trend in chub populations on the Forest. In 2001 Wicopee pond had flood damage over-flow culverts replaced to better regulate the pond elevation and to prevent plugging. The project was successful and regulating the pond elevation has improved this site for Oregon Chub.

The Forest works cooperatively with ODFW to monitor Oregon Chub populations. There are 5 populations on the Forest. Of those populations, Shady Dell Pond meets the criteria for down-listing the fish from a sensitive species. The Oakridge Slough populations appears to be reduced in size from the 1999 estimate but has been maintained from calendar year 2000 to 2001.

The Forest also monitors bull trout habitat and populations. Habitat improvement projects on the South Fork McKenzie River were surveyed in 2001 in cooperation with Oregon State University. The results of the inventory was not yet available from OSU; however, discussions with Randy Wildman indicate that the habitat improvement structures are still in place and functioning. The main stem of the McKenzie River above Trail Bridge Reservoir was surveyed, also in cooperation with OSU. This inventory was a pre-project survey so that a future bull trout habitat restoration projects can be evaluated through time.

Based on redd survey results, it appears that bull trout populations are either stable or increasing. The exception is the main stem of the McKenzie River and possibly in Sweetwater Creek. It should be noted that surveys in these rivers are difficult because of size of the McKenzie River and the complexity of habitat in Sweetwater Creek.

Success in reintroducing bull trout in the Middle Fork Willamette system exceeds expectations.

Calendar year 2001 was the 5<sup>th</sup> year bull trout fry were trapped in Anderson Creek and transplanted in the Middle Fork Willamette system. A total of 1,458 bull trout fry were released into 4 sites on the Middle Fork. The bull trout reintroduction program is designed to concentrate efforts into areas that would have the greatest likelihood of supporting fry and juvenile fish. The success of the program thus far has exceeded expectation in that bull trout appear to rearing successfully in all released sites and are dispersing naturally.

In 1997, a pilot release of 178 bull trout fry occurred in Found Creek, Indigo Springs and Chuckle Springs. Any fish that survived since 1997 should return to spawn in the fall of 2002. The primary focus of the Middle Fork Ranger District from here out will be to locate and identify areas used for spawning. We will concentrate our snorkel efforts on these areas in 2002 to begin tracking spawning success. Bull trout released in Indigo Springs in 1997 are known to still occupy the release area and biologists are reasonably sure that these fish will spawn in a relatively small area. Therefore, observations should be achievable. Following efforts to observe spawning bull trout, our goals will be to identify habitat that would benefit from restoration and enhancement projects.



SAPSUCKER, *Sphyrapicus variu*



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?*

Fish populations were monitored for TES fish species on the Forest. These populations appear to be stable (see Monitoring Question 13).

There were 14 streams (approximately 84 miles total length) surveyed during FY01 on the Forest. Seven of these surveys were repeats of prior surveys.

Macroinvertebrates were monitored on the Forest in FY98 and FY99 through a cooperative effort with Utah State University. In 1998, this study collected data from 118 streams in Oregon and Washington, west of the Cascade crest, including 22 sites on the Forest, and in 1999 data was collected for 16 additional streams on the Forest. As of the writing of this 2001 report, the Forest has not obtained any results from this work.

The McKenzie RD personnel, in cooperation with the McKenzie Watershed Council, collected macroinvertebrate data at an additional 11 sites in 2000 and an additional seven sites in 2001. Three of these sites were in the Horse Creek watershed and four in the South Fork McKenzie River. The four sites in the South Fork were collected with the Thurston High School Senior Biology class.

The TOV could not be determined for this question. A data set of adequate size is not available to note changes through a short time period and account for the complex nature and natural variability in stream systems.



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 beyond the Forest Plans originally expectations.

No formal monitoring was conducted for riparian terrestrial habitat in FY01. Riparian area protection is monitored, however, during the Forest Supervisor and Province monitoring trips for those projects that may affect riparian areas.

Though the TOV was not directly measured, 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?*

Recent monitoring reports (FY99, FY01) raised the issue of restoration of special habitats. This fiscal year site visits focused on meadow restoration projects. Following FY01 recommendations, a matrix for evaluating and prioritizing special habitat restoration needs was developed for the local and Forest-wide scales. The Forest Watershed Restoration Priority Process used the results of the Forest-wide evaluation of unique habitats as one of the eight criteria for prioritizing 5th field watersheds for restoration. Four 5th field watersheds were ranked high for unique habitat restoration needs, 6 moderate, and 17 as low.

Special habitats are identified for maintenance and/or restoration.

The prioritization process resulted in maps of special habitats that botanists, wildlife biologists, and other local experts identified as significant habitats for maintenance and/or restoration. The process brought out two main concerns for special habitats: non-native species and tree invasion.

While individual meadows across the Forest may be affected by tree invasion, the oak and pine habitats are of particular concern. Projects to address information needs for these habitats will be initiated in 2002.

A trip to the Middle Fork RD's Bunchgrass Meadow where the matrix was used showed its value in documenting issues pertaining to a specific site but its limited benefit in being used alone to rate sites against one another. Bunchgrass Meadow had burned in the 1991 Warner Creek fire. The monitoring trip was to check on non-native species abundance, tree mortality and re-establishment on the forest-meadow ecotone, and the conditions associated with erosion-control check dams installed after the fire. Weeds seem to be limited to the road and lower trailside at the lowest limit of the special habitat. Tree mortality and recovery within the meadow are associated with mortality levels in the adjacent stands. Seedlings seem to be most common where trees had been present before the fire. Gullies dating back to historical livestock grazing are in different stages of recovery. Some check dams have accumulated significant amount of sediment. In other areas there appear to be erosion still occurring. Follow-up by hydrologists/soils scientists will be recommended to determine whether further treatments are needed.

## Wildlife

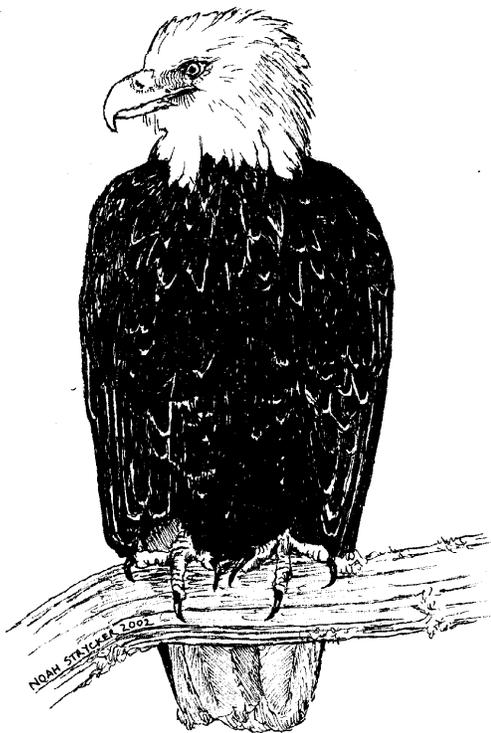


Monitoring Questions15: Bald Eagle

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

There are 24 potential bald eagle nest sites on the Forest. No new sites were discovered or otherwise lost due to damage. Where activities have taken place, Forest Plan S&Gs are applied to protect the birds, primarily in the form of seasonal restrictions. Two sites on the Middle Fork; however, in close proximity to the highway, are experiencing habitat disturbance.

Monitoring of bald eagle numbers across the Forest indicate that habitat is adequate. Eleven nests were active this year with 6 young successfully fledged. Two management plans are completed since Forest Plan implementation. Three addition plans are in progress.



