United States Department of Agriculture

Forest Service

Pacific Northwest Region

Monitoring and Evaluation Report

Willamette National Forest

Fiscal Year 2000

Salt Creek Falls on the Middle Fork Ranger District

April, 2001

Dear Reader,

Enclosed you will find the Willamette National Forest" Fiscal Year 2000 Monitoring and Evaluation Report". This represents the 10th year of implementing our Land and Resource Management Plan (L&RMP), and the 6th year of implementation as amended by the Northwest Forest Plan.

Our ability to accomplish the monitoring anticipated by our L&RMP was again limited by declining budgets. However, we remain committed to aligning our priorities with those interests most important to you, the stakeholders in our stewardship of national forest resources. Fiscal year 2000 saw an unprecedented number of plans and initiatives that affirmed or established management direction on a regional or national scale. The USDA Forest Service Strategic Plan (2000 Revision) focuses on long-term results in arenas such as the health of the land, water quality and customer satisfaction. This plan represents an important shift in focus and set the context for a number of other changes, including new planning regulations, a new road management policy, the national fire management plan and the proposed conservation of existing roadless areas.

It was an exciting year for discoveries on the Willamette. Through our Survey and Manage efforts, we discovered a lichen species, previously known only to occur in South America. And we documented the existence of four populations of a sensitive species of rockcress believed to live only in Hell's Canyon.

In FY99, in partnership with ODFW, we installed an electronic device for counting adult bull trout in Roaring River and Anderson Creek. Our monitoring in FY2000 showed 37 adults moving into Roaring River and 251 adults moving into Anderson Creek. Our bull trout recovery efforts are producing positive results.

Unfortunately our chub recovery efforts are being sabotaged by the illegal introduction of largemouth bass. The East Ferrin population appears to have been extirpated by predation by this non-native fish species.

These are but a few of the highlights from our FY2000 monitoring program. This report is also available on our website at www.fs.fed.us/r6/willamette.

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,

DARREL L. KENOPS
Forest Supervisor
Willamette National Forest

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 2000 Willamette National Forest Annual Report.

If you have not received a copy of the 2000 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

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

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

On April 13, 1994, the Secretaries of the Departments of Agriculture and Interior signed a Record of Decision for the Management of Habitat for Late-Successional and Old-Growth Forest Related Species, 6referred 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 an evaluation reviews in concert with BLM and the Regional Ecosystem Office.*
5. *Publish a report displaying the results of monitoring and an 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

The Forest Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining and improving water quality, soil productivity, and air quality. These Standards and Guidelines also provide direction to prevent, detect, and with few exceptions suppress fires. Below is a summary of FY00 monitoring questions designed to assist the Forest Supervisor in determining the effectiveness of the of the Forest Plan Standards and Guidelines to meet the goals of protecting, maintaining, and improving the physical environment of the Forest.

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

PHYSICAL RESOURCES SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Water Quality			
25 Water temperature	Water sampling	Results OK	Water quality FY00 monitoring report
26 Water turbidity	Field evaluations	Results OK	
27 Peak flows	No formal monitoring in 2000	No new results	
30 Lake quality	No formal monitoring in 2000	No new results	
Soil Productivity			
32 Soils, mass movement	Measurements using visual, electronic, and mechanical means	Results OK	Engineering FY00 monitoring report
33 Soil productivity, mass movement	No formal monitoring in 1999	No new results	Water quality FY00 monitoring report
34 Soil productivity	No formal monitoring in 1999	No new results	
Air quality			
35 Air quality	Reported smoke intrusions, lichen surveys	Results OK	Fire Management and Lichen FY00 monitoring reports
Fire			
36 Fire protection	District reports	Results OK	Fire Management FY00 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 121 stations during FY00. This is less than the number of sites monitored in past years, as budget amounts did not permit the past level of monitoring. Data is still being analyzed on 25 of the 121 stations. 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 96 stations with complete data, 23 showed a maximum 7-day temperature exceeding 64 degrees. These sites exceed the Oregon State Department of Environmental Quality standards. Detailed information on water temperatures is available in the FY00 Water Quality Monitoring Report.

Construction of a temperature control tower planned at Cougar Reservoir; baseline data is collected

Also in 2000, water conditions at Cougar reservoir were sampled six times at three locations 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.

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.
- Approximately 37 miles of aerial infrared video imagery of the McKenzie River from the confluence with Quartz Creek to Trailbridge Reservoir; south Fork McKenzie River from it's mouth to Cougar Reservoir, and Deer Creek from it's mouth to the confluence with Conroy Creek.

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. 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 2001

MQ 26 is concerned with water quality as measured by turbidity levels. Hand sampling of turbidity prompted by the flood of 1996 continue to read relatively high in Divide, Blowout, Cliff and East Humbug Creeks. Sampling in Lynx Creek watershed on the Detroit RD after timber sale activities continue to show low turbidity in the mainstem stream. Also on Detroit turbidities in the North Santiam River gaging station were measured during an unusual weekend storm event September 30 and October 1. This heavy warm rain washed glacial silts into Mill Creek, and then into Pamelia Creek, and then into the North Santiam River. Turbidities at the North Santiam River Gaging station measured in excess of 300 NTUs compared to turbidity values generally less than 1. Turbidity values remained elevated throughout the next few days.

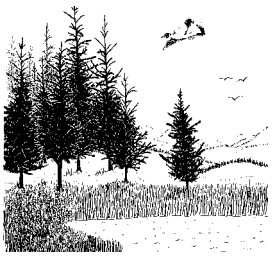
Sweet Home RD conducted turbidity monitoring on 16 separate occasions all on Moose Creek in FY00. Maximum turbidity values were associated with winter storms and spring runoff conditions. Other numerical results are still pending.

In FY00 the Forest watershed personnel conducted limited implementation monitoring, primarily on the Sweet Home and Middle Fork R.Ds. Implementation monitoring can be defined by answering the question "Did we do what we said we were going to do?" Results show all projects were found to be compliant with Best Management Practices and met applicable standards and guidelines. Specific details on the Sweet Home monitoring can be found in the FY00 Water Monitoring Report. Details on the monitoring at Middle Fork can be found at (www.fs.fed.us/r6/willamette/mgmt/monitor/water/mf_implement.htm)

Monitoring Questions 27: Water Quality: Peak Flows

Are management practices causing changes in streamflows?

No new monitoring was conducted in 2000.

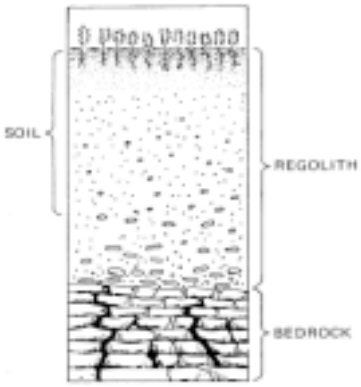


Monitoring Questions 30: Water Quality: Lakes

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

Due to budgetary limitations, lake monitoring in FY00 was limited to sampling only Waldo Lake. Waldo Lake, located on the Middle Fork District, was done primarily for chemical and physical characteristics. A report of the findings is located at http://www.fs.fed.us/r6/willamette/mgmt/monitor/water/waldo_mr2000.htm. Results from previous years are available in the Monitoring Report published following the year of monitoring.

Soil Productivity

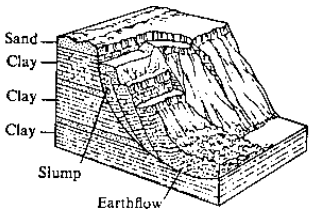


Monitoring Questions 33 & 34: Soil Productivity and Mass Movement

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

A formal monitoring review was conducted in FY00 on the completed Gingham Timber Sale Units on the Detroit District addressing the effectiveness of the Forest Plan S&Gs in maintaining soil conditions. The review found that current practices, as applied on the timber sale, were effective in the maintenance of soil conditions. A detailed report from this review is available.

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, 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 2000 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 years has 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 2000. 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 computer programs ACOST and CONSUME. Air quality monitoring at our Class I wilderness areas are based on reports from fixed detection sites on the Forests.

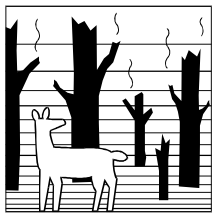
Air quality remains high on the Forest during burning activities.

In FY2000 there were two deviations from the Oregon State Smoke Management daily forecast. These deviations were discussed and authorized by Oregon Department of Forestry prior to burning. The Forest's prescribed burning did not contribute to or intrude into any smoke-sensitive areas. 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 TOV exceeded for air quality.

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. Data from lichen surveys and element concentrations in lichen tissue were collected between 1993 and 1997 from 237 plots on the Forest. Additional information to aid data analyses was collected in 1998, 1990, and 2000 at the HJ Andrews Experimental Forest acid deposition monitoring stations. Relative to other parts of the region and the nation, air pollution on the Forest from sulfur- and nitrogen-containing pollutants is low. However, lead levels were elevated along the crest of the Cascades and anthropogenic nitrogen and sulfur were detectable in the Three Sisters, Mt. Jefferson and Mt. Washington wildernesses and along the western boundary of the Forest. No adverse effects were observed on lichen communities.

Air pollution monitoring using lichens continues on the Forest.

Fire

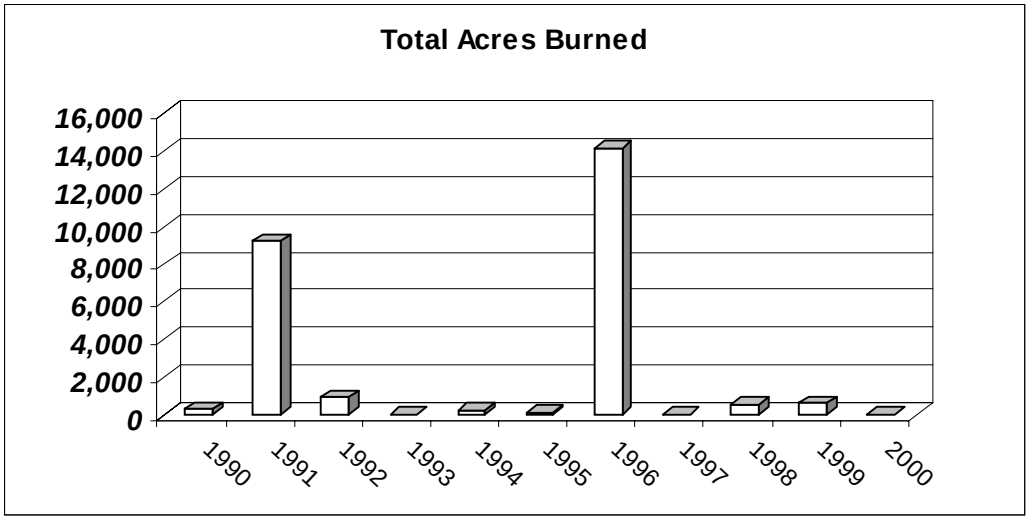


Monitoring Question 36: Fire protection

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

There was a total of 24 acres burned stemming from 80 fires in FY00. As illustrated by the graph below, 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 will embark on developing a Fire Management Plan in FY01 that will include a review of current policies and direction, provide new guidelines for fire management, and develop a monitoring and evaluation program.

Year	Acres by wilderness status	
	Wilderness	Non Wilderness
1996	10,713	3,458
1997	0	6
1998	163	369
1999	3	609
2000	15	9



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 down almost 20% from the projected plan. This was due to a thirty-day moratorium on prescribed burning across the Western United States this past spring, mandated by the Secretary of the Department of Agriculture. Many areas that were planned to be broadcast burned in the spring were handpiled during the summer and will be burned during the fall of FY01. The TOV has not been exceeded.

Biological Resources

The Forest Standards and Guidelines provide direction to enable the Forest to meet the goals of protecting and improving species populations and their habitat. Threatened, endangered, and sensitive species as well as ecological indicator species are monitored for species viability. Below is a summary of FY00 monitoring questions designed to assist the Forest Supervisor in determining the effectiveness of the Forest Plan Standards and Guidelines in meeting the Forest's goals.

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

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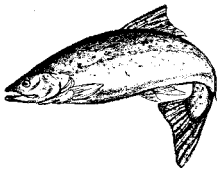
BIOLOGICAL RESOURCES SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Fish Populations			
13 Fish Populations	River monitoring, field observations	Results OK	Fish FY00 Monitoring Report
Habitat Diversity			
14 Aquatic Habitat	Field evaluations	Results OK	Fish FY00 Monitoring Report
28, 31 Riparian & Wetlands	No formal monitoring in 2000	No new results	
40 Biological Diversity	Forest accomplishments	Results OK	Ecology FY00 monitoring report
Wildlife			
15 Bald Eagle	District surveys	Results OK	Wildlife FY00 monitoring report
18 Perigrine 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	
Plants			
16 TE&S Plants	Forest and district records and field activities	Results OK	Botany FY00 monitoring report
Noxious weeds		Results OK	
Native species		Results OK	



Fish Populations

Monitoring Questions 13: Fish Populations

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

The forest tracks population and habitat changes for spring chinook, winter steelhead, Oregon chub, and bull trout. Adult spring Chinook numbers are counted at the Leaburg Dam on the McKenzie River while numbers of returning adult winter steelhead and spring Chinook are recorded at the Foster Dam on the South Santiam River. Monitoring results for 2000 show 2,652 adult spring chinook salmon migrating over Leaburg Dam. Out of 3,674 spring Chinook counted at Foster Dam, 815 were trucked above the Reservoir into the South Santiam watershed, and 329 adult winter steelhead were trucked and released to spawn naturally in the South Santiam watershed above Foster Dam and Reservoir. Specific return numbers and trends in these populations since 1985 are available in the detailed Fish Monitoring Report. Field observation indicates that the existing habitat is capable of producing and supporting spring Chinook. The primary limiting factor for increased fish production on the Forest continues to be the presence of dams, which block or hinder fish passage. The TOV cannot be evaluated.

The primary limiting factor for increased fish production on the Forest continues to be the presence of dams.

Overall, stream restoration and implementation of the 1994 Northwest Forest Plan is allowing for the passive and active restoration of the riparian/aquatic ecosystems, which should continue improving smolt survivability in the future.

With respect to Chub habitat, site visits to eight known sites on the Forest by ODFW personnel found that all existing Oregon Chub habitat was maintained during FY00, therefore the TOV was not exceeded.

Three of the eight Oregon chub populations within the Forest are stable. The East Ferrin population of Oregon chub has dramatically declined from 3,500 fish observed in 1998 to only 60 fish in 1999 to none detected in 2000. Predation by largemouth bass, illegally introduced in 1998, is the likely cause of this possible extinction. Population trends are uncertain for the remaining four sites. This TOV was exceeded due to the population reduction.

Illegal introduction of largemouth bass the probable cause of an apparent extinction of one chub population.

The Forest actions in 2000 were primarily aimed at maintaining current bull trout habitat. The TOV has not been exceeded. Extensive bull trout population monitoring continued in FY00. Bull trout redd surveys were conducted on Anderson Creek, a McKenzie River tributary. The McKenzie River tributaries indicate that these populations are also stable or show a slight improvement.

New bull trout monitoring was cooperatively implemented with ODFW in FY99. A Vaki electronic adult bull trout counting device was installed at the mouths of Roaring River and Anderson Creek. Results from this year showed 37 adult bull trout moving into Roaring River

and 251 adults into Anderson Creek. This new monitoring tool will allow us to develop, over time, a correlation between the number of adults moving into the spawning streams, and the number of observed redds, as an indicator of spawning success. Additionally, a new video monitoring device was installed at Sweetwater Creek and recorded 5 adult bull trout migrating upstream. Two redds were discovered during subsequent spawning surveys.

Other bull trout population actions accomplished in FY00 include:

- trapping and relocating of 2,788 bull trout fry from Anderson Creek in the McKenzie Watershed to tributaries of the Middle Fork Willamette;
- extensive snorkel surveys completed in Iko Springs, Chuckle Springs, Shadow Springs and Swift Creek Side Channel release sites;
- emigration traps set in Iko Springs to determine emigration timing of fry and juveniles into the mainstem Middle Fork Willamette River.

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 18 streams (approximately 44 miles total length) surveyed during FY00 on the Forest. Four 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 199 data was collected for 16 additional streams on the Forest. The Forest is in the process of obtaining any available results from this work.

The McKenzie RD personnel, in cooperation with the McKenzie Watershed Council, collected macroinvertebrate data at an additional 11 sites on the Forest. This effort also collected data at eight sites off Forest. An analysis is underway.

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. Variable widths for reserves may enhance protection.

No formal monitoring was conducted for riparian terrestrial habitat in FY00; however, riparian area protection is monitored during the Forest Supervisor and Province monitoring trips for those projects that may affect riparian areas. Monitoring completed in FY99, however, showed overall physical protection of channels appeared to be successful. Providing flexibility in reserve boundaries to meet site-specific conditions such as aspect, topography, and vegetation would further enhance protection.

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?

The Forest has had difficulty adequately addressing this question; however, through monitoring efforts a process was recommended in FY98. Recommendations from recent years were to look at the range of natural conditions at the provincial scale as a more meaningful method for assessing changes in biological diversity. The Willamette Province includes the west side of the Mt. Hood NF and Eugene, and Salem BLM lands. The Forest continues to make major strides towards improving its ability to address changes in biological diversity and the meaning of those changes. The potential natural vegetation model completed in FY99 covering the Willamette Province was further refined in FY00. In FY00 the Willamette Province GIS center assembled a base layer suitable for describing current conditions within the Province's forested lands. Fire regime mapping, also a key component for addressing this question, has been completed on the Willamette and Eugene BLM lands; preliminary work is complete on the Mt. Hood; and Salem BLM lands will begin in 2001. Fire risk assessment is being completed for fire management planning as well as forecasting sustainability of stand patterns.