BALD EAGLE, *Haliaeetus leucocephalus*



Monitoring Questions 18: Peregrine Falcon

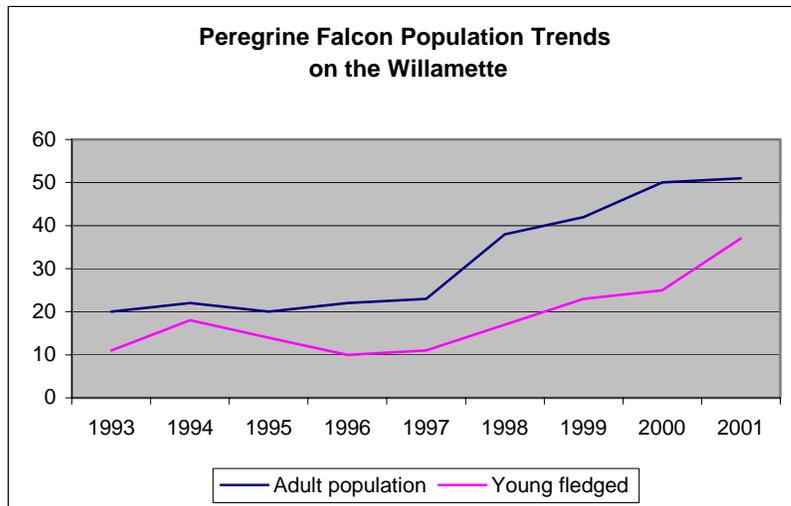
*Are the objectives for peregrine falcon recovery being met on the Forest?*

In August of 1999 the peregrine falcon was removed from the federal Threatened and Endangered species list (delisted). The Forest currently manages the bird as a Regional Forester's sensitive species. A requirement of the Endangered Species Act is to monitor a delisted species for at least 5 years. The Forest will continue to monitor the known territories.

Management Plan for all known Peregrine Falcon sites expected by 2002.

Efforts to complete management plans for all the Peregrine Falcon sites was stepped up in 2001. A programmatic plan for all known sites has been completed and submitted for Forest Supervisor approval. Final approval is expected in 2002 once a Forest Plan Amendment is also completed to incorporate the recommendations in the plan as S&G's in the Forest Plan.

The Peregrine Falcon Habitat objectives for recovery of peregrine falcons are being met. Below displays the trend in Peregrine Falcon populations over the last several years. Adult population has grown to 51 birds and 37 young successfully fledged this year.





Monitoring Questions 19: Primary cavity excavators

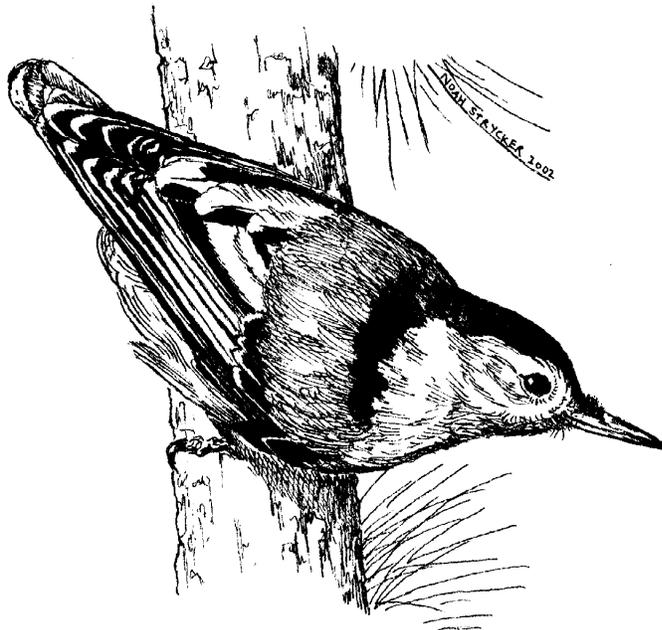
*Is adequate amount, quality, and distribution of snag habitat being maintained to ensure viable populations of cavity nesting species?*

Harvest units are monitored every year to determine whether the number, size, species, and distribution of wildlife trees, as prescribed in the Environmental Assessments, are being left. A sampling of 73 harvested areas reflected a 95% compliance rate; however, 100% compliance remains the management objective.

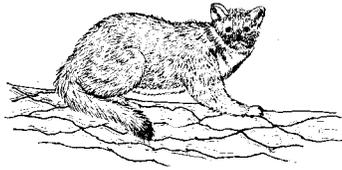
In FY01 monitoring for primary cavity excavators (PCE) use was completed on 265 individual snags showing 36 with PCE activity after one year. It is estimated that between 30-75% of snags created will be used after 5 years. Changes in these numbers are expected over time as snags age. Habitat for PCEs seems to be adequate to meet forest level objectives.

An additional 567 snags were part of a follow-up monitoring project on created snags that had been originally monitored in 1997 and 1998. Fall and mortality data was collected on these snags in 2001. A report documenting these results as well as results describing the created snag features associated with primary cavity excavator resides at the Supervisor's Office (Boleyn, P. E. Wold and K. Byford. 2000. Created Snag Monitoring on the Willamette National Forest. USDA Forest Service Gen. Tech. Rep. PSW-GTR-181).

It is important to note that the Northwest Forest Plan requires a minimum of 15% canopy retention be left on all units. Many units on the Forest well exceed this amount, reducing the importance of this question in those areas.



WHITE BREASTED NUTHATCH, *Sitta carolinensis*



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 light of the new NWFP allocations. The new network is in keeping with the requirement to provide connectivity between large LSRs. As a result of major changes in how we manage for pileated woodpeckers and marten 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 are monitored for their effectiveness in maintaining elk population densities. Most wildlife habitat improvement projects are implemented 2 to 5 years after sale completion. Habitat improvement projects are scheduled on 96 timber sale units.. Almost half have not been completed within two years after sale completion. Browse cutback is often delayed to avoid conflicts with silvicultural prescription implementation.

Objectives for habitat conditions for deer and elk are currently not being met. A group of Willamette National Forest and ODFW biologists are continuing efforts to revise the Wisdom model (a model that assists wildlife biologists in determining habitat conditions over a large area). The recent workload of Northwest Forest Plan Survey and Manage issues have unfortunately required this project to take a lower priority at this time.



New Monitoring Question: Survey and Manage<sup>1</sup>

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

In 1994, the Northwest Forest Plan listed specific species for special protection. Known sites of these species should be managed for their protection and surveys are to be conducted for selected species whose habitat is planned for ground-disturbing activity. This “survey and manage” provision provides benefits to amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropods. Much of the Botany field time was dedicated to both pre-disturbance project surveys and to regional “random grid” surveys called for in the January 2001 EIS Survey and Manage Amendment to the Northwest Forest Plan. In 2001 a total 5,500 acres were visited for fungi, vascular plants, bryophytes, and lichens. Many of these required multiple visits. On the Sweet Home District as an example, over 275 locations representing 28 species, some rare and some now known to be common were found. One of the most notable finds is a new population of *Bridgeoporus nobilissimus* (commonly known as fuzzy sandoze) near Gordon Meadows, extending its range to the south.

Rare species located and protected as a result of surveys.

For the wildlife program, surveys were completed on at least 7,144 red tree vole acres, 9,440 mollusk acres, and 12,204 great grey owl survey acres. Surveys for lynx occurrence were completed across the Forest using sampling and DNA analysis. The analysis was designed and implemented in partnership with the FS, NFS, FS Research and the University of Montana, with assistance and participation of the FWS, BLM, NPS, tribes and states. Results for lynx surveys for 2001 have not been completed and no positive results were confirmed for 2000. All surveys for Category 2 species were completed before any ground disturbing activity.

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<sup>1</sup> This monitoring question was established as a result of the Northwest Forest Plan Amendment in 1994.



## 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 2823 acres and 17.1 miles of trail for sensitive plant species in FY 2001. Forestwide, we spent 9 days monitoring sensitive plant populations including *Cimicifuga elata*, *Calamagrostis breweri*, *Botrychium montanum*, *Botrychium minganense*, *Ophioglossum pusillum*, and *Romanzoffia thompsonii*.

The Botany program has also initiated two new challenge cost share projects and extended three others:

- The Forest entered into an agreement with the Carex Working Group (CWG) to inventory two large wetlands on the Middle Fork R.D. The resulting reports provided information on the occurrence and distribution of *Carex* taxa. The CWG has also worked on an atlas of species occurrences. This data may enable the CWG to extend distributions of some species and voucher specimens for the OSU and Forest Herbarium.
- An agreement with the Northwest Botanical Institute will provide an inventory of the bryophytes present in three notable bogs on the Forest (Black Creek bog, Parish Lake bog, and Smith Ridge bog).
- Botanists working for The Nature Conservancy determined the southern most occurrence of *Corydalis aqua-gelidae* occurs on the Middle Fork R.D. This work was published in the Institute for Applied Ecology. Work has continued to determine the exact species and subspecies of the population. A 2-year analysis showed the Middle Fork population is clearly aligned with *Corydalis aqua-gelidae*; however, based on additional information gained this year, the expressed agreement with a 1996 treatment of this group and concluded that *C. aqua-gelidae* should be considered yet another subspecies of *Corydalis caseana*.
- Botanists working for The Nature Conservancy continued the search for the sensitive species' Hell's Canyon Rockcress (*Arabis hastatula*). Four populations were found in 2000 and one additional population was found this year. Populations are now known from Iron Mountain, Browder Ridge (2 sites), Echo Mountain, and Wildcat Mountain. Eleven other sites, scattered across the WNF, were surveyed but *Arabis hastatula* was not found. The distribution of this species in the western Cascades is apparently confined to a small area in east Linn County.
- The Sweet Home and Detroit Districts are working with Cascades Mycological Society to survey for fuzzy sandoze (*Bridgeoporus nobilissimus*) for the 2nd year. No new sites

were found during the first year of survey, but many interesting mushrooms appear on the species list that resulted from this years work.