With these tools in place, an analysis of the range of natural conditions at the provincial scale could be conducted. One output could be preliminary evaluations of maintenance of

ecologically sound distributions of seral stages across plant association groups. Setting more appropriate TOVs linked to connectivity and habitat gaps could be another output.

Further development of ecological tools at the Provincial scale is appropriate. For example, evaluation criteria could be linked to the criteria for sustainable ecosystems being developed for the new planning regulations.

Protection measures dramatically reduce direct impacts to special habitats.

An important component of biological diversity is the maintenance of special habitats on the Forest. In FY99 wet special habitats were monitored and found that protections required by the Forest Plan has dramatically reduced the direct impacts to these areas. In FY00 site visits were to mesic or dry meadows where the forest botanist and ecologist accompanied district specialists to visit special habitats on the north end of the Forest. These visits were not where timber harvest included special habitat prescriptions as in the past but to evaluate sites for the potential need for active management. Results from FY00 monitoring suggest that the Forest Plan monitoring question needs to be revised to emphasize restoration rather than simple protection from harvest impacts. The site visits generated a number of issues and a recommendation to develop a meadow restoration matrix to use for a starting point for collaboration with wildlife biologists and wildlife ecologists on wildlife and plant special habitat restoration.

Wildlife

Monitoring Questions15: Bald Eagle

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

There are 22 potential bald eagle nest sites on the Forest. Where activities have taken place, Forest Plan S&Gs are applied to protect the birds, primarily in the form of seasonal restrictions. Monitoring of bald eagle numbers across the Forest indicate that habitat is adequate. Five sites on the Middle Fork, however, lack site plans resulting in a compromise of habitat quality. One management plan was completed this year on the McKenzie District bringing the total to two management plans completed since Forest Plan implementation. Two addition plans are in progress.

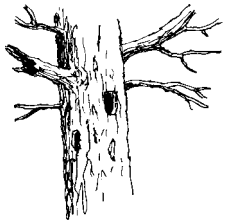
Monitoring Questions18: Peregrine Falcon

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

In August of 1999 the peregrine falcon was removed from the federal Threatened and Endangered species list (delisted). 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.

Peregrine falcon population continues to rise on the Forest.

Habitat objectives for recovery of peregrine falcons are being met. Nesting has been verified in 15 of the 22 sites occupied this year. Three new sites were discovered this year and 25 young successfully fledged. Monitoring continues on the Forest and positive trends remain consistent with those prior to delisting.

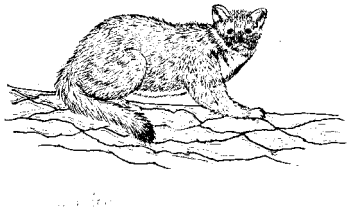


Monitoring Questions19: Primary cavity excavators

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

Harvest units are monitored every year to determine whether the number, size, species, and distribution of wildlife trees, as prescribed in the Environmental Assessments, are being left. A sampling of 63 harvested areas reflected an 89% compliance rate; however, 100% compliance remains the management objective. Monitoring for primary cavity excavators (PCE) use was completed on 622 individual snags showing 209 with PCE activity. Changes in these numbers are expected overtime as snags age. Habitat for PCEs seems to be adequate to meet forest level objectives.

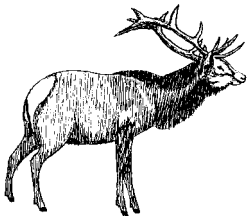
It is important to note that the Northwest Forest Plan requires a minimum of 15% canopy retention be left on all units. Many units on the Forest well exceed this amount, reducing the importance of this question in those areas.



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 is monitored for its effectiveness in maintaining elk population densities. Most wildlife habitat improvement projects are implemented 2 to 5 years after sale completion. On the McKenzie and Blue River Ranger Districts 39 improvement projects were field checked for use by deer and elk this year and 38 showed use.

Population trends of both deer and elk are down Forestwide.

We are likely below management emphasis level goals in all high and moderate level areas. We may be meeting goals in some low emphasis level areas, but no data is conclusive on this assessment. Based on hunter statistics and annual census counts by ODFW, population trends of both deer and elk are down forest-wide, especially deer. Elk populations may be holding steady in some basins. Forage quality, cover availability, road densities, and in some cases forage availability are likely contributors effecting management goals.

New Monitoring Question: Survey and Manage[1]

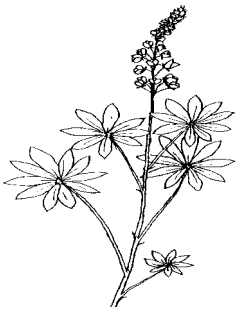
Have surveys been conducted for Category 2 survey and mange species for all habitat-disturbing activities?

In 1994, the Northwest Forest Plan listed specific species for special protection. Known sites of these species should be managed for their protection and surveys are to be conducted for selected species whose habitat is planned for ground-disturbing activity. This "survey and manage" provision provides benefits to amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropods. The bulk of the botany work was spent on surveys for Category 2 and protection buffer species, primarily in Alternative Volume sales. In total 23,468 acres were visited for fungi, vascular plants, bryophytes, and lichens. On the Sweet Home District as an example, over 150 locations representing 26 species, some rare, were found. These numbers do not include those located during fall 2000 fungi surveys for the results are not yet available. On the McKenzie River zone a new species, previously known only to occur in South America, was collected, *Pseudocyphellaria mallotta*. The lichen species was recently discovered in the Pacific Northwest.

Rare species located and protected as a result of surveys.

For the wildlife program surveys were completed on at least 6,701 red tree vole acres, 10,902 mollusks acres, and 6,883 great grey owl survey acres. Surveys for lynx occurrence were completed across the Forest using hair pad methods and the McKelvey and McDaniel detection protocol. Results for lynx surveys for 2000 have not been completed and no [1]positive results were confirmed for 1999. All surveys for Category 2 species were completed before any ground disturbing activity.

[1] This monitoring question was established as a result of the Northwest Forest Plan Amendment in 1994.



Plants

Monitoring Question16: 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 2,969 acres for several sensitive plant species and spent over 25 monitoring known sensitive plan sites. This work was highlighted by the relocation of a population of *Scheuchzeria palustris* var. *americana* and *Utricularia minor* in Gold Lake Bog RNA.

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

- Botanists working for The Nature Conservancy documented four populations of the sensitive species Hell's Canyon Rockcress (*Arabis hastatula*) in the Iron Mountain area once thought only to live in Hell's Canyon.
- Sweet Home and Detroit Ranger Districts are working with Cascades Mycological Society to survey for fuzzy sandoze (*Bridgeoporus nobilissimus*), in high quality habitat unassociated with project areas, in addition to surveys in project areas. This additional effort will add to information about the species occurrence and habitat.
- On the Middle Fork Ranger District the species *Corydalis aqua-gelidae,* was compared to other populations of related species and taxa. Results of this project show that our population is the most southern in the state.
- The Botany program partnered with the PNW Research Station, Central Cascades AMA, and the Native Plant Society to develop a study to determine sustainable harvest levels of beargrass, a special forest product. This study is aimed at determining sustainable harvest levels and techniques while learning more about the basic biology of the species.

The Forest also participated in several activities that interacted with and educated publics interested in plants. These events included wildflower walks, a four-day heritage expedition on the Santiam Wagon Road, a Boy Scout hike, wildflower slide presentation, and school sponsored field trips.

Other projects on the forest aimed at maintaining unique habitats included a prescribed meadow burning at Camas Prairie on Sweet Home. The Grande Ronde and Siletz Indian Nations, as well as Forest Service employees, assisted with this second successful burn for this meadow

New Monitoring Question: Noxious Weeds[2]

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 2,000 acres. Over 1,900 of these acres were manually controlled using Forest Service employees and cooperators such as County Correction Crews, Northwest Youth Corps, members of the Rocky Mountain Elk Foundation, the Oregon Hunter's Association, and participants during "Love the Lake Day" activities at Waldo Lake. Beyond manual control, approximately 40 acres were treated with herbicide and 60 acres were treated by mowing. Weed surveys were completed along 25 miles of the North Fork of the Middle Fork of the Willamette watershed roads slated for decommissioning. Effectiveness of control methods has averaged 95%, except in the McKenzie River basin where new knapweed seed is continually introduced.

New Monitoring Question: Native Species Revegetation[2]

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

Native grass seed is being used more and more on the Forest for restoration purposes but cost is still prohibitive for use on every project using grass seed. Twenty-two acres were seeded with native seed. This included landings, skid roads, and a decommissioned road. Native seed continues to be collected on the Forest for future projects.

Native seed used for restoration.

The Sweet Home botanist spearheaded a project in 1999 in which the Federal Highway Administration funded revegetation of Highway 20 with only native plants and seed. Seed was reapplied to three acres the following spring because winter storms had caused mass erosion. Several species responded very well.

On the Middle Fork District, watershed folks monitored blue wildrye plots where different densities of grass and fertilizer were spread on a road system. They completed a photo inventory and a summary of results. Also planted were thousands of seedlings of deervetch on a big common garden plot on the McKenzie District. Data was collected on seedling emergence, growth, and survivorship in year 1.

Finally in conjunction with Salem BLM the Forest completed a contract for growing genetically local blue wildrye and California brome.

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

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

Resources and Services to People

This section of the monitoring report describes the resources and services the Forest provides its constituents. Recreation, timber, and roads provide direct benefits to many users of the forest. Benefits from other areas such as the cultural resources and research natural areas provide a more indirect benefit. Below is a summary of FY00 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.

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

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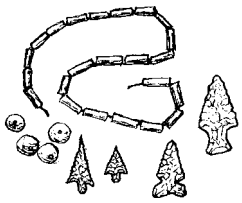
BIOLOGICAL RESOURCES SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Cultural Resources			
2 Cultural Resources	Site visits	Results OK	Heritage FY00 monitoring report
Specially designated unique areas			
3 Wilderness	District reporting, on-site visits by district personnel	Results OK	Recreation FY00 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 FY00 monitoring report
Recreation			
6 ROS	District reporting, on-site visits by district personnel	Results OK	Recreation and Scenic FY00 monitoring report
7 Recreation Visitor Use		Results OK	
8 Scenic Resources		Results OK	
10 Trails	District reporting, site visits	Continue to monitor	Trail FY00 monitoring report
11 Developed Recreation	District reporting, on-site visits by district personnel	Results OK	Recreation FY00 monitoring report
12 Off-road vehicle use		Results OK	
Timber			
22 Timber Suitability	Review of land allocation changes	Results OK	Timber Suitability FY00 report
23 Timber Program	Review of timber records	Results OK	Timber records
24 Silvicultural Practices	Review of silvicultural records	Further evaluation	Silvicultural records
Transportation			
38 Transportation System	Reports, databases, traffic counts	Results OK	Transportation FY00 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 2200 known historic properties, including archaeological sites, historic sites, trails, and structures, in addition to isolated finds and features. The forest is managing and protecting these sites consistent with the Forest Plan direction and law.

During FY00, Heritage staff documented visits to 118 sites, about 5% of the total inventory. New impacts were noted at 7 of the sites. Two structures were damaged by heavy snow and associated treefall; an arsonist burned one structure; three sites were damaged by recreation use; and one open site was looted. At 20 sites cumulative impacts of on-going adverse conditions were reported. These include recreation use, road use, erosion, vegetative encroachment, benign neglect, looting, and vandalism. For the most part, however, individual impacts were minor and did not result in a formal damage assessment under the law. Yet measures should be taken to avoid more serious continued and cumulative effects. Field archaeologists reported successful mitigation measures at 13 sites. Additional protection was recommended for 16 sites.

In reference to historic structures 65% of these buildings are being maintained according to National Historic Preservation standards. Twenty-four percent are in a state of benign neglect, some experiencing serious deterioration. Stabilization, repair, and other proactive efforts were reported for 15% of the structures, while general maintenance on about half the structures.

Consultation with SHPO continued in FY00. Improvement continues with consultation with local tribes. FY00 was highlighted with the signing of a MOU with the Grand Ronde Indians of Oregon for consulting on various aspects of the Forest's land and resources management activities. A sample of environmental documents shows consultation with tribes and SHPO is not consistently documented.

The heritage program hosted three "Passage In Time" projects, conducted interpretive talks, and continues, with volunteer help, structural rehabilitation of Gold Butte Lookout. The Sweet Home RD was recognized with the Chief's Award for outstanding achievements hosting Heritage Expeditions.

Specially Designated Unique Areas

Monitoring Questions 3: Wilderness

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

The Forest monitors the class settings and use levels of its wildernesses. The Wilderness Resource Spectrum class settings are consistent with the S&Gs for Wilderness management. A permit system is still in place to monitor visitor use in all wildernesses on the Willamette National Forest; however, not all district reported use data in FY00. Based on data submitted, use levels are within the established limits with some exceptions. These include the Pamelia Limited Use Area where there have been concerns about the use levels exceeding the limits established for the assigned class setting. Also Marion Lake, the Jefferson Park, and the Eight Lakes Basin/Duffy Lake areas will at times exceed use limits. These are areas on the Detroit Ranger District and in close proximity to the Portland metropolitan area. The District continues to monitor resource effects in those areas and will be starting a public education and information process in FY01 in preparation for implementation of additional control measures.

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

Monitoring Questions 4: Wild and Scenic Rivers

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

All designated study and potential Wild and Scenic Rivers are being protected consistent with the Wild and Scenic Rivers Act. Formal and informal monitoring of conditions on the North Fork of the Middle Fork and the McKenzie Wild and Scenic Rivers in accordance with their WSR management plans. Elkhorn Creek, which was designated as Wild and Scenic River under the Opal Creek legislation (1998), still requires a management plan. There were no changes to the designation status of eligible and study rivers in 2000.

Monitoring Questions 5: Roadless Areas

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

Monitoring of roadless areas focuses on whether the acreages and numbers of inventoried roadless areas and other unroaded areas are consistent with Forest Plan direction. No changes to the roadless area boundaries occurred in 2000. The last change occurred in 1998 when 275 acres of the Waldo-

Moolack inventoried roadless area within the Desperado timber sale planning area was found to be incorrectly classified as roadlesss. Forest Plan Amendment 34 was completed to correct the roadless area boundary.

In FY00 roadless area boundaries as depicted in Appendix C were moved into GIS (a spatial database). With this information in GIS tracking activities in or near the roadless areas will improve.

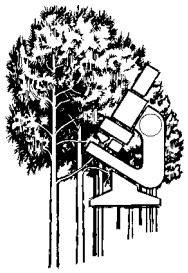
Monitoring Questions 9: Special Interest Areas

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

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

In 1998 the Opal Creek Wilderness and Scenic Recreation Area was created. The Opal Creek Advisory Council began work in 2000 and development of a management plan for the Scenic Recreation area is currently under way.

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



Monitoring Questions 39: Research Natural Areas

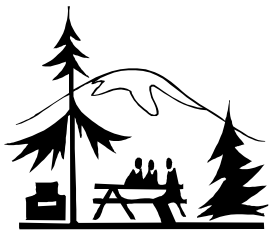
Are Research Natural Areas being protected and inventoried for use as ecological reference points?

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 five RNAs visited in 2000 no management related disturbances were noted. Management related disturbance to other RNAs not visited in 2000 is not expected. Some recreation related disturbance was seen at Gold Lake Bog RNA.

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 will be 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?

Standard and Guidelines in Forest Plan manage activities for the removal of resource products and actions taken to accommodate or control human use to reduce their negative affect on dispersed ROS settings. Monitoring shows these activities are being conducted in accordance with management S&Gs for recreation opportunity settings (ROS). Specific impacts or efforts related to retaining different recreation opportunity settings were noted at Elk Lake area, Waldo Lake Basin, and recreation areas adjacent to lakes and streams on the Blue River RD.

Management plan for Waldo Lake is being prepared to address recreation use inconsistent with the area.

The Elk Lake area occasionally exhibits use levels and party sizes or user activities that are inconsistent with the designated ROS setting. Increased Forest Service presence is being used; however, some inconsistencies still occur and other types of controls are needed. In the Waldo Lake Basin there have been encroachments of snowmobiles in non-motorized areas and illegal bike use in wilderness areas. A Management Plan for the basin is being completed to address the possible inconsistencies. On the Blue River RD, free use camping areas surrounding both Blue River and Cougar Reservoirs are experiencing damage to vegetation from cars and illegal tree cutting, litter, and abandon campsites. Social problems include alcohol abuse and loud group gatherings. Increased recreation patrol and cleanup of abandoned camps is required.

Monitoring Questions 7: Recreation Visitor Use

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

Forest Plan recreation visitor use estimates 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. For FY2001 some data was reported on the

Sweet Home and Middlefork RDs. The TOV cannot be evaluated. Forest recreation use will be systematically measured in 2002, and every five years thereafter, as part of a 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.

Monitoring Questions 8: Scenic Resources

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

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

Monitoring Questions 10: Trails

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

Project management activities are not consistent with S&Gs for trail management classes due to inadequate funding. Trail maintenance on much of the Forest has been primarily limited to removal of logs, trailside brushing and erosion structure maintenance. Heavy maintenance is not being done at a level to maintain trails consistent with Forest Plan standards. Trails that do receive maintenance are normally restricted to one visit a year, usually in the summer. This does not always meet the expectations of a well-maintained and cleared trail, year-around. The Northwest Forest Pass receipts have allowed the Districts to accomplish some heavy maintenance projects.

Trail maintenance limited by funding; trail construction also down.

A range of trail opportunities is offered from hiker only nature trails, to motorized only, to multiple users sharing trails. Trail access was restricted at times in 2000, to protect wildlife, endangered species or the trails themselves. Mountain bikers are restricted from riding on trails in Wilderness.

New trail construction has been eliminated due to recent budget short falls. Bridge replacements and short sections of reconstruction were implemented on the Forest in FY00. While an adequate system of trails continues to be provided to the visiting public, trail conditions have fallen slightly reflecting maintenance backlogs.