The Forest also participated in several activities that interacted with and educated publics interested in plants. These events included wildflower walks, a three-day heritage expedition on Sweet Home District, and one mushroom hike to Hackleman Creek.



New Monitoring Question: Noxious Weeds<sup>2</sup>

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

The annual contract with Oregon Department of Agriculture for biocontrol releases, surveys, and treatments on all sites covered under the new Integrated Weed Management was completed. Treatments at Ranger Districts amounted to over 840 acres. Over 770 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, and the Oregon Hunter's Association. Beyond manual control, approximately 30 acres were treated with herbicide. Included in the herbicide program this year was a joint City of Detroit and the Oregon Department of Agriculture. After soliciting and receiving permissions from private landowners in Detroit and Marion Forks, well over half the area's giant knotweed occurrences were added to the annual spray program. In the Waldo Lake Wilderness, surveys for noxious weeds covered 42 acres.



New Monitoring Question: Native Species Revegetation<sup>3</sup>

*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 but cost is still prohibitive to use on every project. Seventeen acres were seeded with native seed in 2001. This included 10 acres along roadsides where weeds were previously pulled. At Sweet Home native seed was used in the rehab of two wildfires. One project seeded only the fire line. Finally three acres of disturbed area after construction of Detroit's Jefferson Bridge over the North Fork Brietenbush River was seeded with a mix of over 50% blue wildrye.

Approximately two pounds of *Camassia quamash* seed was collected for the Camas Prairie Restoration Project. *Deschampsia caespitosa* and *Hordeum brachyantherum* was grown out as plugs and planted at Camas Prairie and the Ames Creek swale. Both species are growing well and this appears to be a good way to acquire plants from a small amount of seed.

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<sup>2</sup> This monitoring question was established in 1999 as part of the Noxious Weed EA completed under Forest Plan Amendment 42.

<sup>3</sup> This monitoring question was established in 1999 as part of the Native Species Revegetation Program. No Forest Plan amendment.

## Resources and Services to People

**T**his 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. Below is a summary of FY01 monitoring results 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.

### CONTENTS

 Summary Results

 Cultural Resources

 Unique Areas

 Recreation

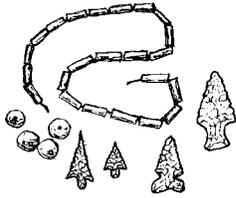
 Timber

 Transportation

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.

### BIOLOGICAL RESOURCES SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
<b><i>Cultural Resources</i></b>			
2 Cultural Resources	Site visits	Results OK	Heritage FY01 monitoring report
<b><i>Specially designated unique areas</i></b>			
3 Wilderness	District reporting, on-site visits by district personnel	Results OK	Recreation FY01 monitoring report
4 Wild and Scenic Rivers		Results OK	
5 Roadless Areas		Results OK	
9 Special Interest Areas		Results OK	
39 RNAs	Site visits, data collection, scoping	Results OK	RNA FY01 monitoring report
<b><i>Recreation</i></b>			
6 ROS	District reporting, on-site visits by district personnel	Results OK	Recreation and Scenic FY01 monitoring report
7 Recreation Visitor Use		Results OK	
8 Scenic Resources		Results OK	
10 Trails	District reporting, site visits	Results OK	Trail FY01 monitoring report
11 Developed Recreation	District reporting, on-site visits by district personnel	Results OK	Recreation FY01 monitoring report
12 Off-road vehicle use		Results OK	
<b><i>Timber</i></b>			
22 Timber Suitability	Review of land allocation changes	Results OK	Timber Suitability FY01 report
23 Timber Program	Review of timber records	Results OK	Timber records
24 Silvicultural Practices	Review of silvicultural records	Results OK	Silvicultural records
<b><i>Transportation</i></b>			
38 Transportation System	Reports, databases, traffic counts	Results OK	Transportation FY01 report



## Cultural Resources

Monitoring Questions 2: Cultural Resources

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

The Forest cultural resource inventory reflects a resource base of over 2300 known historic properties, including archaeological sites, historic sites, trails, and structures. Many of these sites had been impacted (by early Forest Service road construction and logging) before they were first located and identified.

During FY01, Heritage staff documented visits to 92 sites, about 4% of the total inventory. New impacts were noted at 7 of the sites. Minor vandalism was evident at at least one historic structure, three sites were damaged by recreation use, and indications of looting were noted at 2 rock shelters. Another open lithic site experienced severe damage due to a trespass timber harvest by a private landowner. At 5 sites cumulative impacts of on-going adverse conditions were reported. These include, recreation use, illegal artifact collection, ORV use, reservoir/water erosion. Lack of maintenance continues to present problems for many historic structures.

It appears that overall individual impacts were relatively minor, yet damage assessments at two sites under the Archaeological Resource Protection Act are underway and another is pending. Field archaeologists reported that mitigation had been successful at 10 sites visited, while the majority of sites had no prior mitigation requirements. Additional protection or some form of new mitigation, including more monitoring, was recommended for 17 sites.



## 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 through data collected on physical impacts, self-issued entry permits, and observations made by managers. 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; however, no data was collectively reported for this document. An account of the data states use levels are within the established limits with some exceptions. Specific areas of concern Marion Lake, Jefferson Park, and the Eight Lakes Basin/Duffy Lake areas. Concern also exists in the McKenzie Pass Area Wildernesses north of the Obsidian Limited Entry Area (LEA). Use level in the LEA are generally stable. Attention is continuing to be directed at monitoring the situation in Pamela Lake LEA.

Conditions improving in the Obsidian Area.

Physical impacts are fairly stable overtime, although some signs of increased impact are showing up in the Erma Bells area of the Three Sisters Wilderness. This area has a slight increase in campers choosing not to comply with the regulations requiring use of designated sites only for overnight stay. In the Obsidian Area, physical conditions are showing improvement though use remains stable. The McKenzie Pass area continues to experience illegal motorized entry by snowmobile operators during the later winter/spring snow conditions. Past patrols have been partially successful, but limited funding has hampered our ability to maintain patrols.

Information continues through multiple channels. Region 6 of the US Forest Service is beginning a 3-year survey to help understand visitor perceptions of Wilderness and their desired and actual experiences.



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?*

Formal and informal monitoring of conditions on Wild & Scenic Rivers (WSR) are occurring in accordance with applicable WSR management plans. Plans have been written for the North Fork WSR and the Upper McKenzie WSR. A management plan for Elkhorn Creek, which was designated as Wild and Scenic under the Opal Creek legislation, will be prepared in 2002.



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. There were no activities planned or implemented in roadless areas on the Detroit and Middlefork Districts in 2001. Timber sales were planned within the Moose Roadless Area (Sweet Home District) in 2000 but have not been implemented, however, proposed changes are within projections made in the Forest Plan.

With respect to unroaded areas, the Pyramid Timber Sale (Sweet Home District) is analyzing alternatives that could affect a portion of an unroaded area currently classified as matrix lands under the Northwest Forest Plan. The timber sale is planned on the edge of the unroaded area. The recent Washington Office Roadless EIS decision has left management of this area to local forest planning decisions.



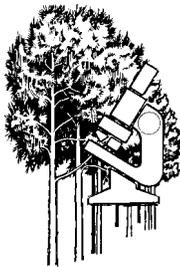
Monitoring Questions 9: Special Interest Areas

*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 (e.g. Fall Creek, Hardesty Mountain, and Bradley Lake), but overall area attributes are being protected.

The management plan for Opal Creek Scenic Recreation Area was completed in 2001. The analysis of the draft plan and alternatives began in July 2001 and a final decision regarding management direction for the area is expected in spring 2002.