Monitoring Questions 11: Developed Recreation

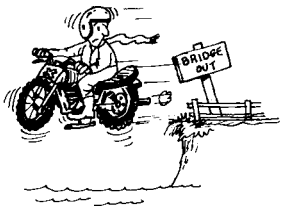
Are developed recreation sites providing the variety of use opportunity designed to meet user's needs, interests, and equipment; and being maintained to a level expected and accepted by those using developed facilities?

Monitoring of developed recreation sites focuses on the standards, use and range of opportunities provided. Concessionaires operating under special use permits manage larger campgrounds and developed recreation sites on the Forest. The sites are managed and maintained to standards higher than would be possible if the Forest were to operate the sites itself. Other sites are managed under the Fee Demonstration Program, which allows the Forest to retain site revenues to supplement allocated funding and thereby manage the sites to standards expected and acceptable to visitors.

Use of developed recreation areas generally consistent with site design and purpose.

The use of sites is generally in a manner consistent with the site design and purpose. There are occasional problems with a very small percentage of visitors attempting to live full time in 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 do appear to be part of a consistent, long-term trend.

Generally the range of sites provided throughout the Forest is consistent with customer's preference and use trends; however, on occasion, demand exceeds site capacity (i.e. Detroit Lake, McKenzie River, Hills Creek). Also demand for rental cabins annually exceeds the Forest's limited supply, but there are only limited on-Forest opportunities to increase supply. On-Forest and regionally there appears to be a trend in visitors desiring a higher level of amenities such as showers, RV hook-ups, flush toilets than 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 designate riding/use areas except for Forest roads and trails that are not closed to such use. Small areas on the Forest such as Blue River Reservoir draw-down area and Huckleberry Flats are providing OHV riding experiences but probably not in the best location, times of year, or in accordance with user interests. There are some resource and visitor management problems, as a result. Snowmobile incursions into the Three Sisters Wilderness continue to be an issue despite enhanced wilderness boundary signing and patrolling. User groups are aware of this issue and some have assisted in attempting to improve the situation.

User groups assist in reducing illegal use of ORVs.

Safety, as reflected in accident reports does not seem to be a problem, however, conflicts and complaints between user groups (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 OHVs operating in designated areas., There are however, concerns about the resource impacts when these vehicles move outside of designated areas such as Three Sisters Wilderness and Eagle Creek areas. There are also concerns of disturbance to listed species from OHV activity in and adjacent to Lookout Point and Hills Creek areas.

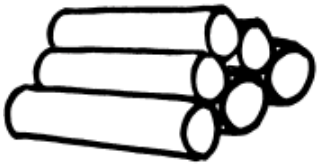
Timber

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. Changes to the suitability of lands for timber production have not occurred since FY93. At that time the Forestwide Soils Resource Inventory was updated. NFMA requires that the timber suitable land base be reviewed every ten years. The next review would be required in 2003.

The Northwest Forest Plan also changed the lands available for commercial timber harvest. Analysis completed in February 1998 indicates that there are 98,978 acres suitable and available within the Adaptive Management Area and 297,628 acres suitable and available in matrix lands for a total of 396,606 acres.



Monitoring Question 23: Timber Program

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

In 2000 the Willamette NF offered 2.0 mmbf for sale, less than 2% of the predicted amount. Approximately half of this volume was offered through advertisement in the newspaper, although the totals do include any product that can be converted and measured in board feet such as firewood, posts, poles, and so on. These amounts are all included in meeting our PSQ levels. The TOV has been exceeded. The low accomplishment in FY00 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. This requirement delayed the sale of most of the timber for at least one year.

Timber sales low for FY00 while survey for species are conducted.

The timber program monitoring normally tracks the distribution of acres sold by timber type and management allocation but the amount sold was too low to produce useful information.

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 FY00, three reviews were completed and all indicated acceptable utilization 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.

A primary area tracked as part of our silvicultural practices is whether harvested stands are regenerated within the National Forest Management Act mandate of 5 calendar years from harvest. District silviculturists track regeneration with a stand treatment database. The 5 step process after initial harvest includes 1) site preparation, 2) planting, 3) first year surveys, 4) third year surveys and certification, and 5) reporting. Some stands require an additional step of replanting. The time frame of the process is subject to the time of year harvest occurs, burning season restrictions that occur during site preparation, accessibility to units, seedling availability for replanting, and planting and replanting priorities among projects. Despite prompt reforestation, any of the above factors may prolong certification beyond the fire-year window.

Of the 2,195 acres of regeneration harvest in FY95, 1,918 acres (87%) were certified by FY00. The remaining 277 acres (13%) and are in the examination stage following reforestation or were replanted because of damage and are awaiting certification in FY01. Any remaining acres will be evaluated for retreatment. 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 FY00 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 such as thinning and fertilization totaled 7,825 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 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. 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 2000 showed mortality decreased from 16,200 acres last year to approximately 11,150 acres this year. The summer aerial survey found that Douglas-fir bark beetles killed approximately 8,750 trees in both wilderness and nonwilderness acres. Black bear caused mortality in younger plantations. The mortality of 2,875 trees on 1,991 acres is an increase from 1999. Many trees in these stands have bark wounds that will be entry points for diseases that will cause stem rots and mortality.

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. Less than one mile of road was constructed on the Forest in 2000 and only 80.6 miles of road reconstruction (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	0.6	Miles of road decommissioned	13.8
Miles of road reconstructed	80.6	Miles of temporary road closed	0.0

Road Suitability		Traffic volumes
Roads Suitable for Passenger Cars	1,577	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	4,077	
Closed Roads	710	
Total Miles	7,000	

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

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

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

ECONOMIC & SOCIAL RESOURCES SUMMARY FINDINGS

Monitoring Question	Monitoring Activities	Monitoring Results	Supplemental Information
Economic & Social			
41 Economic & Social	Review of economic reports, agency policies, and public contacts	Results OK	Economic and Social FY00 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 FY00 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. Fiscal year 2000 saw an unprecedented number of plans and initiatives that affirm or establish national and regional direction for future management of National Forest System Lands. The USDA Forest Service Strategic Plan (2000 Revision) focuses on outcomes or long-term results such as the health of the land, the quality of water, and customer satisfaction (www2.srs.fs.fed.us/strategicplan/). This Plan represents an important change in focus for the USDA Forest Service and set the context for a number of other changes in direction including:

- **National Forest system Land and Resource Management Planning Rule** (www.fs.fed.us/forum/nepa/rule/)
- **The Road Management policy** (http://www.fs.fed.us/news/roads)
- **The Roadless Area Conservation Rule** (http://roadless.fs.fed.us)
- **The National Fire Management Plan** (http://www.nifc.gov/fireplan)

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

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

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

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

FISCAL YEAR 2000 FINAL EXPENDITURES

Description	FY00[1]
Facilities Capital Improvs & Mtce.	2,587,109
Flood Activities	511,838
Forest Products	9,649,427
General Administration	939,668
Grazing Management	2,501
Knutson/Vandenburg Funds [1]	5,232,086
Land Management Planning Activities	706,728
Landownership Management	425,873
Law Enforcement	82,321
Minerals and Geology Management	153,331
Recreation/Heritage/Wilderness	1,812,572
Road Capital Improvs & Mtce.	6,650,944
Senior Program	127,266
State and Private Forestry	176,556
Trails Capital Improvs & Mtce.	437,605
Vegetation and Watershed Management	1,306,787
Wildland Fire Management	6,586,300
Wildlife and Fisheries Habitat Management	900,848
TOTAL	38,289,760

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

Forest Receipts	Receipts to Counties	
Fiscal Year 2000 Receipts…..… 8,703,663	Fiscal Year 2000	$22,131,296
Forest Plan Est. Receipts.....…166,320,945	Forest Plan Est. Payments	$ 41,579,414
Forest Plan estimated receipts and payments are inflated to represent 2000 dollars.	**County Breakdown**	
	Clackamas	$11,650
	Douglas	$684,361
	Jefferson	$8,492
	Lane	$13,266,409

	Linn	$6,314,086
	Marion	$1,846,298

Implementation Monitoring

MQ 1 could be paraphrased, "Did we do what we said we were going to do?" This is the definition of implementation monitoring and the focus of many of the monitoring activities that occur on the Forest. Various levels of interdisciplinary monitoring reviews were carried out in 1999 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.

CONTENTS

IMPLEMENTATION MONITORING SUMMARY FINDINGS

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

Standards & Guidelines

Monitoring Question 1: Standards & Guidelines

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

A Forest Supervisor monitoring team visited several projects in 2000. The results and findings of each monitoring trip were documented and used to generate communication between district and forest personnel as well as contribute to the overall evaluation of the Forest Plan. Very often these trips also result in recommendations to the Supervisor's Office (SO) for changes or clarification to the Forest Plan standard and guidelines. The projects to be monitored may be from any resource program area. Criteria for projects are those planned under the current Forest Plan as amended by the NWFP standards and guidelines and those with a substantial amount of on-the-ground work accomplished.

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

Forest Plan Standards and Guidelines, Northwest Forest Plan direction, and overall consistency of projects to the general goals and objectives of the Forest Plan were reviewed. The documentation (NEPA analysis, decision documents, prescriptions) and as well as the on the ground results were checked for compliance with the Forest Plan.