At Hidden Lake and Terwilliger Hot Springs SIA, management actions over the past three years aimed at correcting overuse, inappropriate visitor behaviors, and unacceptable resource damage. The corrective actions are having positive effects and are moving social and biological conditions in a direction consistent with the reasons for which the area was designated an SIA.



Monitoring Questions 39: Research Natural Areas

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

Three aspects of the RNA Program are monitored each year. Of concern is whether the RNAs are being kept free from management related or similar type disturbances, whether baseline data is being collected and made available for use, and finally if any additional RNAs are needed. Of the RNAs visited in 2001 no management related disturbances were noted. Management related disturbance to other RNAs not visited in 2001 is not expected. Fire suppression activities were necessary to contain a two fires in RNAs. The Charlton RNA and the Three Creek RNA had minimal damage from fire suppression activities. The 20 acre fire initiated outside the Three Creeks RNA was limited to approximately 2 acres within the RNA most probably saving the entire 800+ year stand.

With respect to data collection, data was collected at Rigdon Point and McKenzie Pass in 2000. McKenzie Pass permanent plots were remeasured as an addition to the baseline data. Mortality plots were measured at Rigdon Point to determine the mortality trend of the knobcone pine within the RNA. A summary of these results were made available in 2001. In addition to the mortality plots at Rigdon Point, further monitoring of the recovery of knobcone pine following a prescribed burn was completed. A complete story of the work and monitoring results at Rigdon Point can be found at <http://www.fs.fed.us/r6/willamette/mfork/knobcone.pdf>.

In the area of additional RNAs, a portion of the Warner Creek Fire in 1991 has been proposed as a possible RNA in a subsequent fire recovery EIS. The entire burn and surrounding land has also been proposed as a RNA by citizens. Both these proposals will be studied for possible incorporation into the RNA network during the Forest Plan revision planned in 2009. The TOV has not been exceeded.



## Recreation

Monitoring Questions 6: Recreation Opportunity Spectrum

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

The question focus attention on Standard and Guidelines in the Forest Plan designed to manage activities for the removal of resource products and to manage actions taken to accommodate or control human use to reduce their negative affect on dispersed ROS settings. Activities are being conducted in accordance with management S&Gs for recreation opportunity spectrum settings (ROS).

Forest Service presence increased at Elk Lake area.

In 2001 inconsistent use within dispersed ROS settings included Elk Lake area and Santiam Pass. Examples at Elk Lake included occasional use levels and party sizes or user activities inconsistent with the designated ROS setting. In fiscal year 2001, increased Forest Service presence was used in the Elk Lake area to reduce or limit these inconsistencies but more presence and other types of controls are still needed. Barrier posts were also installed to keep four-wheel drive vehicles to the main access roads and meet S&Gs for this management area. Use in the Santiam Pass Area continue to increase each summer season with largely unmanaged dispersed day and overnight uses, along with value conflicts and depreciative behaviors. The Cougar Recreation Area continues to show improvements in user behavior and reduction in site degradation, but at a high cost in terms on onsite monitoring and law enforcement presence.

A Management Plan has been completed for Waldo Lake Basin (Amendment #34, in Amendments Section near the end of this document) where perceived ROS setting inconsistencies existed. Also a recreation and resource management plan for the Santiam Pass dispersed Recreation Area was started this year.



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 were based on a forestwide database that is no longer available on the Forest. Without this capability the recreation visitor use data cannot be maintained nor directly compared to estimates in the Forest Plan. Forest recreation use will be systematically measured in 2002, and every five years thereafter, as part of the national recreation use monitoring effort. The 2002 results will allow meaningful comparison to Forest Plan estimates and provide an accurate baseline against which future use measurements can be assessed and trends determined.

For FY2001 the Sweet Home RD reported a small overall increase in recreation use based on observation by recreation managers. Also McKenzie reports an increase in recreation visitor days for dispersed recreation areas, trails, and developed recreation settings.



Monitoring Questions 8: Scenic Resources

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

No forest level monitoring of the scenery resource was done in 2000 or 2001; however two districts reported that visual objectives set by the Forest Plan are being met. The Middle Fork District reported that a few activities were implemented during the past year and all met or exceeded scenery standards. 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 and the level of new or reconstructed trails are monitored and reported each year. Project management activities are generally consistent with S&Gs for trail management classes, although trail maintenance budgets are allowing for only minimum level of maintenance. This funding is being augmented with Recreation Fee Demonstration funding to ensure that management-class S&Gs are being met on all Forest trails.

Focus is on heavy maintenance and reconstruction of trails. Budget constraints have not permitted the Forest to meet trail construction and reconstruction targets set in the Forest plan. Current emphasis on the Forest is in heavy maintenance and reconstruction to correct trail problems that have resulted from several years of deferred maintenance. Some changes in trails program project priorities have also occurred since the signing of the Forest Plan



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. Smaller and other developed sites are managed under the Recreation Fee Demonstration Program, which allows the Forest to retain site revenues to supplement allocated funding and thereby maintain the sites to standards expected by and acceptable to visitors. Three toilets in the Riverside Campground (Detroit District) were replaced in 2001 using a combination of fee demonstration and allocated facilities maintenance funding.

With respect to sites being used in a manner consistent with the site design purpose, there are occasional problems with a very small percentage of visitors attempting to live in campgrounds. Limited day use boat launch parking capacity at Detroit Lake is causing occasional problems when day users are parking their vehicles and boat trailers in adjacent campgrounds. There are also occasional problems with group size and/or equipment exceeding the designed capacity of sites. These problems are long-term, but transitory. They appear to be part of a consistent, long-term trend, but the Forest does not have funding for major renovations of developed sites to better accommodate larger groups nor the increasing size and amounts of recreational equipment, which many visitors bring.

Users desire more rental cabins and amenities in campgrounds; FS is limited in its ability to provide these. Finally the range of sites and their distribution are generally consistent with customer's preference and use trends. There are occasions when demand exceeds site capacity in areas (i.e. Detroit Lake, McKenzie River, Hills Creek). Demand for rental cabins regularly (annually) exceeds the Forest's limited supply, but the Forest has limited opportunities to increase this supply.

On-Forest and regionally there appears to be a trend in visitors desiring a higher level of amenities (e.g. showers, RV hook-ups, flush toilets) than that typically provided in Forest campgrounds.



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 habitats), and is resource damage being minimized – in areas that are suitable for each appropriate ORV use?*

The Forest has no comprehensive planned summer-season designated riding/use areas except for Forest roads and trails that are not closed to such use. The Forest has embarked, however, on a comprehensive effort to identify and clearly designate more forest system roads that are suitable for ORV use. The results of this effort should be in place by mid-2002. A ORV

New effort to identify and clearly designate more areas for ORVs.

riding area at Santiam Pass was also begun but probably will not be completed until 2003. Blue River Reservoir draw-down area and Huckleberry Flat are providing ORV riding experiences, but probably not in the best locations, times of year, or in accordance with user interests. There are some resource visitor management problems as a result. Low water in Detroit Lake made ORV use and associated resource damage in the dry lake bed a particular problem during 2001.

Snowmobile incursion into the Three Sisters Wilderness continues to be an issue despite enhanced wilderness boundary signing and patrolling. While some user groups are aware of this issue and some have assisted in attempting to improve the situation, incidents of trespass are becoming more widespread and blatant.

Safety, as reflected in accident reports, does not seem to be a problem. Conflicts and complaints between user groups, however, (e.g. snowmobiles vs. 4-wheel drive vehicles or snowmobiles vs. Nordic skiers) continue in some areas such as the Brandenburg Shelter area.

There is no reported resource damage or concerns from ORVs operating in designated areas. There are, however, concerns about the resource impacts from unauthorized ORV use in undesignated areas (e.g. Three Sisters Wilderness, Eagle Creek area, power line rights of way on Detroit District, Detroit lakebed, Camp 6 area, among others). There are also concerns of disturbance to bald eagle from ORV activity on adjacent lands in Lookout Point and Hills Creek areas.

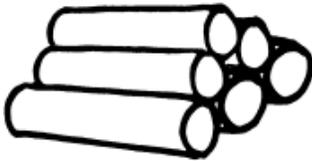
## Timber

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. No changes to the suitable and available lands base occurred in 2001. NFMA requires that the timber suitable land base be reviewed every ten years. The next review will be required in 2003.



Monitoring Question 23: Timber Program

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

The timber sale program can be classified into two categories, volume “offered” under the regular sale program and alternative volume “awarded” in response to Law 104-19, Section 2001 (k)(3) commonly called the Rescission Act. In FY01 the regular sale program the Willamette NF offered 6.5 mmbf (13,754 CCF) for sale, for about 6% of the predicted amount. Of the amount offered bids were received from prospective purchasers on 1.4mmbf. The remainder received no bids. The Forest also awarded 10.0 mmbf of alternative volume sales. The TOV has been exceeded. The low accomplishment in FY01 is reflective of a requirement that all timber sales must complete surveys for species which little is known of their distribution or locations. These species include lichens, bryophytes, fungi, arthropods, mollusks, amphibians, and mammals.

Timber sales low for FY01 while survey for species are conducted.

The practice of uphill falling is monitored to reduce breakage of trees during harvest. Timber sale contracts include language to require falling techniques that protect residual stands, soil, water, and other resources rather than specifically requiring uphill falling. In FY01, three reviews were completed and all indicated acceptable use and resource protection.



Monitoring Question 24: Silvicultural Practices

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

Growth responses from timber stand improvements (TSI) appear to be normal. Genetically improved stock is being used as planned and will maintain or exceed the growth of natural seedlings. The regenerated harvest units were less than 60 acres, the Regional maximum.

Of the 803 acres of regeneration harvest in FY96, 698 acres (87%) were certified by FY01. The remaining 105 acres (13%) are in the examination stage following reforestation or were replanted because of damage and are awaiting certification in FY02. Since 95% of the stands must meet certification standards within 5 years of harvest, the requirement has not been met and the TOV has been exceeded. Specifically in FY01 this was due to planting delays because of late snow melt and wilderness smoke management restrictions that delayed the treatment of fuels required before planting.

TSI accomplishments of thinning, release, and fertilization totaled 14,825 acres. Accomplishments are not at predicted plan levels of 18,100 acres annually. Reduced funding for young stand treatments, such as thinning, are the reason for the reduced in acres treated. Another reason is the reduction in acres where timber sales can occur, thereby reducing the ability to generate Knutson-Vandenburg funds for young stand treatments. As the Northwest Forest Plan is implemented, it is anticipated that the treatment needs will phase downward to approximately 6,250 annual acres. The TOV cannot be assessed.

Insect and disease surveys conducted in 2001 showed mortality on affected areas decreased from 11,150 acres last year to approximately 9,146 acres this year. Black bear caused mortality in 3,342 acres.



## Transportation

Monitoring Question 38: Transportation System

*Is the transportation system meeting the planned resource objectives?*

Policy changes in the last several years have had a profound effect on how roads will be managed in the future. In the past the primary purpose for road construction on the Willamette was to enable timber harvest. Most of these roads exist in areas where timber harvest is no longer an objective. With declining timber harvest came declining budgets from which the Forest's roads can be constructed and/or maintained. No miles of road were constructed on the Forest in 2001 and only 37.8 miles of road reconstruction were completed (see table below). This falls far below estimations in the Forest Plan of 40 miles and 174 miles, respectively. The Forest receives approximately one-third of the funding necessary to maintain its current road system. This has resulted in a backlog of unfunded road maintenance. The situation is being duplicated in Forests across the Nation, prompting the Forest Service to initiate the new Roads Management Policy that shifts our focus away from *developing* new roads to *managing* the existing road system. 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	21.8
Miles of road reconstructed	37.8	Miles of temporary road closed	No longer reported
Road Suitability		Traffic volumes	
Roads Suitable for Passenger Cars	1,563	It generally appears that traffic volumes are increasing over time on the Forest's arterial routes. Traffic generated by recreation use, which has increased 10 fold since 1950, is the likely cause for the upward trend making these routes a high priority for annual maintenance and repair.	
Roads Suitable for High Clearance Vehicles	4,289		
Closed Roads	732		
Total Miles	6,584		

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 Forest policies. Adjustments should be made to the Forest Plan estimates to align with new policies.

# Social, Economic, and Budget

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

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 Summary Results

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 Detailed Expenditures

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 Forest Receipts

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 Payments to Counties

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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.

## ECONOMIC & SOCIAL RESOURCES SUMMARY FINDINGS

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Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
<b><i>Economic &amp; Social</i></b>			
41 Economic & Social	Review of economic reports, agency policies, public contacts, and media reports.	Results OK	Economic and Social FY01 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 FY01 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. The simple answer is no. The seminal events of the year were rising energy prices, a serious drought in the Pacific Northwest, an economic downturn, and September 11th. National and Regional direction are not yet reflecting policy changes that may come as a result of the change in the Administration.

Media Scan: Media scans provide indicators of where the public interest lays. A scan of newspaper articles captured on the Washington Office Newsclips website, and published in Eugene's Register Guard, Salem's Statesman Journal or Portland's Oregonian for the period January 01, 2001 through December 31, 2001, produced 110 articles related to the Agency:

- 22 were wildland fire-related (may be a response to the fatalities at the 30-mile fire);
- 12 addressed roadless/roads policies;
- 11 addressed logging;
- 8 addressed the so-called Rec Fee Demo;
- 8 addressed old-growth logging;
- 3 addressed economics as it relates to timber management; and
- 2 addressed protection or conservation of public lands.

The forty-four remaining articles related to a variety of other agency-related topics.

Public attitudes can still be characterized as conservation or preservation oriented. Attitudes, beliefs and values as they relate to the management of NFS lands, in general, and the Willamette National Forest, in particular, continue to be characterized as conservation- or preservation-oriented. But it remains to be seen whether that will change if the recession, terrorism, and the war on terrorism continue.

The Forest is currently conducting a large-scale social assessment, covering most of the Willamette Province. The resulting data will serve well to address this monitoring question in future years.

FISCAL YEAR 2001 FINAL EXPENDITURES

Description	FY01 <sup>1</sup>
Facilities Capital Improvs & Mtce.	4,879,338
Flood Activities	410,047
Forest Products	8,509,995
Grazing Management	1,885
Knutson/Vandenburg Funds	5,732,079
Land Management Planning Activities	1,029,687
Landownership Management	457,302
Law Enforcement	116,288
Minerals and Geology Management	248,559
Recreation/Heritage/Wilderness	1,858,150
Road Capital Improvs & Mtce.	5,656,837
Senior Program	132,382
State and Private Forestry	206,945
Trails Capital Improvs & Mtce.	408,633
Vegetation and Watershed Management	1,381,716
Wildland Fire Management	7,343,039
Wildlife and Fisheries Habitat Management	1,001,656
<b>TOTAL</b>	<b>39,374,538</b>

<sup>1</sup> 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	Receipts to Counties	
Fiscal Year 2001 Receipts..... 5,575,567	Fiscal Year 2001	\$37,988,876
Forest Plan Est. Receipts.....167,979,805	Forest Plan Est. Payments	\$ 41,994,121
Forest Plan estimated receipts and payments are inflated to represent 2001 dollars.	<b>County Breakdown</b>	
	Clackamas	\$11,298
	Douglas	\$1,178,816
	Jefferson	\$3,024
	Lane	\$23,471,680
	Linn	\$10,670,537
	Marion	\$2,653,521

FOREST PLAN MONITORING QUESTIONS  
*Social, Economic, and Budget*

# Implementation Monitoring

**M**Q 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 2001 to focus specifically on compliance with the Forest Plan. One level was carried out at the Forest level by the Forest Supervisor, the second at the District level by the District Rangers.

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 Forest Supervisor Reviews

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 District Ranger Reviews

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 Summary Results

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## IMPLEMENTATION MONITORING SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
<b><i>Standards and Guidelines</i></b>			
1 Implementation Monitoring	Environmental documentation and field reviews by the Forest Supervisor	Results OK	Monitoring trip documentation
1 Implementation Monitoring	Field sheet record by watershed personnel	Results OK	Water quality FY01 monitoring report



## 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 2001. The 2001 Forest Supervisor monitoring reviews focused on timber sale activities (and forest product sales) as a follow up to concerns raised by an Office of Inspector General's report in response to concerns about Forest Service timber sales and NEPA documentation nationwide. In addition to reviewing the projects for compliance with Forest Plan standards and guidelines, the NEPA documentation was reviewed for specific items cited in the OIG report.