The monitoring team consisted of the Forest Supervisor or Deputy Forest Supervisor, SO Staff Officers, the Forest Interdisciplinary Team Leader, SO technical staff, District Rangers, and District staff. In addition to the Forest Service personnel, other interested publics participate in these monitoring reviews.

PROJECTS MONITORED IN 2000

Ranger District	Activity Monitored
Blue River	Road Obliteration
Detroit	Scout Camp Salvage Timber sale, focus on fuels reduction
McKenzie	Road Decommissioning
Middle Fork	Finberry Timber Sale, focus on fuels reduction
Sweet Home	Emergency Relief Federally Owned (ERFO) Project

The results and findings of implementation monitoring reviews are summarized below. The follow-up actions based on the evaluation of these results are included in the section, FY00 Evaluation and Follow-up Actions.

I. Forest Supervisor Reviews

Road obliteration on Blue River consisted of reconstructing and stabilizing portions of road 1516, 1516-668, and 1516-669 and obliterating road 1509-510. The project was documented in a Decision Memo and categorically excluded from documentation in an Environmental Assessment.

Specific findings included:

- The objective of eliminating or reducing the potential for future road failures was met.
- No significant impacts occurred from implementing this project on steep slopes or soils classified as severely erosive. These extraordinary circumstances, however, should have been identified in the Decision Memo.
- The Decision memo tiered to the Access and Travel Management Plan and Watershed Analysis.
- Given the length and scope of the project, an Environmental Assessment should have been prepared.
- The Decision Memo generally addressed all Threatened, Endangered, and Sensitive species and specifically the newly listed Bull Trout and Spring Chinook fish species. Implementation dates were met. The Decision Memo also did a good job incorporating Botanist and Biologist input.
- Some but not all of the Aquatic Conservation Strategy Objectives were addressed in the Decision Memo.

This project was a great example of a site "healing" and returning to a normal functioning condition after road obliteration.

Scout Camp Salvage Timber Sale, located at an active Boy Scout Camp, was a second entry activity to remove remaining dead and dying trees from a 1989-1992 spruce budworm infestation and improve the overall vigor of the remaining stand. The first entry logged the most severely defoliated trees in 1992. Other vigor improvement activities planned included scarifying compacted ground, replanting with spruce budworm resistant species, and aerial fertilizing the site. All activities implemented on this special use site were covered with a Decision Memo.

Specific findings included:

- Because of safety reasons no trees were left in camping areas to meet the down woody debris; however, sufficient numbers existed in the remaining portion of the sale to easily meet the down woody debris requirement.

- Skidding operations did a good job of avoiding impacts to wet areas and red legged frog habitat. Site-specific prescriptions, however, may cause some of the wet areas to dry out too early in the year for red legged frogs to use them. Though red legged frogs were not found during the pre-disturbance surveys, these wet areas are considered to be potential habitat for frogs.

- Large hazard trees were topped to eliminate hazards and also provided a good distribution of "bat friendly" habitat.

- Because of the heavy use by the scouts in the area, the standard for soil compaction is being exceeded. Specific efforts are underway to reduce the degradation. There is some question, however, as to whether the site will ever meet the disturbance guideline.

- Implementation of the activities at this site has met desired objectives but a master plan needs to be developed for this site.

Road decommissioning at McKenzie consisted of obliterating 4.5 miles of road, storing 4.6 miles of road not currently needed and reconstructing 11.8 miles of road to improve its resistance to intense storm events.

Specific findings included:

- The EA requirements were met in areas including seeding with native seed mix, water barring stored roads, implementing noxious weed prevention measures, allowing sufficient space for dispersed camp sites, procedures related specifically to the road obliteration, and appropriate waste site locations.

- The Decision Notice addressed some of the 10 Aquatic Conservation Strategy Objectives. All were addressed, however, in the Analysis file. A description of mitigation measures, and any monitoring requirements should be included in the Decision Notice.

Finberry Timber Sale the Middle Fork proposed to construct 1.8 miles of permanent road, 1.5 miles of temporary road, regeneration harvest approximately 6.4 MMBF and thin approximately 2.6 MMBF. Other proposed activities included slash burning, hand

planting, fertilization, tree pruning, snag creation, and grapple piling. The monitoring group decided to focus on hazard abatement in the treated stands.

Specific findings included:

- The overall objective for reserve trees was met.
- Burning reduced the 0 – 3 inch fuels to Forest Plan levels and overall retained existing duff. Some loss of duff must be expected with the reduction of 0 – 3 inch fuels.
- Slash was burned while protecting residual trees.
- Overall fuel loading on one unit was 15 tons per acre, exceeding the Forest standard of 7-11 tons per acre. This level was exceeded because hand-piling was determined to be economically infeasible for further reduction.
- The DN required the ripping and seeding of landings but the entire temporary road into the unit should be ripped and seeded.
- The DN needs to address all nine Aquatic Conservation Strategy Objectives.
- Documents showed good interdisciplinary work.

An ERFO Project (projects completed with national funding to repair flood damaged roads) on the Sweet Home Ranger District re-established access to 700 acres of National Forest land lost by a road failure that occurred during the February storms of 1996. Access was re-established by using an alternate route to the area and not repairing the site of the failure.

Specific findings included:

- EA requirements were met by seeding the road failure with native seed mix, channeling water back to its original channel at the site of the road failure.
- No new road construction occurred. Some road reconstruction of an old spur was completed to EA requirements.
- The analysis and documentation did a very good job of tiering to other plans, considering all connected actions, and supporting the decision to relocate access instead of repairing the road failure.
- The DN needs to address all of the Aquatic Conservation Strategy Objectives.

I. District Ranger Reviews

In addition to the Forest supervisor monitoring reviews described in the previous section, one other Forest-level implementation monitoring review was done in FY00 on the Sweet Home Ranger District.

PROJECTS MONITORED BY DISTRICT PERSONNEL IN 2000

Ranger District	Activity Monitored
Sweet Home	Seven Fly Thinning project

Seven Fly Thinning project on the Sweet Home Ranger District was monitored to review completed harvest prescriptions and determine applicability toward predicted future thinning timber sales. Also reviewed was adherence to the EA and Forest Plan Standard and Guidelines.

The district visited three units each with a different thinning prescription (variable thin, light thin, and a heavy thin). Overall these units met the Forest Plan Standards and Guidelines and followed the Sevenmile EA.

Northwest Forest Plan Monitoring on the Willamette

The 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 draw attention to needed clarification or resolution.

CONTENTS

The province monitoring process consists of a set of 90 questions designed to assess whether the project met, failed to meet, exceeded, was not capable of meeting or if the question was not applicable for that project. The methods for determining compliance are visual inspections of on-site conditions, discussion with district staff that designed the project, and a review of applicable documentation such as environmental assessments, LSR assessments and watershed analyses.

NORTHWEST FOREST PLAN SUMMARY FINDINGS

Monitoring Question		Monitoring Activities	Monitoring Results	Supplemental Information
Northwest Forest Plan Monitoring				
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?

For FY00, watersheds across the Willamette Province were randomly selected. Each watershed also needed to meet the criteria of at least one third or more on public lands, one third or more within NWFP boundaries, and less than two thirds wilderness or National Parks. The Winberry watershed on the Middle Fork Ranger District was the only watershed chosen on the Willamette. Numerous questions were prepared and answered prior to on-the-ground monitoring. The questions revolved around land allocations and habitat in the watershed, activities and/or uses present in the watershed, and completed analyses.

Winberry Creek Watershed monitoring reviewed four projects in the area. First area was Winberry Campground adjacent to Brush Creek. Existing stream structures remain in place and stream banks appeared to be stable with established vegetation. The campground was in good condition. The second area was a road repair project where heavy rains caused a slide. The bare soil at the site has been revegetated and the site stabilized. The third area was a trailhead parking area close to an adjacent stream where visitors may just walk to the stream. The District will monitor the use of this site for any adverse effects to the riparian area. The final area was an instream project where boulders and logs were added to the stream to trap desirable cobble and lower stream temperatures. The project was consistent with recommendations in the Watershed Analysis.

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 FY00 no new roads were constructed in key watersheds. Upper McKenzie and North Fork of the Middle Fork key watersheds collectively decommissioned more than 18 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	1.10	-0.69
Upper McKenzie	1.12	8.81	-7.69
South Fork McKenzie	0.00	16.12	-16.12
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

In March 2001, the Forest Interdisciplinary Team met to review and evaluate the Forest Plan monitoring results of FY00. 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.

CONTENTS

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 have not yet been certified as reforested as required by the National Forest Management Act. The 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 should 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.

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.

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.

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. Over the past ten years, there has been progress in gathering data and developing models that could be used to help answer the question, but there is still no resolution of the underlying problem, the lack of a defined desired condition. The Northwest Forest Plan amendment in 1994 dramatically changed the proposed network of late successional and old growth stands, but questions still remain regarding an "ecologically sound distribution" of seral stages and species distributions across the Forest. 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 difficultly 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.