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### PROJECTS MONITORED IN 2001

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Ranger District	Project Reviewed	Date of Review
Sweet Home	Prairie Gate EA/DN and Prairie Gate Timber Sale	July 9-10, 2001
Blue River & McKenzie	North Fork Quartz and Blue River Face Timber Sales	July 16-17, 2001
Detroit	Lost Bough and St. Nicholas Bough Sales	September 10-11, 2001
Middle Fork	Rhody Timber Sale	September 18-19, 2001

## *I. Forest Supervisor Reviews*

### Summary of NEPA Results

All NEPA documentation was accurate and adequate. The acres of harvest documented in the decision, was either equal to or less than the acres implemented in the individual timber sales. In one instance, the numbering system for harvest units in the timber sale contract was different than the numbering system used to identify the units in the NEPA documents. This particular sale predated the current direction to either use a consistent numbering system or to provide a crosswalk between the timber sale and the EA numbering systems in the timber sale prospectus. On at least one project the review team

felt that the Purpose and Need should have been more specific and focused on the desired project results. For the timber sales reviewed, adjustments were necessary during implementation as a result of changed conditions, new direction (Survey and Manage) or operational feasibility (yarding equipment). All adjustments were documented in the project files and determined to be consistent with the original EA and Decision.

#### Summary of Forest Plan and EA Requirements Compliance

##### *Prairie Gate Timber Sale*

Standards and Guidelines and EA mitigation requirements for Riparian Reserves, soils, fuel treatments, wildlife/road closures, erosion control, down woody material, green tree reserves and trails were reviewed. With the exception of green tree reserves, all S&Gs were met or exceeded on the timber sale.

Because the timber sale included stands that had previously had a shelterwood harvest, opportunities to provide desirable green tree reserves, especially dispersed reserves within the units, were limited. A GIS analysis of the harvest unit acres and designated GTRs for this review indicated that the acres of GTR were approximately 6 acres less than 15%. As a result, the District designated an additional 6 acres of unharvested stands within the sale area as GTR. Another GTR concern identified in the review was firewood harvesting of large down trees from a designated GTR within the sale area. Although the area was designated in the vegetation/stand database and GIS as a GTR, it was not posted on the ground and timber sale administrators didn't know it was a GTR.

The Forest Supervisor's recommendation from this review was to establish a Forest policy regarding marking, posting, or otherwise identifying GTRs on the ground.

##### *North Fork Quartz and Blue River Timber Sale*

These sales are part of the Blue River Landscape Study in the Central Cascades AMA. Standards and Guidelines and EA requirements reviewed on these sale units included variable density silvicultural prescriptions, use of fire to reduce fuels and restore natural fire regimes, soils, Riparian Reserves, and down woody material. All of the S&Gs and EA requirements were met or exceeded.

An integral part of the silvicultural prescription for these timber sales was the post-harvest under burning in stands with 50% to 60% of the original canopy still intact. The review took place less than a month after several of the units were burned, so it wasn't possible to see the full effect of possible overstory mortality, but it appeared to be within the prescription objectives of maintaining 50% live canopy. The mortality that was caused by the fire was planned for and will create the dead wood structure needed for various ecosystem functions. Use of fire adjacent to and with Riparian Reserves also was consistent with EA requirements, the silvicultural prescription, and in compliance with S&Gs for Riparian Reserves.

One issue surfaced regarding safety issues and under burning on partial harvests in steep terrain. A hazard the burners encountered was rolling “chunks” created by “long-butting” logs during timber felling. The review team recommended that the Forest Timber Group look at ways to use timber sale contract provisions to address this safety issue on future timber sales.

#### *Lost Bough and St. Nicholas Bough Sales*

Standards and Guidelines and project requirements for Riparian Reserves, wildlife, silviculture (insects and disease), cultural resources, and recreation/trails were reviewed on these sales. With the exception of trails, all S&Gs and project requirements were met or exceeded. Several of the units included young western white pine, which were pruned both to produce a product and to lessen the chances of the young trees succumbing to white pine blister rust. The bough harvest in one stand was also coordinated with a joint FS-Tribal venture to enhance and maintain traditional huckleberry gathering locations.

Trails – A Forest recreation trail traversed the upper boundary of one of the bough harvesting units. The project analysis did not identify the trail as a Class 1 trail and subsequently, treatment prescriptions along the trail did not consider S&Gs for trails. The review team did not identify any significant adverse impacts to the trail and adjacent area, however, if the management class of the trail had been identified during the analysis, the bough sale either directly or through KV projects could have provided opportunities for enhancements or improvements in the corridor.

#### *Rhody Timber Sale*

Standards and Guidelines and EA requirements for Riparian Reserves, Survey and Manage protection measures, visuals, soils, down woody material, green tree reserves and soils were reviewed on several units of this timber sale. All S&Gs and requirements were met or exceeded.

As a result of the Northwest Forest Plan amendment to the Survey and Manage direction, Rhody TS was resurveyed for the red tree vole and several units were modified when vole nests were located in the sale units. The review team looked at several units that had been modified and confirmed that the within unit buffers and/or unit boundary adjustments met the protection measures prescribed for the vole. In one unit, the review team physically recounted all of the reserve trees remaining with the unit after an rtv modification and confirmed that the S&Gs for green tree reserves and wildlife trees were still met for the remaining unit acres. Several of the Rhody TS units are in a Forest Plan visual management zone as a result of the proximity to the Wild and Scenic River corridor on the North Fork Willamette River. During the discussion it was determined that in several cases, due to aspect and other topographical features, many of the units were not visible from the river or any parts of the W&SR corridor. The review team reminded the District planners that visual allocations may be modified or adjusted on a site-specific

basis if analysis shows that the area does not contribute to the scenery of the area of the identified feature, in this case the W&SR corridor.

## *II. Watershed Reviews*

### Summary of Watershed Monitoring

Watershed personnel on the Forest conducted implementation monitoring in FY01. Best Management Practices were monitored by Sweet Home and Middle Fork district personnel. Thirteen timber sales were monitored in total.

At least 35 BMP's were monitored. The majority of monitored activities fully met the EA and contractual requirements and in many cases exceeded those called for. There was a fuel spill on the Mule Mountain thin sale that was contained and cleaned up by the contractor. This resulted in a minor departure rating. Individual ratings and a description of the monitored activities are available in the [Water Quality Monitoring Report](#).



*PILEATED WOODPECKER, Dryocopus pileatus*

# Northwest Forest Plan

## Monitoring on the Willamette

**T**he Northwest Forest Plan (NWFP) amendment to the Willamette Forest Plan resulted in new land allocations and new Standards and Guidelines (S&Gs). A monitoring strategy was developed by representatives of the various Federal land management and regulatory agencies in the Pacific Northwest. The purpose of the monitoring is to verify that actions implemented under the NWFP were designed and completed consistent with the Standard and Guidelines (S&Gs) of the NWFP and implemented as described in the environmental documentation. The second goal is to provide feedback on those S&Gs that have proven difficult to implement, and therefore, draw attention to needed clarification or resolution.

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-  Summary Results

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-  Northwest Forest Plan Monitoring

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-  Key Watersheds

Projects or areas to be monitored are selected by the REO at the Province level.

### NORTHWEST FOREST PLAN SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
<b><i>Northwest Forest Plan Monitoring</i></b>			
5 Northwest Forest Plan Monitoring	Field review	Results OK	Northwest Forest Plan SIR
26 Key Watersheds	District reporting	Results OK	Key watershed and roads SIR



## Results

Northwest Forest Plan Monitoring

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

In FY 2001 one of the areas selected for monitoring in the Willamette Province was the Middle Fork Willamette River watershed on the Middle Fork Ranger District. The review looked specifically at a timber sale in the watershed and the overall implementation of the NWFP.

Key observations of the Province Review Team included:

- The timber sale, overall, was well-designed, implemented, and met standards and guidelines.
- The timber sale analysis did not consider potential effects to a nearby 100 acre late successional reserve. The LSR was not in the sale area, but timber sale related activities near and adjacent to the LSR may impact the function and value of the LSR in the overall reserve network.
- Off highway vehicles, specifically snowmobiles, could be impacting wildlife species in the watershed and had not been considered as a potential impact.

The other area monitored in the Willamette Province 2001 was the Middle Sandy Watershed including Mt. Hood NF and Salem District BLM lands. The results of both province monitoring reviews will be included in a monitoring and evaluation report that is being written by REO should be available to the public in 2002.



Key Watersheds

*Are the Northwest Forest Plan standards & guidelines regarding key watersheds being implemented?*

Key Watersheds were recognized in the Northwest Forest Plan as areas having the highest quality habitat and the greatest potential for restoration, and therefore, are given special consideration. The NWFP requires watershed analysis prior to a resource management activity in Key Watersheds. Furthermore, to protect the remaining high quality habitats, the NWFP recommends there be a reduction in existing road mileage within Key Watersheds or require at least no net increase in road mileage within Key Watersheds.

Districts with key watersheds report all road activities within their key watershed. New roads proposed are accompanied by identifiable roads of similar type for decommissioning. This source of information will become the basis for tracking any net changes to key watersheds. In FY01 no new roads were constructed in key watersheds. Upper McKenzie and North Fork of the Middle Fork key watersheds collectively decommissioned more than 10 miles of road. The table below represents a summary of changes to the road system within key watersheds since 1995.

ROAD SYSTEM CHANGES WITHIN KEY WATERSHEDS  
SINCE 1995

Key Watershed	Miles of road built	Miles of road decommissioned	Current net change
Little North Santiam	0.00	0.30	-0.30
Upper North Santiam	0.41	4.80	-4.39
Upper McKenzie	1.12	11.21	-10.09
South Fork McKenzie	0.00	20.22	-20.22
NF MF Willamette	1.70	12.00	-10.30
Horse Creek	0.00	0.00	0.00
"Chub" Watersheds	0.00	0.00	0.00



# Evaluation and Recommended Actions

**I**n *(month,year)*, the Forest Interdisciplinary Team met to review and evaluate the Forest Plan monitoring results of FY01. The group determined which areas needed increased emphasis and follow up actions based on the monitoring results.

Following are the areas recommended for follow up action.

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## CONTENTS

 Biological Diversity

 Recreation/wildlife

 Special Habitats

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## Special Habitats

The Forest recommends the creation of a matrix to determine treatment techniques in meadow restoration.

FY01 monitoring of special habitats focused on meadow restoration. Following FY00 recommendations, a matrix for evaluating and prioritizing special habitat restoration needs was developed and used in the Forest Watershed Restoration Priority Process. This matrix was useful in documenting issues pertaining to a specific site but had limitations in rating restoration needs for one site against another. A matrix for “treatment options” would assist with prescription and rationale for treatment appropriate for a given special habitat.

## Transportation

The Forest recommends adjusting planned activity levels for road construction and reconstruction to be consistent with the NWFP, Roadless Area EIS, and Access & Travel Management Plans.

Initial Forest Plan level objectives of 40 miles per year for new road construction and 174 miles of reconstruction were established to meet the demand for recreation and timber. The amount of new construction depended mainly upon the need for access to timber sale areas. Some new road construction was expected to occur for recreation purposes (i.e. access to new campgrounds or new recreation facilities). The harvest levels since the Forest Plan Implementation has been adjusted from 491 MMBF to 109MMBF with the

signing of the NWFP. Key watersheds, though timber harvest is permitted do not allow a net increase in road miles. In a similar situation timber harvest in roadless areas do not permit building or reconstructing of roads. All resulting in a reduced need for further road construction.

## Accomplishments

**T**he following table compares the actual accomplishment of selected Forest Plan objectives during the fiscal year 2001 (FY01), October 2000 through September 2001) 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.

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 2001 Accomplishment		Cumulative Avg. Accomplishment	
		Units	Units	%	Units	%
<b><u>RECREATION AND WILDERNESS</u></b>						
Developed Recreation Use	MRVDs	2,056.0	<i>Data unavailable. The database reporting recreation visitor days is currently in transition to a new system. New recreation data should be available in 2002.</i>			
Nonwilderness Dispersed Recreation	MRVDs	1,770.0				
Wilderness Recreation Use	MRVDs	342.0				
Trail Construction/Reconstruction	Miles	78.0	2.0	3%	26.5	34%
Developed Recreation Construction	PAOT	327.0	12.0	4%	69.7	21%
Developed Recreation Reconstruction	PAOT	844.0	37.0	4%	332.7	39%
<b><u>TIMBER MANAGEMENT</u></b>						
Timber Sale Program <sup>1</sup>	MMBF	136.0	16.6	12%	62.6	46%
Timber Harvest Treatments <sup>1</sup>						
<i>Regeneration Harvest</i>	Acres	3,144.0	206.0	7%	973.0	31%
<i>Commercial Thins</i>	Acres	2,808.0	1,257.0	45%	1,525.4	54%
Timber Stand Improvement	Acres	18,100.0	14,825.0	82%	10,861.1	60%
Reforestation <sup>1</sup>	Acres	3,144.0	1,250.0	40%	2,949.1	94%
Fuel (Slash) Treatment <sup>1</sup>	Acres	3,144.0	1,501.0	48%	1,934.6	62%
<b><u>ROAD MANAGEMENT</u></b>						
Road Construction	Miles	40.0	.0	0%	3.7	9%
Road Reconstruction	Miles	174.0	37.8	22%	100.4	58%
Roads Closed	Miles	890.0	--	0%	674.0	76%
Roads Suitable for Passenger Car	Miles	1,580.0	1,563.0	99%	1,592.1	101%
Roads Suitable for High Clearance Vehicles	Miles	4,530.0	4,289.0	95%	4,060.6	90%
<b><u>FISH / WATER / WILDLIFE / LIVESTOCK</u></b>						
Watershed Improvement	Acres	533.0	45.0	8%	591.9	111%
Anadromous Fish Habitat Improvements	Miles	6.0	8.0	133%	7.4	--
Resident Fish Habitat Improvements	Miles	5.8	1.0	17%	3.8	65%
Wildlife Habitat Improvements	Structures	451.0	285.0	63%	526.6	117%
Livestock Grazing (AUMs)	AUMs	200.0	0	0%	105	53%

<sup>1</sup> Based on a cumulative average over seven years.

# Status of FY01 Recommended Actions

**I**n the previous year Monitoring and Evaluation Report, five specific follow up actions were recommended based on Forest Plan monitoring results. Included in the Forest's yearly monitoring is the evaluation of the status of the follow up actions recommended the previous year. The following narrative summary briefly describes the actions taken or the status of the follow up actions recommended in 2000.

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 Silvicultural Treatments

 Special Habitats

 Biological Diversity

 Cultural Resources

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## Silvicultural Treatments

The Forest recommends a report be prepared summarizing reasons why the Forest has not met the National Forest Management Act reforestation requirements.

Several stands harvested in 1995 had not been certified as reforested as required by the National Forest Management Act. A Forest Silviculturist will review each stand that did not meet the reforestation requirement and prepare a summary of the reasons why stand was not successfully reforested. This report will be prepared in advance of the fall 2001 planting season and sent to the Forest Supervisor and District Rangers so they can take any necessary actions to ensure successful regeneration within five years of stands currently in the reforestation period.

*Status:*

*Further analysis of the apparently uncertified acres revealed continuing problems with the stand treatment database and timing of data entry for regeneration surveys. Each District was contacted about uncertified stands and in each case it was determined that the stands in question have been reforested to the recognized minimum stocking levels.*

The Forest recommends an assessment of the stands in need of thinning to meet current Forest Plan objectives.

TSI accomplishments such as thinning and fertilization total 7,825 acres in FY00. Accomplishments were not at predicted plan levels of 18,100 acres annually. Reduced funding for young stand treatments, such as thinning, are the reason for the decrease in acres treated. Another reason is the reduction in acres where timber sales can occur, thereby reducing the ability to use Knutson-Vandenburg funds for young stand treatments. In light of reduced funding and decreased acres available for timber sales, the Forest Silviculturist will prepare an assessment of the stands in need of thinning to meet current Forest Plan objectives. Included in the assessment will be growth and yield, habitat development, or general forest health objectives. The assessment should include an evaluation of which stands are the highest priority for thinning or density management.