Although these actions will not directly answer many of the difficult questions posed in MQ 40, the hope is that by gathering basic information about late successional and old growth on the Forest, it will help frame the issues of biological diversity and provide a basis for addressing these issues in upcoming province or Forest

.

Accomplishments

The following table compares the actual accomplishment of selected Forest Plan objectives during the fiscal year 2000 (FY00), October 1999 through September 2000) with the predictions in the Forest Plan (Chapter IV, pages IV-10 to IV-12). Also shown are the cumulative outputs and accomplishments since the Plan was implemented. The cumulative results are expressed as average annual. This provides the closest comparison to the Forest Plan averages, which are based on a 10-year planning period.

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

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

SUMMARY OF PROGRAM ACCOMPLISHMENTS

Output or Activity	Projected Forest Plan Level	FY00 Accomplishment		Cummulative Avg. Accomplishment	
	Units	*Units*	*%*	*Units*	*%*
RECREATION AND WILDERNESS					
Developed Recreation	2,056.0	*Data unavailable. The database reporting recreation visitor days is currently in transition to a new system. New recreation data should be available in 2002.*			
Nonwilderness Dispersed Recreation	1,770.0				
Wilderness Recreation Use (MRVDs)	342.0				
Trail Construction (MRVDs)	6.0	0.0	0%	2.7	45%
Trail Reconstruction (MRVDs)	72.0	3.0	4%	28.1	39%
Developed Recreation Construction (PAOT)	327.0	50.0	15%	97.7	30%
Developed Recreation Reconstruction (PAOT)	844.0	135.0	16%	329.0	39%
TIMBER MANGEMENT					
Timber Sale Program	136.0	2.0	1%	70.2	52%
Timber Harvest Treatments					
Regeneration Harvest (acres)	3,144.0	231.0	7%	1,100.8	35%
Commercial Thin Thins (acres)	2,808.0	418.0	15%	1,570.2	56%
Timber Stand Improvement (acres)	18,100.0	7,825.0	43%	10,200.5	56%
Reforestation (acres)	3,144.0	1,276.0	41%	3,232.3	103%
Fuel or slash Treatment (acres)	3,144.0	1,083.0	34%	2,006.8	64%
ROAD MANAGEMENT					
Road Construction (miles)	40.0	0.6	2%	6.2	16%
Road Reconstruction (miles)	174.0	80.6	46%	107.9	62%
Roads Closed (miles)	890.0	710.0	80%	761.3	86%
Roads Suitable for Passenger Car (miles)	1,580.0	1,577.0	100%	1,592.1	101%
Roads Suitable for High Clearance (miles)	4,530.0	4,077.0	90%	4,056.9	90%
FISH /WATER /WILDLIFE/ LIVESTOCK					
Watershed Improvement (acres)	533.0	38.0	7%	715.4	134%
Anadromous Fish Habitat Improvements (miles)	6.0	11.0	183%	6.6	--
Resident Fish Habitat Improvements (miles)	5.8	2.0	34%	3.8	66%
Wildlife Habitat Improvements (structures)	451.0	312.0	69%	509.6	113%
Livestock Grazing (AUMs)	200.0	0.0	0%	139.2	70%

[1] Based on a cumulative average over ten years.

Status of FY00 Recommended Actions

In 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.

CONTENTS

Soils – Mass movement

The Forest recommends, with adequate funding, a Forestwide inventory of landslides, their locations, and mechanisms.

The Forest recognized in FY99 the need to continue work in monitoring flood effects on the Forest similar to that completed subsequent to the floods of 1996. Fundamental to our increased understanding is a landslide inventory that would be used as a baseline of information to track new landslides, their locations, and mechanisms. The Forest also recognized that funding would be required to complete such an inventory.

Status:

Due to budgetary limitations an inventory of landslides could not be completed

Fish Populations

Focusing on a limited area, the SO staff should investigate the means to accurately obtain smolt numbers, possibly through partnerships, or develop a monitoring question that is possible to answer and still portray a reasonably accurate picture of the effects of land management activities on this fish population.

Monitoring question 14 monitors the population of Management Indicator Species and Threatened Species, specifically spring Chinook salmon and winter steelhead. The question relies on the trend of smolt numbers to adult escapement. Smolt numbers, however, have not been monitored because of the difficulty and expense of obtaining accurate fish counts.

Status:

The Forest has not improved the means to obtain accurate smolt counts. Smolt counts require handling of the fish, which is stressful and can cause mortality. Species which require smolt counts are now federally listed, complicating the case of obtaining such information. A new queston to monitor the effects of land management on biological fish production has not yet been developed.

Dispersed Recreation

To increase our information base, the Forest will participate in a national recreation use project, a four-year sampling program to gather baseline data on visits, visitor characteristics, and will include visitor surveys.

Recreation use on the Forest does not show signs of slowing and in places has increased substantially causing environmental damage. Unfortunately, limited baseline data and a structured monitoring program hinder evaluation of changes in recreation use and recommendations for improvement. An area of great need is quantifying dispersed recreation.

Status:

Forest recreation use (including dispersed use) will be systematically sampled in 2002 (and every five years thereafter) as part of a national recreation use monitoring (NRUM) project. Information from this effort (early 2003) will provide Forest-level baseline dispersed recreation use numbers against which future use can be assessed and use trends determined. Accurate measures of site-by-site use and associated resource impacts will continue to be problematic and largely anecdotal in nature.

Riparian Reserves

Forest recommends a one-year continuation of this monitoring. This monitoring should focus on Class III streams, possible implementation of lopsided buffers, and the integration of habitat connectivity into riparian reserve prescriptions.

In FY98, the Forest IDT recommended site specific monitoring of riparian reserves, especially along Class III and IV streams. The result from this monitoring was reported in FY99 and again summarized in this report under "Biological Resources" Monitoring questions 28 and 31. This recommendation is an extension of the previous recommendation.

Status:

No additional monitoring was completed at the Forest level specifically related to Class III streams, possible implementation of lopsided buffers, nor integration of habitat connectivity into riparian reserve prescriptions.

Special Habitats

Forest recommends a continuation of the special habitat monitoring in FY00. Emphasis should be placed on methods to strengthen monitoring of prescriptions and activities surrounding special habitat and discuss methods to prioritize monitoring projects.

In FY98, the Forest IDT recommended increased monitoring of special habitat prescriptions. The results from this monitoring were reported in FY99 and continued monitoring the following year was recommended.

Status:

In FY00 site visits were to mesic or dry meadows where the forest botanist and ecologist accompanied district specialists to visit special habitats on the north end of the Forest. These visits were not where timber harvest included special habitat prescriptions as in the past but to evaluate sites for the potential need for active management. Monitoring results from FY99 and FY00 monitoring suggest that the Forest Plan monitoring question needs to be revised to emphasize restoration rather than simple protection from harvest impacts. The site visits generated a number of issues and a recommendation to develop a meadow restoration matrix to use as a starting point for collaboration with wildlife biologists and wildlife ecologists on wildlife and plant special habitat restoration.

Forest Plan Amendments

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

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

We frequently learn about the need for amendments through monitoring.

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

The following summarizes the amendments to the Forest Plan:

FOREST PLAN AMENDMENTS

Amendment	Implementation Date	Type of Change
1	10/30/1990	Vacates Regional Guide for spotted owls. (Decision by Assistant Secretary of Agriculture John Evans; Federal Register Notice published 10/03/1990.)
2	12/10/1990	Allows snowmobile use in certain parts of Santiam Pass area.
3	08/05/1991	Corrects errors and omissions in Forest Plan (errata).
4	08/05/1991	Requires roadside brush management methods be consistent with scenic resource needs and allows machine mowing.
5	08/05/1991	Corrects mapping error in boundary of Diamond Peak Wilderness.
6	08/05/1991	Changes and clarifies direction about retention of downed wood to better meet functional and operational objectives.
7	03/22/1992	Established Management Plan for the McKenzie Wild and Scenic River; places the river in a new Management Area(MA), MA-6d; and establishes a new Special Interest Area Carmen Reservoir.
8	03/22/1992	Establishes Management Plan for the North Fork of the Middle Fork of the Willamette River Wild and Scenic River; places the river in a new Management Area, MA-6e; and changes the scenic allocation of about 29,000 acres of viewshed near the river from Modification Middleground to Partial Retention Middleground.