*Status:*

***Identifying Needs:*** *In 2001 a Forest assessment of stands in need of either precommercial thinning or commercial thinning was completed. Acres in need of thinning were also categorized by either matrix or late successional reserve land allocations. The assessment evaluated factors and circumstances that may limit the number of acres that could be treated and identified the resources (funding and personnel) required to accomplish varying levels of increased thinning. The assessment was forwarded to the Regional Office and included in a regional assessment of young stand thinning needs.*

***Regional Overview and Consequences of Thinning Backlog:*** *In addition, the Forest Silviculturists in the region published a regional assessment, "Forest Density Management, Recent History and Trends for the Pacific Northwest Region", that discusses not only the number of acres treated and in need of treatment, but also identifies the potential impacts of not thinning the young forests on federal lands in the Pacific Northwest. This report was sent to Forest-level and Regional level leadership teams.*

***Setting Priorities:*** *The Forest is currently in the process of prioritizing restoration needs including young stand thinning or density management. Several variables are being considered in this priority setting process including results of the recently completed Fire Management Plan and the recommendations of the Late Successional Reserve Assessment. The objective is to identify high priority treatment areas on the Forest to use in developing the program of work for F 2003.*

## Special Habitats

The Forest recommends a continuation of special habitat monitoring, with an emphasis on restoration of habitats rather than on monitoring of prescriptions. In FY01, monitoring will focus primarily on prescribed burning of meadows.

**In FY00, the focus of special habitat monitoring changed from implementation monitoring (Are prescriptions being written and did they work to “maintain or enhance” the habitat?) to monitoring of habitats to determine whether active management would be warranted. This shift was in response to the need from the field for these types of discussions concerning upland restoration projects as well as our previous monitoring which showed that prescriptions were being followed.**

*Status:*

*Site visits in FY00 were focused on meadow restoration projects as recommended. A matrix for evaluating and prioritizing special habitat restoration needs was developed for the local and Forestwide scales. The Forest Watershed Restoration Priority Process used the results of the Forestwide evaluation as the rating of unique habitats, one of eight criteria used to prioritize 5th field watersheds for restoration. As a result of this process four watersheds were ranked high for unique habitat restoration needs, 6 moderate, and 17 low.*

## Biological Diversity

The Forest recommends work to further the understanding of the Forest's impact on old growth through harvesting and fire.

Monitoring Question 40, Biological Diversity, has posed a dilemma for the Forest since the Forest Plan monitoring was implemented 10 years ago. A major part of the difficulty answering the questions posed in MQ 40 is that the Forest Plan did not clearly establish what an “ecologically sound distribution of plant association groups and seral stages” is nor did it determine what a “Forest-wide network of ecologically significant old-growth” should be. Without knowing the desired conditions, the Forest IDT has struggled with this monitoring question. Developing the desired condition is not a monitoring issue, but a province/Forest-level planning issue.

Recognizing the importance of the issues raised by MQ 40, but acknowledging the difficulty of answering them directly at this time, the Forest IDT recommends the following actions in FY 2001.

- Using best available data from timber sales implemented since 1990 and major wildfires, determine the reduction in the amount of old growth forest wide.
- Use existing assessments, such as the Late Successional Reserve Assessments and the 15% LSOG assessment by fifth field watershed to provide an overview of the distribution of late successional and old-growth stands.
- Monitor the implementation of Forest Plan standards and guidelines FW-202, 203, 204, 205, 208 and 209 in recent project activities.

*Status:*

*Implementation of the above recommended follow-up actions have been carried over to 2002. The Forest continues to make major strides towards improving its ability to address changes in biological diversity and providing a meaningful measurement of those changes. The most recent improvements have been the finalization of fire regimes across the Willamette and Mt. Hood forests and near finalization for the entire province. Fire risk assessments have been completed for fire management planning on the Willamette. With these tools in place, an analysis of the range of natural conditions on the provincial scale could be conducted.*

## Cultural Resources

The Forest recommends a program review of the Forest cultural program involving the Regional Office cultural resource staff, local line officers and others requested by the Forest Supervisor.

**Monitoring results of cultural resources on the forest continue to indicate damage and adverse impacts that exceed the thresholds set in the Forest Plan. Several follow up actions have been recommended and acted upon, results, however, continue to exceed the thresholds. The IDT feels that resolving this problem may require more than just improvements to the monitoring procedures and increased emphasis on Forest Plan compliance. The Forest should conduct a program review of the Forest cultural resource program involving the Regional Office cultural resource staff, local line officers and others requested by the Forest Supervisor.**

*Status:*

*In October 2000, the Regional Office conducted a program review of the Heritage Program on the Forest. The program review noted that the forest has an active cultural resource monitoring program and without such a well-integrated program, many of the small-scale problems that are discovered and reported would never have been noted. Though the report is still being finalized some of the significant findings are summarized below:*

- *Strengthen the overall cultural resource program from the Forest level through stronger communication and goal setting for the entire resource. These goals should drive forestwide and district project work plans.*
- *Revise or re-evaluate the monitoring section of the forest plan to better document the protection efforts, as well as identify damage and follow up action when damage is reported.*
- *Formalize the relationships between the Forest and outside agencies such as the Corps of Engineers and the State Department of Transportation.*
- *Finalize management plans. Linear features such as railroads and historic trails should be high priority.*

*An action plan on these recommendation is pending final completion of the program review.*



## Forest Plan Amendments

**Y**our 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:

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FOREST PLAN AMENDMENTS

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Amendment	Implementation Date	Type of Change
<b>1</b>	10/30/1990	Vacates Regional Guide for spotted owls. (Decision by Assistant Secretary of Agriculture John Evans; Federal Register Notice published 10/03/1990.)
<b>2</b>	12/10/1990	Allows snowmobile use in certain parts of Santiam Pass area.
<b>3</b>	08/05/1991	Corrects errors and omissions in Forest Plan (errata).
<b>4</b>	08/05/1991	Requires roadside brush management methods be consistent with scenic resource needs and allows machine mowing.
<b>5</b>	08/05/1991	Corrects mapping error in boundary of Diamond Peak Wilderness.
<b>6</b>	08/05/1991	Changes and clarifies direction about retention of downed wood to better meet functional and operational objectives.
<b>7</b>	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.
<b>8</b>	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
<b>9</b>	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.
<b>10</b>	03/14/1992	Changes about 67 acres in Spring Butte area (Rigdon) from General Forest (MA-14a) to Special Habitat Area (MA-9d).
<b>11</b>	03/14/1992	Changes about 65 acres in Beaver Marsh area (Rigdon) from Special Interest Area (MA-5a) to Special Habitat Area (MA-9d).
<b>12</b>	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.)
<b>13</b>	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).
<b>14</b>	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).
<b>15</b>	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.
<b>16</b>	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.
<b>17</b>	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.
<b>18</b>	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.
<b>19</b>	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.
<b>20</b>	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
<b>21</b>	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.
<b>22</b>	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.
<b>23</b>	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.
<b>24</b>	09/29/1994	Changes 1/2-acre in the Westfir area from Scenic-Partial Retention (MA-11c) to Special Use-Permits (MA-13a).
<b>25</b>	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.
<b>26</b>	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.
<b>27</b>	06/22/1995	Designates approximately 110 acres as MA-9d, Special Wildlife Habitat, in the Heart Planning Area on the Oakridge RD.
<b>28</b>	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.
<b>29</b>	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.
<b>30</b>	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.
<b>31</b>	05/15/1996	Established the Rigdon Point RNA.
<b>32</b>	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, <i>Aster gormanii</i> ; Common adders tongue, <i>Ophioglossum pusillum</i> ; selected populations of tall bugbane, <i>Cimicifuga elata</i> ; and selected populations of Umpqua swertia, <i>Fraseran umpquaensis</i> .
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, in Christy Basin, 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	12/21/01	Assigns a semi-primitive, non-motorized ROS classification to the surface of Waldo Lake; restricts electric motors-only, after a five years; limits expansion of dispersed camp sites around the lake; and changes the issuance of new recreation special use permits.

## Forest Plan Updates

**F**orest 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

Amendment	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

Amendment	Implementation Date	Type of Change
<b>5</b>	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.
<b>6</b>	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).
<b>7</b>	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.
<b>8</b>	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.

## List of Contributors

**T**he principal contributors to the 2001 Monitoring and Evaluation Report are listed below. Please contact one of us if you have questions or want further information about the reported results.

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## Acknowledgments

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

A special thanks to **Noah Strycker** for his beautiful illustrations of birds found on the Willamette National Forest. Noah is a 16-year-old birder who lives on 20 acres of mixed forest habitat near Creswell Oregon. When he is not watching birds, he spends much of his time drawing, painting, photographing, and writing about them. His bird illustrations have been exhibited at the University of Oregon Museum of Natural History and have appeared on the cover of American Birding Association publications.