FOREST PLAN AMENDMENTS, continued

Amendment	Implementation Date	Type of Change
9	02/20/1992	Changes official Forest Plan Map from manually drafted management areas on mylar USGS quadrangles to a digital version on Forest's Geographic Information System.
10	03/14/1992	Changes about 67 acres in Spring Butte area (Rigdon) from General Forest (MA-14a) to Special Habitat Area (MA-9d).
11	03/14/1992	Changes about 65 acres in Beaver Marsh area (Rigdon) from Special Interest Area (MA-5a) to Special Habitat Area (MA-9d).
12	04/04/1992	Adds Habitat Conservation Areas (HCAs) for northern spotted owl and adopts the standards and guidelines recommended by the interagency Scientific Committee. (Decision by Assistant Secretary of Agriculture James R. Moseley.)
13	07/29/1992	Makes initial allocation of about 640 acres of land acquired by land exchange not far from the South Pyramid area on the Sweet Home Ranger District to General Forest (MA-14a).
14	07/29/1992	Changes about 51 acres in the Long Ranch area, Sweet Home Ranger District, from Dispersed Recreation - lakeside Setting (MA-10f) to Special Habitat Area (MA-9d).
15	07/06/1992	Adds standard and guideline MA-1-20a to clarify that the visual quality objective for wilderness is Preservation, and deletes FW-059.
16	07/29/1992	Establishes new Management Area, Integrated Research Site (MA-3b) to support research on long-term site productivity on about 1,500 acres on Blue River Ranger District, and moves a pileated woodpecker site within the area. Also, relabels the H.J. Andrews Experimental Forest as MA-3a.
17	02/17/1993	Extends deferment of timber harvest and road construction in the Opal Creek area for up to an additional two years to allow time for resolution of various issues surrounding management of the area, including decision about how the Forest Service will meet Recovery Plan objectives for the northern spotted owl.
18	02/17/1993	Clarifies direction in Forest-wide standard and guideline FW-018 to provide more site-specific and objectives-based analysis for placement and remedial actions associated with dispersed campsites.
19	06/02/1993	Relocates about 1,100 feet of Bornite Brook and 900 feet of Vanishing Creek, and by so doing interchanges the actual location of affected lands between MA-14a and MA-15. Upon reclamation of the bornite project's tailings impoundment, creates about 5 acres of wetlands converting that acreage from MA-14a to MA-15.
20	05/17/1993	Adds S&G to require an integrated management approach for weed management. After identification, noxious weed sites should be analyzed for the most effective control methods, based on site-specific conditions.

FOREST PLAN AMENDMENTS, continued

Amendment	Implementation Date	Type of Change
21	06/23/1993	Makes initial allocation of 123 acres acquired through land exchange on the Blue River RD, 59 acres allocated to MA-5A (Gold Hill SIA); 64 acres allocated to MA-11d near Blue River Reservoir.
22	11/24/1993	Allows temporary reduction in availability of elk cover in Mill Creek and Anderson Creek High Emphasis areas (McKenzie RD) to allow stand management practices which will accelerate the development of high quality cover.
23	01/05/1994	Establishes the Forest's Special Forest Products Management Plan, including implementing direction through several new Forest-wide S&Gs.
	05/20/1994	Establishes land allocations and S&Gs as described in the Record of Decision for Amendments to the Forest Service and Bureau of Land Management management plans.
24	09/29/1994	Changes 1/2-acre in the Westfir area from Scenic-Partial Retention (MA-11c) to Special Use-Permits (MA-13a).
25	05/26/1995	Modifies the S&Gs for riparian reserves, wildlife tree provisions, and fueling loadings in MA-3b and AMA Long-Term Ecosystem Productivity project. This was a nonsignificant amendment to the Forest Plan.
26	05/17/1995	Modifies the S&Gs for visual objectives, big-game management, and the retention of large woody material. This was a nonsignificant amendment to the Forest Plan.
27	06/22/1995	Designates approximately 110 acres as MA-9d, Special Wildlife Habitat, in the Heart Planning Area on the Oakridge RD.
28	11/29/1995	Designates the electronic site as a Special-Use-Permits area (MA-13a). Prior to this decision the site was located within Scenic-Modification Middleground (MA-11a). For specifics see Santiam Cellular Environmental Assessment and Decision Notice.
29	01/12/1996	Expand the current Special-Use-Permit area (MA-12b) from 732 acres to 802 acres. Master Plan provides for improvements to the alpine ski facility, as well as adding other year-round recreational opportunities. For specifics see the Hoodoo Master Plan FSEIS and ROD.
30	04/17/1996	Within the Browder Cat timber sale boundary, decreases riparian reserve widths to 50 feet for both sides on four intermittent streams within and adjacent to harvest units and establishes riparian reserves of 175 feet for both sides on two perennial non-fish bearing streams adjacent to a proposed unit.
31	05/15/1996	Established the Rigdon Point RNA.
32	09/04/1996	Decreases the interim Riparian Reserve widths 21 acres for Class IV streams and 5 acres for Class III within the Augusta Timber Sale Planning area located in South Fork McKenzie Tier 1 Key Watershed.

FOREST PLAN AMENDMENTS, continued

Amendment	Implementation Date	Type of Change
33	01/23/1997	Assigns a management area to recently acquired land in the following way: 13 acres to McKenzie River Wild and Scenic River corridor (MA 6d), 11 acres to Scenic Partial Retention/ Middleground (MA 11c) and .25 acres to Special Interest Area (MA 5a).
34	01/23/1998	Changes approximately 1,900 acres of land from Scenic Modification/Middleground (MA 11a) to General Forest (MA 14a) and removes 275 acres of inventoried roadless area on the Middle Fork Ranger District.
35	5/17/1997	Temporarily reduced winter range cover for elk in a high elk emphasis area below the 0.5 Habitat Effectiveness rating required by S&G FW-149 in the Robinson-Scott project area.
36	07/08/1997	Establishes new S&Gs for four sensitive plant species; Gorman's aster, *Aster gormanii;* Common adders tongue, *Ophioglossum pusillum;* selected populations of tall bugbane, *Cimicifuga elata;* and selected populations of Umpqua swertia, *Fraseran umpquaensis.*
37	05/19/1997	Assigns initial allocations for about 2,180 acres of acquired lands located on Detroit and Sweet Home Ranger Districts.
38	01/21/1998	Changes management emphasis to provide for a proposed action to build a replica fire lookout station museum on the Lowell Ranger District.
39	06/01/1998	Establishes two new communication sites on the Sweet Home Ranger District. The development involves less than 1/4 acre.
40	07/13/1998	Establishes the 2,877 acre Torrey-Charlton Research Natural Area (RNA). The RNA spans over both the Willamette and Deschutes National Forests.
41	08/24/1998	Establishes two new communication sites on the Detroit Ranger District. The development involves less than 1/4 acre.
42	08/30/1999	Allows the Forest to continue a program of noxious weed treatment based on the type of infection.
43	02/15/2000	Changes approximately 1,060 acres of MA 14a (General Forest) to MA 9b (Pileated Woodpecker habitat). Also a slight modification of MA 10e (Dispersed recreation) with no net change in acreage.

Forest Plan Updates

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

There have been eight updates to the Forest Plan:

FOREST PLAN UPDATES

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
5	12/15/1995	Updates pertaining to the role of natural fires in Wilderness. Insures direction for prescribed natural fire is consistent with Wilderness policy through adjustments to the Forest Management Goals, Desired Future Condition, Forest-wide S&Gs, Management Area prescriptions, and Monitoring Questions.
6	01/23/1997	Updates to the Forest Plan Map of Record with changes to Swift Creek (MA 10f); corrections to 100 acre Late Successional Reserves (MA 16b), an AMA designation correction (MA 11f to MA 17), and a Hoodoo Master Plan boundary correction (MA 12b).
7	08/31/1998	Updates the Forest Plan Map of Record with refinements to the LSR222 boundary, establishment of MA 13B for the Middle Fork Ranger Station, the incorporation of Pileated Woodpecker and Marten areas, changes to 7 owl cores on the McKenzie RD and one on the Lowell Ranger District, the location of the already established Huckleberry Lookout (MA 13b) onto the Map of Record, the assignment of management allocations to newly acquired private land, refinements to the boundary of the McKenzie work center.
8	04/03/2000	Updates the Forest Plan Map of Record with RNA boundary refinements, the creation of Ma 1 for Opal Creek Wilderness and MA 2C for Opal Creek Scenic Area; an update that finalizes the boundary of the North Fork of the Middle Fork Wild and Scenic River, small refinements of the Forestwide wilderness boundaries, an LMP layer adjustment to reflect private land changes, adjustments to the boundary of Hills Creek LSR to allow scenic enhancement activities, and the creation of a MA 6b for the Elkhorn Wild and Scenic River.

List of Contributors

FHe principal contributors to the 2000 Monitoring and Evaluation Report are listed below. Please contact one of us if you have questions or want further information abut the reported results.

Deigh Bates	*Hydrologist*
Tom Hayward	*Acting Assistant Timber Staff*
Ken Byford	*Wildlife Biologist*
Jessica Dole	*Landscape Architect*
Randy Dunbar	*Recreation Staff / Wilderness*
Jennifer Lippert	*Botanist*
Neal Forrester	*Interdiscplinary Team Leader*
Mike Harvey	*Recreation*
Charlene Johnson	*Amendments and Updates*
Phil Jaspers	*Silviculturist*
Cathy Lindberg	*Archeologist*
Cindy McCain	*Ecologist*
Phil McCulley	*Fire and Fuels*
Allison Reger	*Analyst (Economics)*
Patti Rodgers	*Public Affairs Specialist*
Amy Unthank	*Fisheries Biologist*
Palmer Utterback	*Civil Engineering*
Della Webb	*Trails Coordinator*

Acknowledgments

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